MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

SAN DIEGO COUNTY, CA

Participating Jurisdictions:

- Carlsbad
- Chula Vista
- Coronado
- Del Mar
- El Cajon
- Encinitas
- Escondido
- Imperial Beach
- La Mesa
- Lemon Grove
- National City
- Oceanside
- Poway
- San Diego
- San Marcos
- Santee
- Solana Beach
- Vista
- County of San Diego

Prepared for:

OFFICE OF EMERGENCY SERVICES OES COUNTY OF SAN DIEGO

UDC UNIFIED DISASTER COUNCIL

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FINAL

SAN DIEGO COUNTY MULTI-JURISDICTION HAZARD MITIGATION PLAN SAN DIEGO COUNTY, CALIFORNIA

PREPARED FOR:

COUNTY OF SAN DIEGO

URS PROJECT NO. 27653042.00500

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Appendices

Appendix A HMWG/Public Meeting Information

Appendix B Data Matrix

Attachment

Attachment A Human Caused Hazards (Separately Bound)

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AIR	Airport facilities
AMSA	Association of Metropolitan Sewerage Agencies
APN	Assessor Parcel Number
ATAC	Anti-Terrorism Advisory Council
BRDG	Bridges
BRS	Base Release Scenario
BUS	Bus facilities
Cal-ARP	California Accidental Release Program
CAMEO	Computer-Aided Management of Emergency Operations
Carlsbad	City of Carlsbad
CAS	
CCR	California Code of Regulations
CCTV	Closed Circuit Television
CERT	Community Emergency Response Team
CGC	California Government Code
Chula Vista	City of Chula Vista
CEQA	California Environmental Quality Act
COM	Communication facilities and utilities
Coronado	City of Coronado
CUPA	Certified Unified Program Agency
DEH	Department of Environmental Health
Del Mar	City of Del Mar
El Cajon	City of El Cajon
ELEC	Electric Power facility
EMER	Emergency Centers, Fire Stations and Police Stations
Encinitas	City of Encinitas
EOC	Emergency Operations Center
Escondido	City of Escondido
GOVT	Government Office/Civic Center
HIRT	Hazardous Incident Response Team
HMD	Hazardous Materials Division
GIS	Geographic Information Systems
HMMU	Hazardous Materials Management Unit
HMWG	Hazard Mitigation Working Group
HOSP	Hospitals/Care facilities
HWY	Highway
IDLH	Immediately Dangerous to Life and Health
Imperial Beach	City of Imperial Beach
INFR	Kilometers of Infrastructure. Includes:
JPA	
La Mesa	City of La Mesa
Lemon Grove	City of Lemon Grove
LOC	Level of Concern
LPG	Local Planning Group
MMST	Metropolitan Medical Strike Team

National City	City of National City
NOAA	National Oceanic and Atmospheric Administration
OCA	Offsite Consequence Analysis
Oceanside	City of Oceanside
og	Oil/Gas Pipelines
PAG	Protective Action Guidelines
Plan	San Diego Multi-Jurisdictional Multi-Hazard Mitigation Plan
PORT	Port facilities
POT	Potable and Waste Water facilities
Poway	City of Poway
PSI	pound per square inch
RAIL	Rail facilities
RMP	Risk Management Program
RS	Regulated Substance
RTR	Railroad Tracks
SANDAG	San Diego Association of Governments
San Diego	City of San Diego
San Marcos	City of San Marcos
SCADA	Supervisory Control and Data Acquisition
SCH	Schools
SDUASS	San Diego Urban Area Security Strategy
SERP	Site Emergency Response Plans
Solana Beach	City of Solana Beach
SONGS	San Onofre Nuclear Generating Station
TAG	Target Assessment Group
TQ	Threshold Quantity
UDC	Unified Disaster Council
Unincorporated County	County of San Diego
USEPA	United States Environmental Protection Agency
Vista	City of Vista

SECTION 1 INTRODUCTION

Across the United States, natural and manmade disasters have led to increasing levels of death, injury, property damage, and interruption of business and government services. The impact on families and individuals can be immense and damages to businesses can result in regional economic consequences. The time, money and effort to respond to and recover from these disasters divert public resources and attention from other important programs and problems. With five presidential disaster declarations, three fire-suppression authorizations from the Federal Emergency Management Agency (FEMA) and one disaster-related Act of Congress since 1992, San Diego County, California recognizes the consequences of disasters and the need to reduce the impacts of natural and manmade hazards. The elected and appointed officials of the County also know that with careful selection, mitigation actions in the form of projects and programs can become long-term, cost effective means for reducing the impact of natural and manmade hazards.

This *Multi-Hazard Mitigation Plan for San Diego County, California (*the Plan*)*, was prepared with input from county residents, responsible officials, URS Corporation consultants, and with the support of the State of California Office of Emergency Services and Security (COESS) and the Federal Emergency Management Agency (FEMA). The process to develop the Plan included nearly a year of coordination with representatives from all of the jurisdictions in the region. The Plan will guide the County toward greater disaster resistance in harmony with the character and needs of the community.

This section of the Plan includes an overview of the Plan, a discussion of the Plan's purpose and authority, and a description of the 18 incorporated cities and the unincorporated County within the San Diego region.

1.1 PLAN DESCRIPTION/PURPOSE OF PLAN

Federal legislation has historically provided funding for disaster relief, recovery, and some hazard mitigation planning. The Disaster Mitigation Act of 2000 (DMA 2000) is the latest legislation to improve this planning process (Public Law 106-390). The new legislation reinforces the importance of mitigation planning and emphasizes planning for disasters before they occur. As such, DMA 2000 establishes a pre-disaster hazard mitigation program and new requirements for the national post-disaster Hazard Mitigation Grant Program (HMGP).

Section 322 of DMA 2000 specifically addresses mitigation planning at the state and local levels. It identifies new requirements that allow HMGP funds to be used for planning activities, and increases the amount of HMGP funds available to states that have developed a comprehensive, enhanced mitigation plan prior to a disaster. States and communities must have an approved mitigation plan in place prior to receiving post-disaster HMGP funds. Local and tribal mitigation plans must demonstrate that their proposed mitigation measures are based on a sound planning process that accounts for the risk to and the capabilities of the individual communities.

State governments have certain responsibilities for implementing Section 322, including:

- Preparing and submitting a standard or enhanced state mitigation plan;

- Reviewing and updating the state mitigation plan every three years;
- Providing technical assistance and training to local governments to assist them in applying for HMGP grants and in developing local mitigation plans; and
- Reviewing and approving local plans if the state is designated a managing state and has an approved enhanced plan.

DMA 2000 is intended to facilitate cooperation between state and local authorities, prompting them to work together. It encourages and rewards local and state pre-disaster planning and promotes sustainability as a strategy for disaster resistance. This enhanced planning network is intended to enable local and state governments to articulate accurate needs for mitigation, resulting in faster allocation of funding and more effective risk reduction projects.

FEMA prepared an Interim Final Rule, published in the Federal Register on February 26, 2002 (44 CFR Parts 201 and 206), which establishes planning and funding criteria for states and local communities.

The Plan has been prepared to meet FEMA and COESS requirements thus making the County eligible for funding and technical assistance from state and federal hazard mitigation programs.

1.2 PLAN PURPOSE AND AUTHORITY

In the early 1960s, the incorporated cities and the County of San Diego formed a Joint Powers Agreement which established the Unified San Diego County Emergency Services Organization (USDCESO) and the Unified Disaster Council (UDC) as the policy making group. The UDC, the San Diego County Board of Supervisors and City Councils from each participating municipality are required to adopt the Plan prior to its submittal to COESS and FEMA for final approval.

The Plan is intended to serve many purposes, including:

- *Enhance Public Awareness and Understanding* – to help residents of the County better understand the natural and manmade hazards that threaten public health, safety, and welfare; economic vitality; and the operational capability of important institutions;
- *Create a Decision Tool for Management* – to provide information that managers and leaders of local government, business and industry, community associations, and other key institutions and organizations need to take action to address vulnerabilities to future disasters;
- *Promote Compliance with State and Federal Program Requirements* – to insure that San Diego County and its incorporated cities can take full advantage of state and federal grant programs, policies, and regulations that encourage or mandate that local governments develop comprehensive hazard mitigation plans;
- *Enhance Local Policies for Hazard Mitigation Capability* – to provide the policy basis for mitigation actions that should be promulgated by participating jurisdictions to create a more disaster-resistant future; and

- Provide *Inter-Jurisdictional Coordination of Mitigation-Related Programming* – to ensure that proposals for mitigation initiatives are reviewed and coordinated among the participating jurisdictions within the County.
- Achieve *Regulatory Compliance* – To qualify for certain forms of federal aid for pre- and post-disaster funding, local jurisdictions must comply with the federal DMA 2000 and its implementing regulations (44 CFR Section 201.6). DMA 2000 intends for hazard mitigation plans to remain relevant and current. Therefore, it requires that State hazard mitigation plans are updated every three years and local plans, including San Diego County's, every five years. This means that the Hazard Mitigation Plan for San Diego County uses a "five-year planning horizon". It is designed to carry the County through the next five years, after which its assumptions, goals, and objectives will be revisited and the plan resubmitted for approval.

1.3 COMMUNITY DESCRIPTION

1.3.1 The County of San Diego

San Diego County, one of 58 counties in the State of California, was established on February 18, 1850, just after California became the 31st state. The County stretches 65 miles from north to south, and 86 miles from east to west, covering 4,261 square miles. Elevation ranges from sea level to about 6,500 feet. Orange and Riverside Counties border it to the north, the agricultural communities of Imperial County to the east, the Pacific Ocean to the west, and the State of Baja California, Mexico to the south. Geographically, the County is on the same approximate latitude as Dallas, Texas and Charleston, South Carolina.

San Diego County is comprised of 18 incorporated cities and 17 unincorporated communities. The county's total population in 2000 was approximately 2.8 million with a median age of 33 years (Census 2000). San Diego is the third most populous county in the state.

The following subsections provide an overview of the *Economy, Physical Features, Infrastructure,* and *Jurisdictional Summaries* for the County of San Diego.

1.3.1.1 Economy

San Diego offers a vibrant and diverse economy along with a strong and committed public/private partnership of local government and businesses dedicated to the creation and retention of quality jobs for its residents. Although slowed by the recession and defense cuts in the late 1980's and early 1990's, the business climate continues to thrive due to the diversification of valuable assets such as world class research institutions; proximity to Mexico and the Pacific Rim; a well educated, highly productive work force; and an unmatched entrepreneurial spirit.

According to the San Diego Regional Chamber of Commerce, San Diego's Gross Regional Product (GRP)–an estimate of the total output of goods and services in the county–was estimated to reach $126.2 billion in 2002, and was forecast to increase 5.9% to $133.6 billion in 2003. Adjusted for inflation, the "real" increase was expected to be 3.3%. Due to rising housing, gas and energy prices, and the forecast for

the consumer price index showed inflation increasing slightly to 3.8% in 2002. Total taxable retail sales experienced gains in 2002, with sales up more than $27 billion.

San Diego's abundant and diverse supply of labor at competitive rates is one of the area's greatest assets. As of August 2002, the total civilian labor force was estimated at 1.5 million, which includes self-employed individuals and wage and salary employment. Unemployment for 2002 was 4.3% or 63,000 persons. Since 1980, San Diego's average unemployment rates have ranked below both state and national unemployment rates. Despite the economic uncertainty the nation is facing, San Diego's average annual unemployment rate of 4.3% remains far below the state's rate of 6.3% and the national rate of 5.9%. The unemployment rate for 2003 increased only slightly to 4.4%.

There are several reasons for the strong labor supply in San Diego. The area's appealing climate and renowned quality of life are two main factors that attract a quality workforce. The excellent quality of life continues to be an important advantage for San Diego companies in attracting and retaining workers. In addition, local colleges and universities with a population of over 180,000 students, augment the region's steady influx of qualified labor. Each year San Diego's educational institutions graduate nearly 1,500 students with bachelors, masters and PhD degrees in electrical engineering, computer science, information systems, mechanical engineering and electronic technology. Over 2,500 students annually receive advanced degrees in business administration. There is also a pool of qualified workers from San Diego's business schools, which annually graduate over 1,000 students with administrative and data processing skills.

1.3.1.2 Employment

San Diego's diverse and thriving high-tech industry has become the fastest growing sector of employment and a large driving force behind the region's continued economic prosperity. San Diego's high-tech industry comprises over a tenth of the region's total economic output.

San Diego boasts the third largest concentration of biotech companies in the country with an estimated 400 firms. Currently there are over 32,000 people employed in San Diego's vibrant biotech industry. From 1990 to 2000, biotech industry employment grew by 67% from 18,000 to 32,000 jobs. San Diego's Medical Device sector is the fastest growing in the U.S. with about 180 companies. San Diego boasts the highest dollar amount of National Institute for Health grants per capita in the nation. Local biotech firms produce 9% of all drug sales and revenues in the United States. San Diego-based companies currently have 25 commercial products on the market and 75 products in late-phase clinical trials. The general services industry is the second largest employment sector in the County, totaling 29.8% of the county's industry employment. This sector includes business services, San Diego's tourism industry, health services and various business services, employing 421,900 workers. Government is the fourth largest employer with 203,900 jobs accounting for 15.5% of total industry employment. The state and local government is the largest employer with 162,900 employees.

1.3.1.3 Physical Features

The physical, social and economic development of the region has been influenced by its unique geography, which encompasses over 70 miles of coastline, broad valleys, lakes, forested mountains and the desert. The county can be divided into three basic geographic areas, all generally running in the north-

south direction. The coastal plain extends from the ocean to inland areas for 20 to 25 miles. The foothills and mountains, rising in elevation to 6,500 feet, comprise the middle section of the county. The third area is the desert, extending from the mountains into Imperial County, 80 miles east of the coast. San Diegans can live in the mountains, work near the ocean, and take recreational day trips to the desert.

One of San Diego's greatest assets is its climate. With an average yearly temperature of 70 degrees, the local climate has mild winters, pleasant summers, and an abundance of sunshine and light rainfall.

San Diego County experiences climatic diversity due to its varied topography. Traveling inland, temperatures tend to be warmer in the summer and cooler in the winter. In the local mountains, the average daily highs are 77 degrees and lows are about 45 degrees. The mountains get a light snowfall several times a year. East of the mountains is the Anza Borrego Desert, where rainfall is minimal and the summers are hot. The dry, mild climate of San Diego County is conducive to productivity. Outdoor work and recreational activities are possible almost all year-round. In addition, storage and indoor work can be handled with minimum investment in heating and air conditioning.

1.3.1.4 Infrastructure

San Diego has a well-developed highway system. There are about 600 miles of state highways and 300 miles of freeways and expressways within the San Diego region. The county also encompasses more than 7,185 miles of maintained city streets and county roads. Roughly 11.6 million vehicle trips are made on the region's roadways daily, accounting for more than 68 million vehicle miles traveled daily.

Since 1980, San Diego's licensed drivers have increased 46%; likewise, auto registrations have increased 57%. Vehicle miles of travel (VMT) are up 86% since 1980. Unfortunately the increase in drivers, vehicles and VMT has not been matched by corresponding increases in freeway mileage (10%) or local street and road mileage (19%). Over the same time period, there has been a decrease in both reported fatal accidents and injury accidents.

All urbanized areas in the region and some rural areas are served by public transit. The San Diego Region is divided into two transit development boards: the San Diego Metropolitan Transit Development Board (MTDB), and the North County Transit Development Board (NCTD). San Diego Transit Corporation (SDTC), which operates transit service under MTDB, serves about two million people annually with routes that cover the cities of San Diego, Chula Vista, El Cajon, La Mesa and National City, as well as portions of San Diego County's unincorporated areas. SDTC routes also connect with other regional operators' routes. San Diego Trolley operates the light rail transit system under MTDB. The North County Transit District (NCTD) buses carry passengers in north San Diego County, including Del Mar, east to Escondido, north to Orange County and Riverside County, and north to Camp Pendleton. NCTD's bus fleet carries more than 11 million passengers every year. NCTD's bus system has 35 routes. In addition, NCTD runs special Express Buses for certain sporting and special events in San Diego.

San Diego Gas & Electric is a public utility that provides natural gas and electric service to 3 million consumers through 1.2 million electric meters and 720,000 natural gas meters in San Diego and southern Orange counties. SDG&E's service area encompasses 4,100 square miles, covering two counties and 25 cities. SDG&E is a subsidiary of Sempra Energy, a Fortune 500 energy services holding company based

in San Diego. Virtually all of the petroleum products in the region are delivered via a pipeline system operated by Kinder Morgan Energy Partners.

The Metropolitan Water District of Southern California supplies most of the water for the San Diego area. The local wholesaler is the San Diego County Water Authority (SDCWA). Each of the SDCWA's 23 member agencies is responsible for the water supply within its jurisdiction and varying rates for each of these agency areas. The 23 member agencies are comprised of six cities, four water districts, three irrigation districts, one public utility district, and one federal agency (military base). Approximately 700,000 acre-feet (AF) of water were utilized in the year 2000. Water demand is expected to increase to about 813,000 AF by 2020. Typically 75 to 95% of San Diego County's water is imported. For the year 2000, 84% of San Diego County's water was imported from the following sources; Colorado River Aqueduct (73%), State Water Project (27%), the other local water sources (16%). The Metropolitan Water District of Southern California imports Colorado River water via the two-mile Colorado River Aqueduct. Water from northern California Rivers is imported to Metropolitan Water District via the State Water Project's 444-mile California Aqueduct. Residents place the highest demand on water, consuming roughly 57% of all water in San Diego County. Industrial/Commercial is the second largest consumer of water (21%), followed by Agriculture at 16% of the total water demand.

1.3.2 Local Jurisdictions

1.3.2.1 Carlsbad (Population: 90,277)

Carlsbad is a coastal community located 35 miles north of downtown San Diego. It is bordered by Encinitas to the south, Vista and San Marcos to the east and Oceanside to the north. Carlsbad is home to world-class resorts such as the La Costa Resort and Spa and the Four Seasons Resort at Aviara, offering championship-level golf and tennis facilities. The newest addition to Carlsbad's commercial/recreational landscape is Legoland, which opened in Spring 1999. The city of Carlsbad has a strong economy, much of which has come from industrial development. Callaway Golf, Cobra Golf, ISIS Pharmaceuticals, Mallinckrodt Medical, NTN Communications and Immune Response are just a few of the local companies located in Carlsbad. The area has nine elementary schools, two junior high schools, and three high schools. The school district ranks among the best in the county. Distinguished private and parochial schools also serve Carlsbad, including the internationally renowned Army Navy Academy.

1.3.2.2 Chula Vista (Population: 174,300)

Chula Vista is home to an estimated 44% of all businesses in the South Bay Region of San Diego County. Chula Vista is the second largest municipality in San Diego County, and the 21st largest of 450 California cities. Today Chula Vista is attracting such companies as Solar Turbines and Raytheon, a $20 billion global technology firm serving the defense industry. Chula Vista ranks among the nation's top ten governments in terms of employee productivity and local debt levels.

1.3.2.3 Coronado (Population: 24,650)

Coronado is a 13.5 square mile ocean village. The military bases of the Naval Air Station North Island and Naval Amphibious Base occupy 5.3 square miles. Coronado is connected to San Diego by a 2.3-mile

bridge and to Imperial Beach (its neighbor to the south), by a six-mile scenic highway, the Silver Strand. It is primarily a bedroom community for San Diego executives, a haven for retired senior military officers and an internationally renowned tourist destination. This vibrant community welcomes more than two million visitors annually to soak up the sun and the sand while enjoying the lush surroundings and village appeal of Coronado. The city contains 14 hotels, amongst them are 3 world-class resorts including the Hotel Del Coronado and 67 highly acclaimed restaurants.

1.3.2.4 Del Mar (Population: 5,400)

Del Mar is the smallest city in the County with only 5,400 residents in the year 2000. Located 27 miles north of downtown San Diego, this coastal community is known for its affluence and comfortable standard of living. It is a beautiful wooded hillside area overlooking the ocean and has a resort-like atmosphere. The Del Mar Racetrack and Thoroughbred Club serve as Del Mar's most noted landmark. This racetrack is also the location for the annual San Diego County Fair. The City of Del Mar has 2.9 miles of shoreline that include the Del Mar City Beach and the Torrey Pines State Beach. There are two elementary schools, one junior high school and one high school in Del Mar, which is considered one of the regions best school districts.

1.3.2.5 El Cajon (Population: 96,600)

El Cajon is located 15 miles east of the City of San Diego. El Cajon is an inland valley surrounded by rolling hills and mountains. El Cajon's current population of 96,600 makes it the sixth most populated jurisdiction in the region. As one of the most eastern cities in the County, El Cajon has a warm and dry climate. El Cajon is a diverse residential, commercial, and industrial area, and serves as the main commerce center for several surrounding communities. Gillespie Field, a general aviation airport, is a major contributing factor to the city's vibrant industrial development. El Cajon includes a cross-section of housing types from lower cost mobile homes and apartments to moderately priced condominiums to higher cost single-family residences. There are 23 elementary schools, seven middle schools and four high schools.

1.3.2.6 Encinitas (Population: 62,100)

Encinitas has grown rapidly over the past 10 years, stretching into the eastern hills and now encompassing the villages of Leucadia, Cardiff-By-The-Sea, and Olivenhain. Encinitas is known as the "Flower Capital of the World" and is one of the world's major suppliers of Poinsettias. Encinitas encompasses more than six miles of coastline. Schools within these beach communities have been recognized statewide for excellence in their curriculum.

1.3.2.7 Escondido (Population: 127,800)

Escondido has a reputation as a bedroom community due to the large percentage of residents who work outside of the city. Escondido is located 30 miles north of San Diego and is approximately 18 miles inland from the coast. It is the region's fifth most populated city. More than a decade ago, the people of Escondido conceived a vision of cultural excellence. Today, the $73.4 million California Center for the Arts stands as a product of this vision. Escondido has 18 elementary schools, nine of which are parochial

schools, three middle schools and six high schools, three of which are parochial. There is a unique mix of agriculture, industrial firms, high-tech firms, recreational centers and parks, as well as residential areas. The areas largest shopping mall, the North County Fair, houses 6 major retail stores and approximately 175 smaller stores. California State University, San Marcos and Palomar Community College are located within minutes of Escondido.

1.3.2.8 Imperial Beach (Population: 29,200)

Imperial Beach claims the distinction of being the "Most Southwesterly City - in the continental United States." The City is located in the Southwest corner of San Diego County, only five miles from the Mexican Border and 15 miles from downtown San Diego. With a population of 29,200, Imperial Beach occupies an area of 4.4 square miles. Imperial Beach offers some of the least expensive housing to be found west of the I-5. It is primarily a resort/recreation community with a vast beach area as well as a 12,000-foot pier for fishing. Some describe Imperial Beach as quaint, but mostly the town has a rare innocence and a relaxed atmosphere. Looking south just across the International border, Tijuana's famous "Bullring by the Sea," the Plaza De Monumental can be seen.

1.3.2.9 La Mesa (Population: 59,200)

La Mesa is centrally located 12 miles east of downtown San Diego. La Mesa is a suburban residential community as well as a commercial and trade center. The area is characterized by rolling hills and has a large number of hilltop home sites that take advantage of the beautiful views. La Mesa offers affordable housing within a wide range of prices, as well as high-end luxury homes atop Mt. Helix. La Mesa has an abundance of mixed-use condominiums for those who prefer a downtown village atmosphere. There is a positive balance between single-family housing and multi-family housing within La Mesa's city limits. One of the region's major retail facilities, Grossmont Center is located in the heart of the city adjacent to another major activity center, Grossmont Hospital. The La Mesa-Spring Valley Elementary School District provides 18 elementary schools and four junior high schools. There are two high schools in the area and Grossmont College, a two-year community college, is also located in La Mesa.

1.3.2.10 Lemon Grove Population: 25,950

Lemon Grove lies eight miles east of downtown San Diego. Lemon Grove is the third smallest jurisdiction in the San Diego region based on population and geographic size. Initially the site of expansive lemon orchards, the city still remains a small town with a rural ambiance. Currently manufacturing and trade account for over one-third of the total employment in this area. A substantial proportion of the homes in Lemon Grove are single-family dwellings with the addition of several apartments and condominiums built over the last 20 years. There are five elementary schools and two junior high schools.

1.3.2.11 National City (Population: 55,400)

National City is one of the county's oldest incorporated areas. Just five miles south of San Diego, National City is the South Bay's center of industrial activity. The economy is based on manufacturing, shipbuilding and repair. The San Diego Naval Station, which overlaps San Diego and National City is the largest naval

facility in the country. There are a great number of historical sites in National City and homes in the area are usually 50 years or older. Stately Victorians reflect the early part of the century when shipping and import/export magnates lived here. Served by National Elementary and Sweetwater High School districts, National City also offers several private schools for all grade levels. National City is best known for its Mile of Cars; the title describing its abundant auto dealerships. Two large shopping malls, Plaza Bonita and South Bay Plaza, are located in National City.

1.3.2.12 Oceanside (Population: 160,800)

Oceanside is centrally located between San Diego and Los Angeles. Located just 36 miles north of downtown San Diego, Oceanside is bordered by Camp Pendleton to the north, Carlsbad to the south, Vista to the east and the ocean to the west. The current population of 160,800 makes Oceanside the fourth largest jurisdiction in the County and the largest coastal community. Industrial real estate rates tend to be lower than the County average. There is an abundant supply of new housing and condominium developments, which tend to be more affordable than in other areas of Southern California coastal cities. With a near-perfect year-round climate and recognition as one of the most livable places in the nation, Oceanside offers both an incomparable lifestyle and abundant economic opportunity. Its extensive recreational facilities include 3.5 miles of sandy beaches, the Oceanside Harbor and the Oceanside Lagoon. There are 16 elementary schools, two parochial and two private, three middle schools and three high schools, as well as Mira Costa College and the United States International University.

1.3.2.13 Poway (Population: 49,300)

Poway is located 23 miles northeast of San Diego within the well-populated I-15 corridor. Poway is distinct because it is set into the foothills. Poway's main recreational facility is the 350-acre Lake Poway Park; the Lake also serves as a reservoir for the water supplied to San Diego by the Colorado River Aqueduct. The area has many recreational facilities, providing complete park sites, trails and fishing opportunities. Poway is also home to the Blue Sky Ecological Reserve, 700 acres of natural habitat with hiking, horseback riding and interpretive trails. The Poway Performing Arts Center is an 815 seat professional theater that began its eleventh season in 2001. The Poway Unified School District is excellent and has been consistently rated in the top tier. The district has four high schools, five middle schools and 19 elementary schools. There are eight private and parochial schools offering instruction from K-8 grades.

1.3.2.14 San Diego (Population 1,277,200)

The City of San Diego is the largest city in San Diego County, containing roughly half of the County's total population. With its current population of 1,277,200, the City of San Diego is the second largest city in the state. It is the region's economic hub, with well over half of the region's jobs and nearly three-quarters of the region's large employers. Thirteen of the region's 20 major colleges and universities are in the City of San Diego, as are six of the region's major retail centers. The City's visitor attractions are world-class and include Balboa Park, San Diego Zoo, Wild Animal Park, Sea World, Cabrillo National Monument and Old Town State Historic Park. The City of San Diego spans approximately 40 miles from its northern tip to the southern border. Including the shoreline around the bays and lagoons, the City of

San Diego borders a majority of the region's shoreline, encompassing 93 of the region's 182 shoreline miles.

1.3.2.15 San Marcos (Population: 53,900)

San Marcos is located between Vista and Escondido, approximately 30 miles north of downtown San Diego. San Marcos is known for its resort climate, rural setting, central location and affordable housing prices. San Marcos has been the fasted growing jurisdiction in the region since 1956. It is home to two of the region's major educational facilities, Palomar Community College and California State University, San Marcos. The K-12 School District is an award winning district with over seven Schools of Distinction Awards to their credit.

1.3.2.16 Santee (Population: 58,300)

Santee lies 18 miles northeast of downtown San Diego and is bordered on the east and west by slopes and rugged mountains. The San Diego River runs through this community, which was once a dairy farming area. It is now a residential area that has experienced phenomenal growth since the 1970's. Since the expansion of the San Diego Trolley, Santee residents can ride the Trolley to Mission Valley, Downtown San Diego and as far as the U.S./Mexico Border. Elementary students attend one of 11 elementary schools, while high school students attend Santana or West Hills High School.

1.3.2.17 Solana Beach (Population: 14,350)

As one of the county's most attractive coastal communities, Solana Beach is known for its small-town atmosphere and pristine beaches. Incorporated in 1986, it has one of the highest median income levels in the County as well as an outstanding school system recognized with state and national awards of excellence. Lomas Santa Fe, located east of the freeway, is a master planned community, which features shopping, homes, and condominiums, two golf courses and the family oriented Lomas Santa Fe Country Club.

1.3.2.18 Vista (Population: 85,700)

Vista has been growing at twice the rate of the State of California and 50% faster than the rest of the San Diego area in the last decade. There are 10 elementary schools, four middle schools, and five high schools. More than 400 companies have located their businesses in the city since 1986.

1.3.2.19 Unincorporated County of San Diego (Population: 456,371)

The unincorporated County consists of approximately 34 Community Planning and Subregional Areas. Many of the communities in the Unincorporated County jurisdiction are located in the mountains, desert, North County, or on the border of Mexico. Rancho Santa Fe, an affluent residential and resort community, is one of the exceptions, located within the urban core area. The community of Julian is located in the central mountains along a principle travel route between the desert and Metropolitan San Diego, and is a common tourist destination. Alpine is located east of El Cajon on Interstate 8 and is considered a gateway to San Diego County's wilderness areas of mountains, forests, and deserts.

The Subregional Planning Areas are Central Mountain, County Islands, Mountain Empire, North County Metro, and North Mountain. Communities within the Central Mountain Subregion are Cuyamaca, Descanso, Guatay, Pine Valley, and Mount Laguna. The County Islands Community Plan area consists of Mira Mesa, Greenwood, and Lincoln Acres. The North Mountain Subregion is mostly rural and includes Santa Ysabel, Warner Springs, Palomar Mountain, Mesa Grande, Sunshine Summit, Ranchita and Oak Grove. The Mountain Empire Subregion contains Tecate, Potrero, Boulevard, Campo, Jacumba, and the remainder of the plan area. The Community Planning Areas are Alpine, Bonsall, Borrego Springs, Boulevard, Crest/Dehesa/Granite Hills/Harbison Canyon, Cuyamaca, Descanso, Desert, Fallbrook, Hidden Meadows, Jacumba, Jamul/Dulzura, Julian, Lake Morena/Campo, Lakeside/Pepper Drive-Bostonia, Otay, Pala-Pauma, Palomar/North Mountain, Pendleton/Deluz, Pine Valley, Portrero, Rainbow, Ramona, San Dieguito (Rancho Santa Fe), Spring Valley, Sweetwater, Tecate, Twin Oaks, Valle De Oro, and Valley Center.

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SECTION 2 MULTI-JURISDICTIONAL PARTICIPATION INFORMATION

2.1 LIST OF PARTICIPATING AND NON-PARTICIPATING JURISDICTIONS

The jurisdictions that participated in the planning process are Carlsbad, Chula Vista, Coronado, Del Mar, El Cajon, Encinitas, Escondido, Imperial Beach, La Mesa, Lemon Grove, National City, Oceanside, Poway, San Diego (City), San Marcos, Santee, Solana Beach, Unincorporated (County), and Vista. There were no non-participating jurisdictions. Representatives from all participating jurisdictions, local businesses, educational facilities, various public, private and non-profit agencies, media representatives and the general public provided input into the preparation of the Plan. Local jurisdictional representatives included but were not limited to fire chiefs/officials, police chiefs/officials, planners and other jurisdictional officials/staff.

2.2 DESCRIPTION OF EACH JURISDICTION'S PARTICIPATION IN THE PLANNING PROCESS

The UDC established the Hazard Mitigation Working Group (HMWG) to facilitate the development of the Plan. A representative from each incorporated city and the unincorporated county was designated by their jurisdiction as the HMWG member. Each HMWG member identified a Local Mitigation Planning Team for their jurisdiction that included decision-makers from police, fire, emergency services, community development/planning, transportation, economic development, public works and emergency response/services personnel. The jurisdiction-level Local Mitigation Planning Team assisted in identifying the specific hazards/risks that are of concern to each jurisdiction and to prioritize hazard mitigation measures. The HMWG members brought this information to HMWG meetings held regularly to provide jurisdiction-specific input to the multi-jurisdictional planning effort and to assure that all aspects of each jurisdiction's concerns were addressed. A list of the lead contacts for each participating jurisdiction is included in Section 3.2.

All HMWG members were provided an overview of hazard mitigation planning elements at the HMWG meetings. This training was designed after the FEMA State and Local Mitigation Planning How-to Guide worksheets, which led the HMWG members through the process of defining the jurisdiction's assets, vulnerabilities, capabilities, goals and objectives, and action items. The HMWG members were also given additional action items at each meeting to be completed by their Local Mitigation Planning Team. HMWG members also participated in the public workshops held to present the risk assessment, preliminary goals, objectives and actions. In addition, several HMWG members met with URS staff specifically to discuss hazard-related goals, objectives and actions. Preliminary goals, objectives and actions developed by jurisdiction staff were then reviewed with their respective City Council, City Manager and/or representatives for approval.

Throughout the planning process, the HMWG members were given maps of the profiled hazards as well as detailed jurisdiction-level maps that illustrated the profiled hazards and critical facilities at an enhanced scale (1:24,000). The HMWG members reviewed these maps and provided updates or changes to the critical facility or hazard layers. Data received from HMWG members were added to the hazard database

and used in the modeling process described in the Risk Assessment portion of the Plan (Section 4). Jurisdictions that provided URS with updated hazard-related data are:

- City of Carlsbad - provided local liquefaction/soil stability and flood data
- City of Chula Vista - provided additional inundation/flood mapping information
- City of Encinitas - provided tsunami run-up data
- City of Escondido - provided updated local fire threat and geo-hazard data
- City of San Marcos - provided updated fire threat data

The cities of Del Mar, El Cajon, Encinitas, Escondido, Imperial Beach, La Mesa, National City, Poway, and San Marcos also provided URS with edits to critical facilities within their jurisdictions.

SECTION 3 PLANNING PROCESS DOCUMENTATION

3.1 DESCRIPTION OF PLANNING COMMITTEE FORMATION

The San Diego County Office of Emergency Services (OES) hired URS Corporation (URS) to assist with the development of the Plan. Herman Reddick, the representative for the San Diego County OES, at the direction of the UDC, requested input from each jurisdiction in the county and invited each municipality and fire district to attend a meeting to develop an approach to the planning process and to help form the HMWG Committee (See Appendix A). URS also provided an opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as business, academia and other private and non-profit interestes to be involved in the planning process. Some of those parties are listed in Section 3.2 below. The committee was formed as an advisory body to undertake the planning process and meeting dates were set for all members of the committee and interested parties to attend. Local jurisdictional representatives included but were not limited to fire chiefs/officials, police chiefs/officials, planners and other jurisdictional officials/staff.

3.2 NAME OF PLANNING COMMITTEE AND ITS MEMBERS

The HMWG is comprised of representatives from San Diego County (County), each of the 18 incorporated cities in the County and interested public agencies and citizens, as listed above in Section 2.1. The HMWG met regularly, and served as a forum for the public to voice their opinions and concerns about the mitigation plan. Although several jurisdictions sent several representatives to the HMWG meetings, each jurisdiction selected a lead representative who acted as the liaison between their jurisdictional Local Mitigation Planning Team and the HMWG. Each local team, made up of other jurisdictional staff/officials met separately and provided additional local-level input to the leads for inclusion into the Plan. These lead representatives are:

Lead HMWG Representatives for Participating Jurisdictions:
City of Carlsbad, Brian Watson/Division Chief
City of Chula Vista, Carlos Bejar/Emergency Services
City of Coronado, John Traylor/Fire Chief
City of Del Mar, Joseph Hoefgen/Public Safety
City of El Cajon, Gary Buchholz, Fire Dept.
City of Encinitas, Tom Gallup/Fire Dept.
City of Escondido, Neil Hobbs/Fire Chief
City of Imperial Beach, Paul Smith/Deputy Fire Chief
City of La Mesa, Greg McAlpine/Fire Dept.
City of Lemon Grove, Tim Laff/ Fire Dept.
City of National City, Don Condon/Fire Dept.
City of Oceanside, Robert Dunham/Fire Marshal
City of Poway, Dennis Quillen/Dept. of Public Works
City of San Diego, D.P. Lee/Homeland Security and Eugene Ruzzini/City of San Diego
City of San Marcos, Larry Webb/Fire Chief and Scott Hanson/Fire Dept.
City of Santee, Howard Rayon/Fire Dept.

City of Solana Beach, Dave Holmerud/Fire Dept.
City of Vista, Jeff Berg/Fire Dept.
County of San Diego, Herman Reddick/Fire Services
(Consultant Lead: URS Corporation, David Marx)

In addition to members of the public, representatives of the following agencies/organizations participated in HMWG meetings:

American Red Cross
California Department of Forestry (CDF)
Emergency Preparedness and Disaster Medical Response Personnel
Emergency Planning Consultants
Greater San Diego County Fire Safe Council
San Diego County Hazardous Materials Division
San Diego Data Processing Center
San Diego Resource Conservation District
State of California Office of Emergency Services
Sweetwater Authority
UCSD Healthcare
UCSD Staff/Officials
U.S. Forest Service (USFS)
Various Media Representatives

3.3 HAZARD MITIGATION WORKING GROUP MEETINGS

The Hazard Mitigation Working Group met regularly, although briefly interrupted by the Firestorm in October 2003. The following is a list of meeting dates and results of meetings (see Appendix A for sign-in sheets, meeting agendas, and meeting minutes).

HMWG Meeting Dates/Results of Meeting:
HMWG Meeting 1: 6-23-03/Kickoff and Formation of HMWG
HMWG Meeting 2: 7-14-03/Overview of Planning Process/Assessing Risks
HMWG Meeting 3: 8-4-03/ Overview of Planning Process/Profiling Hazards
HMWG Meeting 4: 8-25-03/Review Risk Assessment/Development of Mitigation Plan
HMWG Meeting 5: 9-15-03/Capabilities Assessment/Goals, Objectives, and Actions
HMWG Meeting 6: 12-8-03/Jurisdictional Progress/Review of Plan
HMWG Meeting 7: 2-23-04/Distribution of Draft Plan
HMWG Meeting 8: 3-15-04/Distribution of Final Plan

Other meetings included individual meeting with jurisdictions, presentations to local planning teams/City Councils, and public hearings by individual jurisdictions for adoption of the Plan.

3.4 PLANNING PROCESS MILESTONES

The approach taken by San Diego County relied on sound planning concepts and a methodical process to identify County vulnerabilities and to propose the mitigation actions necessary to avoid or reduce those

vulnerabilities. Each step in the planning process was built upon the previous, providing a high level of assurance that the mitigation actions proposed by the participants and the priorities of implementation are valid. Specific milestones in the process included:

- *Risk Assessment (June, 2003 – Sept. 2003)* - The HMWG used the FEMA list of hazards from the State and Local Mitigation Planning How-to Guide (How-to Guide) to identify natural hazards that potentially threaten all or portions of the County. In addition to natural hazards, the HMWG also identified manmade hazards that may threaten all or portions of the County and individual jurisdictions. Specific geographic areas subject to the impacts of the identified hazards were mapped using a Geographic Information System (GIS). The HMWG had access to information and resources regarding hazard identification and risk estimation. This included hazard specific maps, such as floodplain delineation maps, earthquake shake potential maps, and wildfire threat maps; GIS-based analyses of hazard areas; the locations of infrastructure, critical facilities, and other properties located within each jurisdictions; and an estimate of potential losses or exposure to losses from each hazard.

  The HMWG also conducted a methodical, qualitative examination of the vulnerability of important facilities, systems, and neighborhoods to the impacts of future disasters. GIS data and modeling results were used to identify specific vulnerabilities that could be addressed by specific mitigation actions. The HMWG also reviewed the history of disasters in the County and assessed the need for specific mitigation actions based on the type and location of damage caused by past events.

  Finally, the assessment of community vulnerabilities included a review of existing codes, plans, policies, programs, and regulations used by local jurisdictions to determine whether existing provisions and requirements adequately address the hazards that pose the greatest risk to the community.

- *Goals, Objectives and Alternative Mitigation Actions (August, 2003- January, 2004)* – Based on this understanding of the hazards faced by the County, a series of goals and objectives were identified by HMWG members to guide subsequent planning activities. In addition, a series of alternative mitigation actions were identified to address these goals and objectives. This was done in the HMWG meeting series described above, starting in September, and continuing through December. The schedule was set back slightly due to the wildfires that occurred throughout San Diego County in October/November 2003.

- *Mitigation Plan and Implementation Strategy (January/February, 2004)* – The HMWG determined the priorities for action from among the alternatives and developed a specific implementation strategy including details about the organizations responsible for carrying out the actions, their estimated cost, possible funding sources, and timelines for implementation.

- *Work Group Meetings (June, 2003 – December, 2003)* - As listed in Section 3.3 a series of HMWG meetings were held in which the HMWG considered the probability of a hazard occurring in an area and its impact on public health and safety, property, the economy, and the environment, and the mitigation actions that would be necessary to minimize impacts from the identified hazards. These meetings were held every three weeks starting June 23 and continued through December 8, 2003. The meetings evolved as the planning process progressed, and were designed to aid the jurisdictions in completing worksheets that helped define hazards within their

jurisdictions, their existing capabilities and mitigation goals and action items for the Mitigation Plan.

3.5 PUBLIC INVOLVEMENT

The San Diego County HMWG hosted a series of public meetings to educate stakeholders about their risks, involve them in identifying issues, and educate them about mitigation options available to them. Local agencies, businesses, academia, nonprofits, and other interested parties were encouraged to provide input at these meetings to the development of the Plan. Public Involvement included:

- Public Information Meetings and Workshops to educate citizens, public officials, and business leaders about the hazard mitigation planning process. Topics included hazard mitigation planning and its benefits, steps in the hazard mitigation planning process, and the importance of community input and participation, especially to suggest mitigation goals to be incorporated into the Plan. The public was invited to every HMWG meeting, which were held regularly starting June 19, 2003.

  A series of public workshops was also held over a three-week period in January and February 2004. These workshops included a presentation of the overall planning process, all milestones achieved, and maps of all hazards identified in the Risk Assessment portion of the Plan. The focus however, was getting community input into the local goals, objectives, and mitigation actions for each of the jurisdictions. These public workshops were held at various locations throughout the county to accommodate interested citizens from the north, south, east and central portions of the county (see Appendix A for copies of press releases, meeting agendas, attendance lists and meeting minutes).

  Public Meeting Dates:
  Public/UDC Meeting and Presentation: 6-19-03
  Public/HMWG Kickoff Meeting 1: 6-23-03
  Public/UDC Meeting and Presentation: 9-18-03
  Public Workshop 1: 1-22-04
  Public Workshop 2: 1-27-04
  Public Workshop 3: 1-28-04
  Public Workshop 4: 1-29-04
  Public Workshop 5: 2-4-04

- Public Response Questionnaires to develop lists of potential mitigation actions by soliciting community input regarding vulnerabilities and potential solutions. Citizens participated by prioritizing the hazards and suggesting possible solutions, which formed the basis for researching alternatives and developing evaluation criteria for selecting mitigation actions. Questionnaires were distributed at the public meetings (see Appendix A for a copy of the questionnaire).

- Press Releases were prepared and released to solicit public review and comment (see Appendix A for copies of press releases and public notices).

  Press Release Dates:
  July 9, 2003: announcing Initiation of the Planning Process and HMWG Meeting Schedule

January 13, 2004: Announcing Public Workshops
January 16, 2004: Announcing Launch of Plan

- A Hazard Mitigation Plan Web Site was developed to provide the public with information. Items posed on the web site included meeting announcements, agendas, PowerPoint presentations, survey forms, work sheets, hazard maps and links to FEMA guidance documents.

Public involvement was valuable in the development of the Plan. Feedback given during the public meetings led to the re-prioritization of hazards and mitigation actions, and acted as a reality check in determining the impacts of the Plan on the general public.

3.6 EXISTING PLANS OR STUDIES REVIEWED

HMWG team members and their corresponding Local Mitigation Planning Teams prior to and during the planning process reviewed several plans, studies, and guides. These plans included FEMA documents, emergency services documents as well as county and local general plans, community plans, local codes and ordinances, and other similar documents. These included:

- San Diego County/Cities General Plans
- Various Local Community Plans
- Various Local Codes and Ordinances
- State and Local Mitigation Planning How-to guide, FEMA 386-2, August 2001
- Interim Hazard Mitigation Planning Guidance for California Local Governments
- FEMA CRS-DMA2K Mitigation Planning Requirements
- Crosswalk Reference Document for Review and Submission of Local Mitigation Plans to the State Hazard Mitigation Officer and FEMA Regional Office
- Unified San Diego County Emergency Services Organization Operational Area Emergency Plan

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SECTION 4 RISK ASSESSMENT

4.1 OVERVIEW OF THE RISK ASSESSMENT PROCESS

Risk Assessment requires the collection and analysis of hazard-related data in order to enable local jurisdictions to identify and prioritize appropriate mitigation actions that will reduce losses from potential hazards. The *FEMA State and Local Mitigation Planning How-to Guide* (How-to Guide) identifies five Risk Assessment steps as part of the hazard mitigation planning process, including: 1) identifying hazards, which involves determining those hazards posing a threat to a study area, 2) profiling hazards, which involves mapping identified hazards and their geographic extent, 3) identifying assets, which assigns value to structures and landmarks in the identified hazard areas, 4) assessing vulnerability, which involves predicting the extent of damage to assets, and 5) analyzing development trends, which assesses future development and population growth to determine potential future threat from hazards. These steps are described in detail in the following sections, first with an overall summary of hazard identification and data collection in Section 4.2, then with a jurisdictional summary of hazards, assets and vulnerability in Section 4.3.

4.1.1 Identifying Hazards

Hazard identification is the process of identifying hazards that threaten an area including both natural and man-made events. A natural event causes a hazard when it harms people or property. Such events would include floods, earthquakes, tornadoes, tsunami, coastal storms, landslides, and wildfires that strike populated areas. Man-made hazard events are caused by human activity and include technological hazards and terrorism. Technological hazards are generally accidental and/or have unintended consequences (for example, an accidental hazardous materials release). Terrorism is defined by the *Code of Federal Regulations* as "…unlawful use of force and violence against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of political or social objectives." Natural hazards that have harmed the County in the past are likely to happen in the future; consequently, the process of identifying hazards includes determining whether or not the hazard has occurred previously. Approaches to collecting historical hazard data include researching newspapers and other records, conducting a planning document and report literature review in all relevant hazards subject areas, gathering hazard-related GIS data, and engaging in conversation with relevant experts from the community. In addition, a variety of sources were used to determine the full range of all potential hazards within San Diego County. Even though a particular hazard may not have occurred in recent history in San Diego County, it is important during the hazard identification stage to consider all hazards that may potentially affect the study area.

4.1.2 Profiling Hazards

Hazard profiling entails describing the physical characteristics of past hazards such as their magnitude, duration, frequency, and probability. This stage of the hazard mitigation planning process involves creating base maps of the study area and then collecting and mapping hazard event profile information obtained from various Federal, State, and local government agencies. URS obtained national maps available online from sources such as the United States Geological Survey (USGS), National Oceanographic and Atmospheric Administration (NOAA), FEMA, and ESRI (a Geographic Information

System [GIS] software development firm). The hazard data was mapped to determine the geographic extent of the hazards in each jurisdiction in the County. The level of risk associated with each hazard in each jurisdiction was also estimated and assigned a risk level of high, medium or low depending on several factors unique to that particular hazard.

4.1.3 Identifying Assets

The third step of the risk assessment process entails identifying which assets in each jurisdiction will be affected by each hazard type. Assets include any type of structure or critical facility such as hospitals, schools, museums, apartment buildings, and public infrastructure. An inventory of existing and proposed assets within the County was generated. The assets were then mapped to show their locations and to determine their vulnerability to each hazard type. The HMWG also considered proposed structures, including planned and approved developments, based upon a review of the County's General Plan Land Use Element.

4.1.4 Assessing Vulnerability

Vulnerability describes the degree to which an asset is susceptible to damage from a hazard. Vulnerability depends on an asset's construction, contents and the economic value of its functions. Like indirect damages, the vulnerability of one element of the community is often related to the vulnerability of another. Often, indirect effects can be much more widespread and damaging than direct effects. A vulnerability analysis predicts the extent of injury and damage that may result from a hazard event of a given intensity in a given area. The vulnerability assessment identifies the effects of natural and man-made hazard events by estimating the relative exposure of existing and future population, land development, and infrastructure to hazardous conditions. The assessment helps set mitigation priorities by allowing local jurisdictions to focus attention on areas most likely to be damaged or most likely to require early emergency response during a hazard event.

4.1.5 Analyzing Development Trends

This stage of the risk assessment process provides a general overview of land uses and development planned to occur within the County. This overview is utilized to determine the type and intensities of future development proposed for identified hazard areas. This information provides the groundwork for decisions about mitigation strategies and locations in which these strategies should be applied.

4.2 HAZARD IDENTIFICATION AND SCREENING

4.2.1 List of Hazards Prevalent in the Jurisdiction

The HMWG reviewed hazards listed in the How-to Guide and determined the prevalence of each hazard in San Diego County and whether each hazard should be included in the Plan. All hazards identified by FEMA in the How-To-Guides were reviewed. They include: avalanche, coastal storm, coastal erosion, dam failure, drought/water supply, earthquake, expansive soils, extreme heat, flooding, hailstorm, house/building fire, land subsidence, landslide, liquefaction, severe winter storm, tornado, tsunami, wildfire, windstorm, and volcano. Although not required by the FEMA *Disaster Mitigation Act of 2000*,

manmade hazards such as hazardous materials release, nuclear materials release, and terrorism were also reviewed by the HMWG.

4.2.2 Hazard Identification Process

As summarized above, hazard identification is the process of identifying all hazards that threaten an area, including both natural and man-made events. In the hazard identification stage, URS worked with the HMWG to determine hazards that potentially threaten San Diego County. The hazard screening process involved narrowing the all-inclusive list of hazards to those most threatening to the San Diego region. The screening effort required extensive input from a variety of HMWG members, including representatives from City governments, County agencies, fire agencies and law enforcement agencies, Red Cross, the State Emergency Management Offices, local businesses, community groups, the 2000 Unified San Diego County Emergency Services Organization Operational Area Emergency Plan, and the general public.

URS used information from FEMA and other nationally and locally available databases to map the County's hazards, infrastructure, critical facilities, and land uses. This initial mapping effort was utilized in the hazard screening process to determine which hazards would present the greatest risk to the County of San Diego and to each jurisdiction within the County.

It was also determined that the coastal storm, erosion, and tsunami hazards should be profiled together because the same communities in the County have the potential to be affected by all three hazards. Additionally, the HMWG indicated that based on the fact that the majority of the development in San Diego is relatively recent (within the last 60 years), an urban type of fire that destroys multiple city blocks is not likely to occur alone, without a wildfire in the urban/wildland interface occurring first. Therefore, it was determined that house/building fire and wildfire should be addressed as one hazard category in the plan. The HMWG also determined that Earthquake and Liquefaction should be addressed as one category because liquefaction does not occur without an adequate level of ground shaking from an earthquake occurring first.

The final list of hazards to be profiled for San Diego County was determined as Wildfire/Structure Fire, Flood, Coastal Storms/Erosion/Tsunami, Earthquake/Liquefaction, Rain-Induced Landslide, Dam Failure, Hazardous Materials Incidents, Nuclear Materials Release, and Terrorism.

Table 4.2-1 shows a summary of the hazard identification results for San Diego County.

Table 4.2-1
Summary of Hazard Identification Results

Hazard	Data Collected for Hazard Identification	Justification for Inclusion
Coastal Storms, Erosion and Tsunami	• Historical Coastlines (NOAA) • Shoreline Erosion Assessment (SANDAG) • Maximum Tsunami Run up Projections (USCA OES) • FEMA FIRM Maps • FEMA Hazards website • Coastal Zone Boundary (CALTRANS) • Tsunamis and their Occurrence along the San Diego County Coast (report, Westinghouse Ocean Research Laboratory) • Tsunami (article, Scientific American) • Storms in San Diego County (publication of San Diego County Dept. of Sanitation and Flood Control)	• Coastal storms prompted 8 Proclaimed States of Emergency from 1950-1997 • Coastline stabilization measures have been implemented at various times in the past (erosion) • Extensive development along the coast
Dam Failure	• FEMA-HAZUS • Dam Inundation Data (SanGIS) • San Diego County Water Authority (SDCWA) (San Vicente and Olivenhain Dams) • FEMA FIRM maps • Topography (SANDAG) • FEMA Hazards website	• Dam failure • Several dams exist throughout San Diego County • Many dams over 30 years old • Increased downstream development
Earthquake	• USGS • CGS • URS • CISN • SanGIS • SANDAG • FEMA-HAZUS 99 • FEMA Hazards website	• Several active fault zones pass through San Diego County
Floods	• FEMA FIRM Maps • Topography • Base flood elevations (FEMA) • Historical flood records • San Diego County Water Authority • San Diego County Dept. of Sanitation and Flood Control • FEMA Hazards website	• Much of San Diego County is located within the 100-year floodplain • Flash floods and other flood events occur regularly during rainstorms due to terrain and hydrology of San Diego County • There were 10 Proclaimed States of Emergency between 1950-1997 for floods in San Diego County

Hazard	Data Collected for Hazard Identification	Justification for Inclusion
Hazardous Materials Release	• County of San Diego Dept. of Environmental Health, Hazardous Materials Division	• San Diego County has several facilities that handle or process hazardous materials • Heightened security concerns since September 2001
Landslide	• USGS • CGS • Tan Map Series • Steep slope data (SANDAG) • Soil Series Data (SANDAG) • FEMA-HAZUS • FEMA Hazards website • NEH	• Steep slopes within earthquake zones characterize San Diego County, which creates landslide risk. • There have been 2 Proclaimed States of Emergency for landslides in San Diego County
Liquefaction	• Soil-Slip Susceptibility (USGS) • FEMA-HAZUS MH • FEMA Hazards website	• Steep slopes or alluvial deposit soils in low-lying areas are susceptible to liquefaction during earthquakes or heavy rains. San Diego County terrain has both of these characteristics and lies within several active earthquake zones
Nuclear Materials Release	• San Onofre Nuclear Generating Station (SONGS) and Department of Defense	• The potential exists for an accidental release to occur at San Onofre or from nuclear ships in San Diego Bay • Heightened security concerns since September 2001
Terrorism	• County of San Diego Environmental Health Department Hazardous Materials Division	• The federal and state governments have advised every jurisdiction to consider the terrorism hazard • Heightened security concerns since September 2001
Wildfire/ Structure Fire	• CDF-FRAP • USFS • CDFG • Topography • Local Fire Agencies • Historical fire records • FEMA Hazards website	• San Diego County experiences wildfires on a regular basis • 7 States of Emergency were declared for wildfires between 1950-2003 • Terrain and climate of San Diego • Santa Ana Winds

Data in GIS format was projected into the State Plane, NAD 1983, California Zone VI Coordinate System (US Survey Units Feet), and clipped to the San Diego County and Jurisdictional boundaries. Data that was not available in GIS format was either digitized into GIS or kept in its original format and used as a reference. A matrix of all data collected, including source, original projection, scale and data limitations is included in Attachment A. Maps were generated depicting the potential hazards throughout the county and distributed to the jurisdictions. Data and methods that were ultimately used to determine risk levels and probability of occurrence for each hazard are described in detail in the hazard profiling sections.

4.2.3 Hazard Identification Sources

Once the hazards of concern for San Diego County were determined, URS collected the available data, using sources including the Internet, direct communication with various agencies, discussions with in-house URS experts, and historical records. Specific sources included the United States Geological Survey (USGS), California Geological Survey (CGS), Federal Emergency Management Agency (FEMA) HAZUS, FEMA Flood Insurance Rate Maps (FIRM), United States Forest Service (USFS), California Department of Forestry – Fire and Resource Assessment Program (CDF-FRAP), National Oceanographic and Atmospheric Administration (NOAA), San Diego Geographic Information Source (SanGIS), San Diego Association of Governments (SANDAG), San Diego County Flood Control District, Southern California Earthquake Data Center (SCEDC), California Seismic Safety Commission (CSSC), California Integrated Seismic Network (CISN), California Department of Fish and Game (CDFG), Drought Outlook websites, and input gathered from local jurisdictions districts and agencies. When necessary, agencies were contacted to ensure the most updated data was obtained and used. Historical landmark locations throughout the County were obtained from the National Register and from the San Diego Historical Resources Board.

Table 4.2-1 also depicts data sources researched and utilized by hazard, as well as brief justifications for inclusion of each hazard of concern in the San Diego region. See Appendix B for a Data Matrix of all sources used to gather initial hazard information.

4.2.4 Non-Profiled Hazards

During the initial evaluation the HMWG determined that a number of hazards would not be included in the profiling step because they were not prevalent hazards within the County, were found to pose only minor or very minor threats to the County compared to the other hazards. The following table gives a brief description of those hazards and the reason for their exclusion from the list.

Table 4.2-2
Summary of Hazards Excluded from Hazard Profiling

Hazard	Description	Reason for Exclusion
Avalanche	A mass of snow moving down a slope. There are two basic elements to a slide; a steep, snow-covered slope and a trigger	Snowfall in County mountains not significant; poses very minor threat compared to other hazards
Drought/water supply	Long periods without substantial rainfall.	The San Diego region relies extensively on imported water. Long periods without substantial rainfall in Northern California and in the Colorado River watershed would affect San Diego's water supply more than a local rainfall deficit. Additionally, regional water conservation and water management programs already in place
Expansive soils	Expansive soils shrink when dry and swell when wet. This movement can exert enough pressure to crack sidewalks, driveways, basement floors, pipelines and even foundations	Presents a minor threat to limited portions of the County

Hazard	Description	Reason for Exclusion
Extreme heat	Temperatures that hover 10 degrees or more above the average high temperature for the region and last for several weeks	Prolonged heat waves are not a historically documented hazard in the region
Hailstorm	Can occur during thunderstorms that bring heavy rains, strong winds, hail, lightning and tornadoes	Occurs during severe thunderstorms; most likely to occur in the central and southern states; no historical record of this hazard in the region.
Land subsidence	Occurs when large amounts of ground water have been withdrawn from certain types of rocks, such as fine-grained sediments. The rock compacts because the water is partly responsible for holding the ground up. When the water is withdrawn, the rocks fall in on themselves.	Soils in the County are mostly granitic. Presents a minor threat to limited parts of the county. No historical record of this hazard in the region.
Severe winter storm	Large amounts of falling or blowing snow and sustained winds of at least 35 miles per hour occurring for several hours	Minor threat in mountains of the County. No historical record of this hazard in the region.
Tornado	A tornado is a violent windstorm characterized by a twisting, funnel-shaped cloud. It is spawned by a thunderstorm (or sometimes as a result of a hurricane) and produced when cool air overrides a layer of warm air, forcing the warm air to rise rapidly. The damage from a tornado is a result of the high wind velocity and wind-blown debris.	Less than one tornado event occurs in the entire State of California in any given year; poses very minor threat compared to other hazards. No historical record of this hazard in the region.
Volcano	A volcano is a mountain that is built up by an accumulation of lava, ash flows, and airborne ash and dust. When pressure from gases and the molten rock within the volcano becomes strong enough to cause an explosion, eruptions occur	No active volcanoes in San Diego County. No historical record of this hazard in the region.
Windstorm	A storm with winds that have reached a constant speed of 74 miles per hour or more	Maximum wind speed in the region is less than 60 miles per hour and would not be expected to cause major damage or injury (see Figure 4.3.1)

4.3 HAZARD PROFILES

A hazard profile is a description of the physical characteristics of a hazard and a determination of various hazard descriptors, including magnitude, duration, frequency, probability, and extent. The hazard data that were collected in the hazard identification process were mapped to determine the geographic extent of the hazards in each jurisdiction in the County and the level of risk associated with each hazard. Most hazards were given a risk level of high, medium or low depending on several factors unique to the hazard. The hazards identified and profiled for San Diego County, as well as the data used to profile each hazard are presented in this section. The hazards are presented in alphabetical order; and this does not signify level of importance to the HMWG. Because Nuclear Materials Release, Hazardous Materials Release and Terrorism hazards are sensitive issues and release of information could pose further unnecessary threat,

the HMWG decided that each of these hazards would be discussed separately in a "For Official Use Only" Appendix and would be exempt from public distribution and disclosure by Section 6254 (99) of the California Government Code (See separately bound Attachment A).

4.3.1 Coastal Storms, Erosion and Tsunami

4.3.1.1 Nature of Hazard

These three hazards were mapped and profiled as a group because many of the factors and risks involved are similar and limited to the coastal areas. Coastal storms can cause increases in tidal elevations (called storm surge), wind speed, and erosion. The most dangerous and damaging feature of a coastal storm is storm surge. Storm surges are large waves of ocean water that sweep across coastlines where a storm makes landfall. Storm surges can inundate coastal areas, wash out dunes, and cause backwater flooding. If a storm surge occurs at the same time as high tide, the water height will be even greater.

Coastal erosion is the wearing away of coastal land. It is commonly used to describe the horizontal retreat of the shoreline along the ocean, and is considered a function of larger processes of shoreline change, which include erosion and accretion. Erosion results when more sediment is lost along a particular shoreline than is redeposited by the water body, and is measured as a rate with respect to either a linear retreat or volumetric loss. Erosion rates are not uniform and vary over time at any single location. Various locations along the Coast of San Diego County are highly susceptible to erosion. Erosion prevention and repair measures such as installation of seawalls and reinforcement of cliffs have been required in different locations along the San Diego coast in the past.

A tsunami is a series of long waves generated in the ocean by a sudden displacement of a large volume of water. Underwater earthquakes, landslides, volcanic eruptions, meteoric impacts, or onshore slope failures can cause this displacement. Tsunami waves can travel at speeds averaging 450 to 600 miles per hour. As a tsunami nears the coastline, its speed diminishes, its wavelength decreases, and its height increases greatly. After a major earthquake or other tsunami-inducing activity occurs, a tsunami could reach the shore within a few minutes. One coastal community may experience no damaging waves while another may experience very destructive waves. Some low-lying areas could experience severe inland inundation of water and deposition of debris more than 3,000 feet inland.

4.3.1.2 Disaster History

There were eight (8) Proclaimed States of Emergency for Weather/Storms in San Diego County between 1950 and 1997. In January and February 1983, the strongest-ever El Nino-driven coastal storms caused over 116 million dollars in beach and coastal damage. Thirty-three homes were destroyed and 3900 homes and businesses were damaged. Other coastal storms that caused notable damage were during the El Nino winters of 1977-1978 and 1997-1998.

Coastal erosion is an ongoing process that is difficult to measure, but can be seen in various areas along the coastline of San Diego County. Unstable cliffs at Beacon's Beach in Encinitas caused a landslide that killed a woman sitting on the beach in January 2000. In 1942, the Self-Realization Fellowship building fell into the ocean because of erosion and slope failure caused by groundwater oversaturated the cliffs it was built on.

Wave heights and run-up elevations from tsunami along the San Diego Coast have historically fallen within the normal range of the tides (Joy 1968). The largest tsunami effect recorded in San Diego since 1950 was May 22, 1960, which had a maximum wave height 2.1 feet (NOAA, 1993). In this event, 80 meters of dock were destroyed and a barge sunk in Quivera Basin. Other tsunamis felt in San Diego County occurred on November 5, 1952, with a wave height of 2.3 feet and caused by an earthquake in Kamchatka; March 9, 1957, with a wave height of 1.5 feet; May 22, 1960, at 4.6 feet; and March 27, 1964 with a wave height of 3.7 feet. It should be noted that damage does not necessarily occur in direct relationship to wave height, illustrated by the fact that the damages caused by the 2.1-foot wave height in 1950 were worse than damages caused by several other tsunamis with higher wave heights.

4.3.1.3 Location and Extent/Probability of Occurrence and Magnitude

Figure 4.3.1 displays the location and extent of coastal storm/coastal erosion/tsunami hazard areas for the County of San Diego. As shown in this figure, the highest risk zones in San Diego County are located within the coastal zone of San Diego County. Coastal storm hazards are most likely during El Nino events. As shown on Figure 4.3.1, maximum wind speeds along the coast are not expected to exceed 60 miles per hour, resulting in only minor wind-speed related damage. Coastal erosion risk is highest where geologically unstable cliffs become oversaturated by irrigation or rainwater. The greatest type of tsunami risk is material damage to small watercraft, harbors, and some waterfront structures (Joy 1968), with flooding along the coast as shown in the run-up projections on Figure 4.3.1.

Data used to profile this group of hazards included the digitized flood zones from the FEMA FIRM Flood maps, NOAA historical shoreline data, and Caltrans' coastal zone boundary for the coastal storm/erosion hazard (refer to Attachment A for complete data matrix). Maximum tsunami run up projections modeled by the University of Southern California and distributed by the California Office of Emergency Services were used for identifying tsunami hazard. The tsunami model was the result of a combination of inundation modeling and onsite surveys and shows maximum projected inundation levels from tsunamis along the entire coast of San Diego County. NOAA historical tsunami effects data were also used, which showed locations where tsunami effects have been felt, and when available, details describing size and location of earthquakes that caused the tsunamis. *The Shoreline Erosion Assessment and Atlas of the San Diego Region Volumes I and II* (SANDAG, 1992) were reviewed for the shoreline erosion category. This publication shows erosion risk levels of high, moderate and low for the entire coastline of San Diego County.

For modeling purposes, the VE Zone of the FEMA FIRM map series was used as the high hazard value for coastal storms and coastal erosion. The VE Zone is defined by FEMA as the coastal area subject to a velocity hazard (wave action). Coastal storm and erosion risk were determined to be high if areas were found within the VE zone of the FEMA FIRM maps. Tsunami hazard risk levels were determined to be high if an area was within the maximum projected tsunami run-up and inundation area.

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COASTAL STORM/EROSION/TSUNAMI
COUNTY OF SAN DIEGO (1 of 4)
HAZARD MITIGATION PLANNING

Profiling Hazards

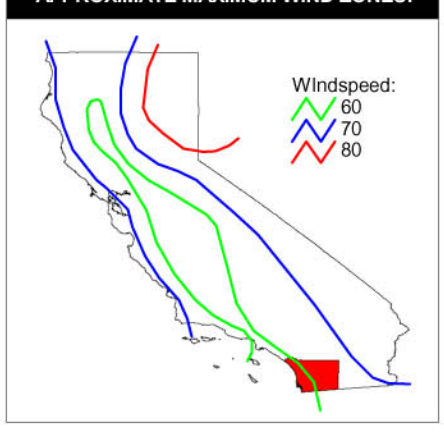
LEGEND:

Tsunami Layers:
- Historic Tsunami Effect Felt
- Maximum Tsunami Projected Runup (High Risk)

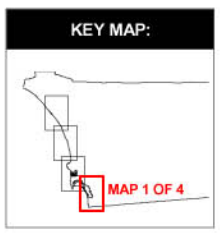
Erosion/Coastal Storm Layers:
- FEMA VE Zone (High Risk)

Base Layers:
- Incorporated City Boundary
- Streams
- Freeways
- Major Roads
- Lakes

APPROXIMATE MAXIMUM WIND ZONES:



KEY MAP:



OVERVIEW MAP:

N

0.5 0 0.5 1 Miles

SCALE: 1" = 1 MILE (1:63,360)

URS

SOURCES: SANDAG (Roads, 1993; Streams, 1992; Lakes, 1992), SanGIS* (Incorporated City Boundaries, 2003), FEMA (Flood Data, 1997; Wind Zones), NOAA (Historic Tsunamis, 2002), State Office of Emergency Services (OES) (Tsunami Run-up Data, 1999).

The information on this map was derived from various digital databases, sourced above. Care was taken in the creation of this map but it is provided "as is". URS cannot accept any responsibility for any errors, omissions, or positional accuracy, and therefore, there are no warranties which accompany this product. Users are cautioned to field verify information on this product before making any decisions.

CHKD BY: AJ	DATE: 2-19-04	FIG. NO: **4.3.1** (MAP 1 of 4)
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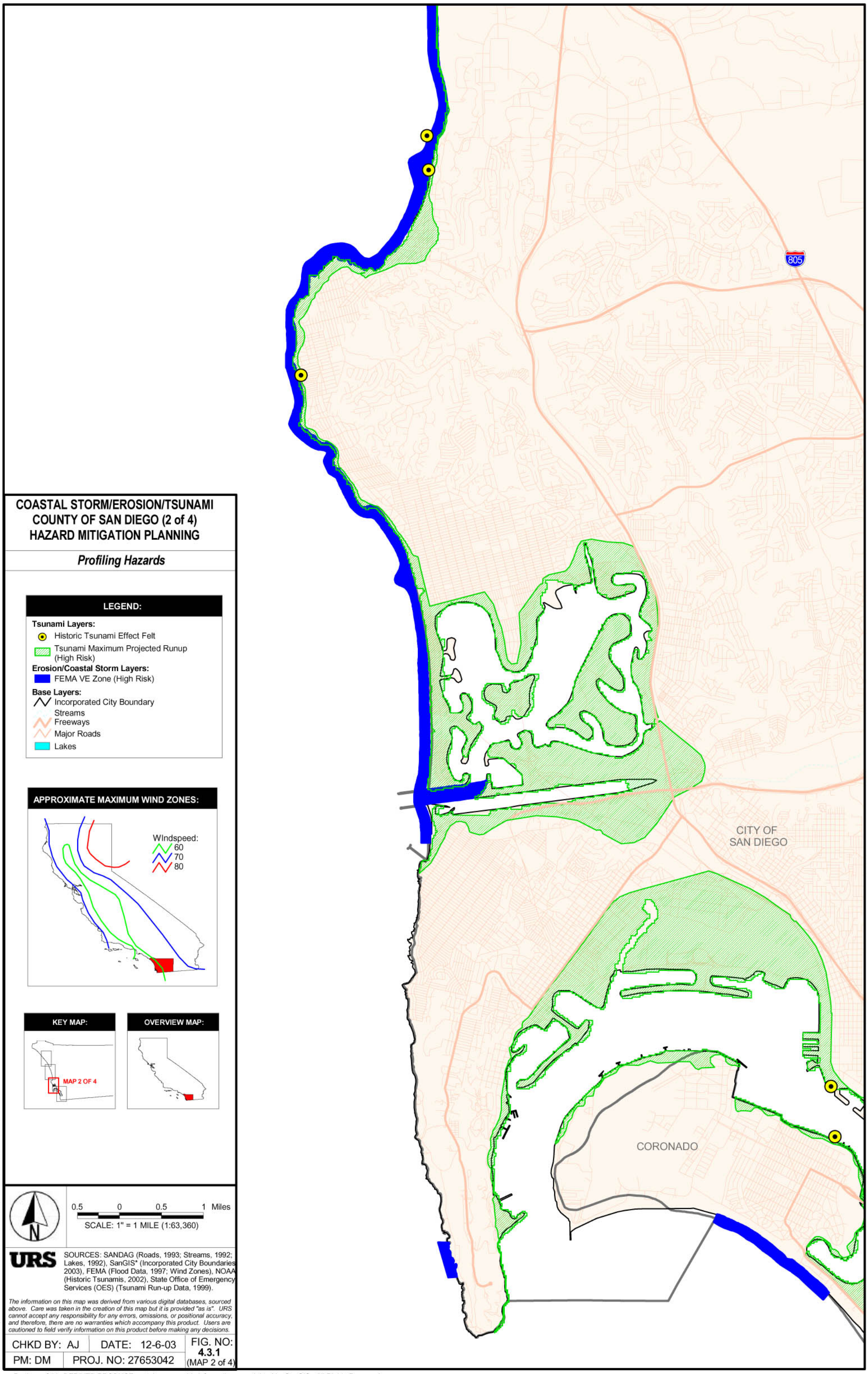

COASTAL STORM/EROSION/TSUNAMI
COUNTY OF SAN DIEGO (2 of 4)
HAZARD MITIGATION PLANNING

Profiling Hazards

LEGEND:

Tsunami Layers:
- Historic Tsunami Effect Felt
- Tsunami Maximum Projected Runup (High Risk)

Erosion/Coastal Storm Layers:
- FEMA VE Zone (High Risk)

Base Layers:
- Incorporated City Boundary
- Streams
- Freeways
- Major Roads
- Lakes

APPROXIMATE MAXIMUM WIND ZONES:

WIndspeed:
60
70
80

KEY MAP:

MAP 2 OF 4

OVERVIEW MAP:

0.5 0 0.5 1 Miles

SCALE: 1" = 1 MILE (1:63,360)

URS

SOURCES: SANDAG (Roads, 1993; Streams, 1992; Lakes, 1992), SanGIS* (Incorporated City Boundaries 2003), FEMA (Flood Data, 1997; Wind Zones), NOAA (Historic Tsunamis, 2002), State Office of Emergency Services (OES) (Tsunami Run-up Data, 1999).

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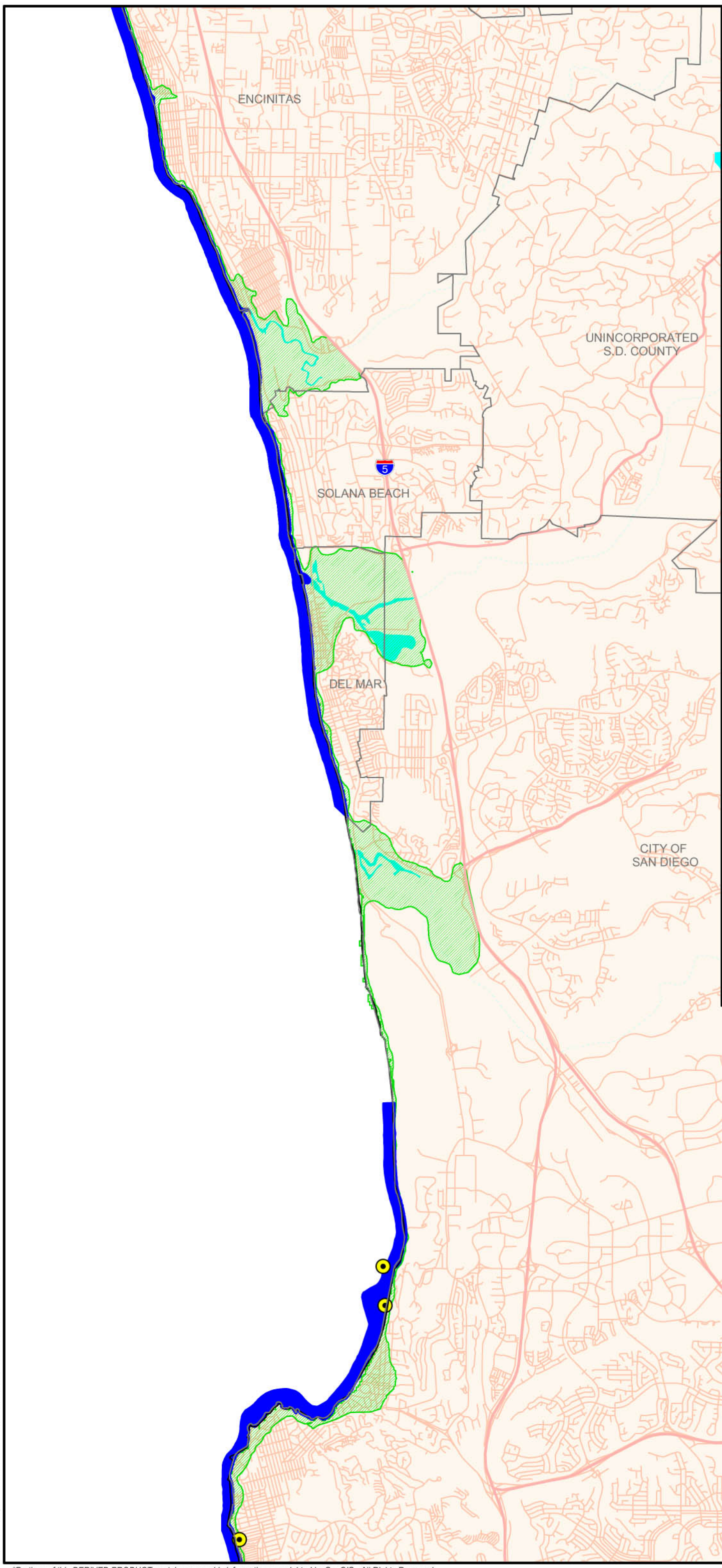
COASTAL STORM/EROSION/TSUNAMI
COUNTY OF SAN DIEGO (3 of 4)
HAZARD MITIGATION PLANNING

Profiling Hazards



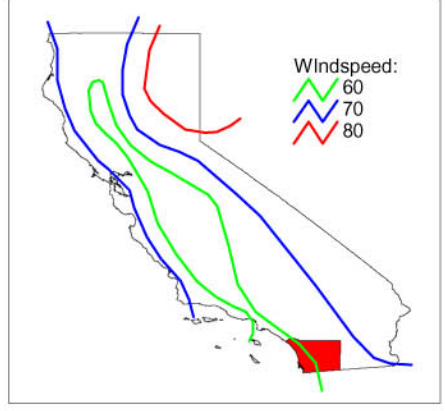
LEGEND:

Tsunami Layers:
- Historic Tsunami Effect Felt
- Tsunami Maximum Projected Runup (High Risk)

Erosion/Coastal Storm Layers:
- FEMA VE Zone (High Risk)

Base Layers:
- Incorporated City Boundary
- Streams
- Freeways
- Major Roads
- Lakes

APPROXIMATE MAXIMUM WIND ZONES:



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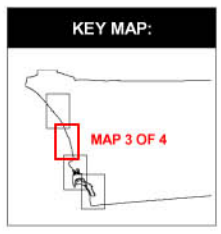

OVERVIEW MAP:

N

0.5 0 0.5 1 Miles

SCALE: 1" = 1 MILE (1:63,360)

URS

SOURCES: SANDAG (Roads, 1993; Streams, 1992; Lakes, 1992), SanGIS* (Incorporated City Boundaries, 2003), FEMA (Flood Data, 1997; Wind Zones), NOAA (Historic Tsunamis, 2002), State Office of Emergency Services (OES) (Tsunami Run-up Data, 1999).

The information on this map was derived from various digital databases, sourced above. Care was taken in the creation of this map but it is provided "as is". URS cannot accept any responsibility for any errors, omissions, or positional accuracy, and therefore, there are no warranties which accompany this product. Users are cautioned to field verify information on this product before making any decisions.

CHKD BY: AJ	DATE: 2-19-04	FIG. NO: **4.3.1** (MAP 3 of 4)
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COASTAL STORM/EROSION/TSUNAMI
COUNTY OF SAN DIEGO (4 of 4)
HAZARD MITIGATION PLANNING

Profiling Hazards

LEGEND:

Tsunami Layers:
- Historic Tsunami Effect Felt
- Maximum Projected Tsunami Runup (High Risk)

Erosion Layers:
- FEMA VE Zone (High Risk)

Base Layers:
- Incorporated City Boundary
- Streams
- Freeways
- Major Roads
- Lakes

OCEANSIDE

OCEANSIDE

VISTA

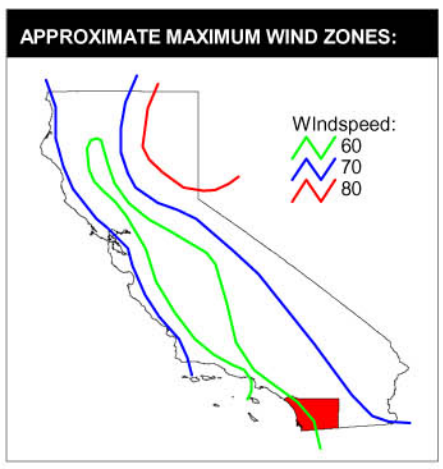
CARLSBAD

ENCINITAS

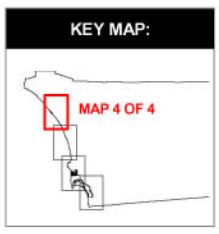
CITY OF SAN DIEGO

SOLANA BEACH

APPROXIMATE MAXIMUM WIND ZONES:



KEY MAP:



OVERVIEW MAP:

N

0.5 0 0.5 1 Miles

SCALE: 1" = 1 MILE (1:63,360)

URS

SOURCES: SANDAG (Roads, 1993; Streams, 1992; Lakes, 1992), SanGIS* (Incorporated City Boundaries 2003), FEMA (Flood Data, 1997; Wind Zones), NOAA (Historic Tsunamis, 2002), State Office of Emergency Services (OES) (Tsunami Run-up Data, 1999).

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CHKD BY: AJ	DATE: 12-6-03	FIG. NO: **4.3.1** (MAP 4 of 4)
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4.3.2 Dam Failure

4.3.2.1 Nature of Hazard

Dam failures can result in severe flood events. When a dam fails, a large quantity of water is suddenly released with a great potential to cause human casualties, economic loss, lifeline disruption, and environmental damage. A dam failure is usually the result of age, poor design, or structural damage caused by a major event such as an earthquake or flood.

4.3.2.2 Disaster History

Two major dam failures have been recorded in San Diego County. The Hatfield Flood of 1916 caused the failure of the Sweetwater and Lower Otay Dams, resulting in 22 deaths. Most of those deaths were attributed to the failure of Lower Otay Dam (County of San Diego Sanitation and Flood Control, 2002).

4.3.2.3 Location and Extent/Probability of Occurrence and Magnitude

Figure 4.3.2 displays the location and extent of dam failure hazard areas for the County of San Diego. Dam failures are rated as one of the major "low-probability, high-loss" events.

Dam inundation map data were used to profile dam failure risk levels (refer to Appendix B for complete data matrix). These maps were created by agencies that own and operate dams. URS purchased this data from SanGIS, a local GIS data repository. The dam inundation map layers show areas that would be flooded in the event of a dam failure. The San Vicente and Olivenhain Dam inundation maps are new and were provided by the San Diego County Water Authority. If an area lies within a dam inundation zone, it was considered at high risk. A dam is characterized as high hazard if it stores more than 1,000 acre-feet of water, is higher than 150 feet tall, has potential for downstream property damage, and potential for downstream evacuation. Ratings are set by FEMA and confirmed with site visits by engineers. A simple way to define high risk of dam failure is if failure of the dam is likely to result in loss of human life. Most dams in the County are greater than 50 years old and are characterized by increased hazard potential due to downstream development and increased risk due to structural deterioration in inadequate spillway capacity (Unified San Diego County Emergency Services Organization Operational Area Emergency Plan, 2000).

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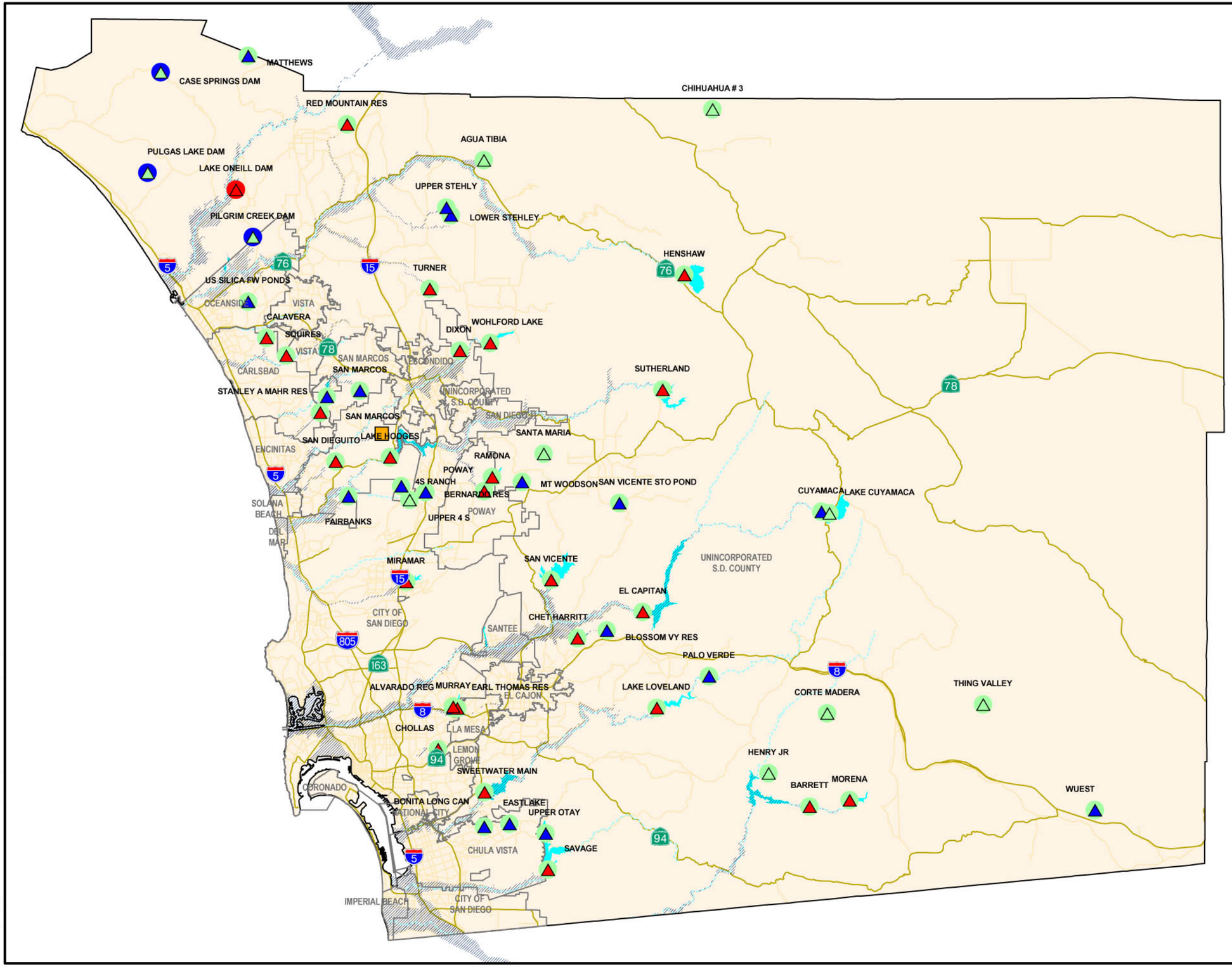
DAM FAILURE
COUNTY OF SAN DIEGO
HAZARD MITIGATION PLANNING

Profiling Hazards



LEGEND:

Dam Inundation Areas:
- Dam Inundation Area (High Risk)

Rodriquez Dam not shown, loctaed in Tijuana, Mexico

Dam Location/Relative Hazard Rating:
- High
- Significant
- Low

Emergency Action Plan:
- Yes
- No
- Not Required

Olivenhain Dam (Not yet Inundated):
- Olivenhain Dam

Base Layers:
- Incorporated City Boundary
- Streams
- Freeways
- Major Roads
- Lakes

OVERVIEW MAP:

3.5 0 3.5 7 Miles

SCALE: 1" = 7 MILES (1:443520)

URS

SOURCES: SANDAG (Roads, 1993; Streams, 1992; Lakes, 1992), SanGIS* (Incorporated City Boundaries, 2003), SanGIS*/SDCWA (Dam Innundation Data, 2000), FEMA (Dam Locations/Details, 2000).

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4.3.3 Earthquake

4.3.3.1 Nature of Hazard

An earthquake is a sudden motion or trembling that is caused by a release of strain accumulated within or along the edge of the Earth's tectonic plates. The effects of an earthquake can be felt far beyond the site of its occurrence. They usually occur without warning and, after just a few seconds, can cause massive damage and extensive casualties. Common effects of earthquakes are ground motion and shaking, surface fault ruptures, and ground failure. Ground motion is the vibration or shaking of the ground during an earthquake. When a fault ruptures, seismic waves radiate, causing the ground to vibrate. The severity of the vibration increases with the amount of energy released and decreases with distance from the causative fault or epicenter. Soft soils can further amplify ground motions. The severity of these effects is dependent on the amount of energy released from the fault or epicenter. One way to express an earthquake's severity is to compare its acceleration to the normal acceleration due to gravity. The acceleration due to gravity is often called "g". A 100% g earthquake is very severe. More damage tends to occur from earthquakes when ground acceleration is rapid. Peak ground acceleration (PGA) is a measure of the strength of ground movement. PGA measures the rate in change of motion relative to the established rate of acceleration due to gravity (980 cm/sec/sec). PGA is used to project the risk of damage from future earthquakes by showing earthquake ground motions that have a specified probability (10%, 5%, or 2%) of being exceeded in 50 years. These ground motion values are used for reference in construction design for earthquake resistance. The ground motion values can also be used to assess relative hazard between sites, when making economic and safety decisions.

Another tool used to describe earthquake intensity is the Richter scale. The Richter scale was devised as a means of rating earthquake strength and is an indirect measure of seismic energy released. The scale is logarithmic with each one-point increase corresponding to a 10-fold increase in the amplitude of the seismic shock waves generated by the earthquake. In terms of actual energy released, however, each one-point increase on the Richter scale corresponds to about a 32-fold increase in energy released. Therefore, a magnitude (M) 7 earthquake is 100 times (10 X 10) more powerful than a M5 earthquake and releases 1,024 times (32 X 32) the energy. An earthquake generates different types of seismic shock waves that travel outward from the focus or point of rupture on a fault. Seismic waves that travel through the earth's crust are called body waves and are divided into primary (P) and secondary (S) waves. Because P waves move faster (1.7 times) than S waves they arrive at the seismograph first. By measuring the time delay between arrival of the P and S waves and knowing the distance to the epicenter, seismologists can compute the Richter scale magnitude for the earthquake.

The Modified Mercalli Scale (MMI) is another means for rating earthquakes, but one that attempts to quantify intensity of ground shaking. Intensity under this scale is a function of distance from the epicenter (the closer to the epicenter the greater the intensity), ground acceleration, duration of ground shaking, and degree of structural damage. This rates the level of severity of an earthquake by the amount of damage and perceived shaking (Table 4.3-1).

Table 4.3-1
Modified Mercalli Intensity Scale

MMI Value	Description of Shaking Severity	Summary Damage Description Used on 1995 Maps	Full Description
I.			Not felt
II.			Felt by persons at rest, on upper floors, or favorably placed.
III.			Felt indoors. Hanging objects swing. Vibration like passing of light trucks. Duration estimated. May not be recognized as an earthquake.
IV.			Hanging objects swing. Vibration like passing of heavy trucks; or sensation of a jolt like a heavy ball striking the walls. Standing motorcars rock. Windows, dishes, doors rattle. In the upper range of IV, wooden walls and frame creak.
V.	Light	Pictures Move	Felt outdoors; direction estimated. Sleepers wakened. Liquids disturbed, some spilled. Small unstable objects displaced or upset. Doors swing, close, open. Shutters, pictures move. Pendulum clock stop, start, change rate.
VI.	Moderate	Objects Fall	Felt by all. Many frightened and run outdoors. Persons walk unsteadily. Windows, dishes, glassware broken. Knickknacks, books, etc., off shelves. Pictures off walls. Furniture moved or overturned. Weak plaster and masonry D cracked.
VII.	Strong	Nonstructural Damage	Difficult to stand. Noticed by drivers of motorcars. Hanging objects quiver. Furniture broken. Damage to masonry D, including cracks. Weak chimneys broken at roofline. Fall of plaster, loose bricks, stones, tiles, cornices. Some cracks in masonry C. Small slides and caving in along sand or gravel banks. Concrete irrigation ditches damaged.
VIII.	Very Strong	Moderate Damage	Steering of motorcars affected. Damage to masonry C, partial collapse. Some damage to masonry B; none to masonry A. Fall of stucco and some masonry walls. Twisting, fall of chimneys, factory stacks, monuments, towers, and elevated tanks. Frame houses moved on foundations if not bolted down; loose panel walls thrown out. Cracks in wet ground and on steep slopes.
X.	Very Violent	Extreme Damage	Most masonry and frame structures destroyed with their foundations. Some well-built wooden structures and bridges destroyed. Serious damage to dams, dikes, embankments. Large landslides. Water thrown on banks of canals, rivers, lakes, etc. Sand and mud shifted horizontally on beaches and flat land.
XI.			Rails bent greatly. Underground pipelines completely out of services.
XII.			Damage nearly total. Large rock masses displaced. Lines of sight and level distorted. Objects thrown into air.

Several major active faults exist in San Diego County, including the Rose Canyon, La Nacion, Elsinore, San Jacinto, Coronado Bank and San Clemente Fault Zones. The Rose Canyon Fault Zone is part of the Newport-Inglewood fault zone, which originates to the north in Los Angeles, and the Vallecitos and San Miguel Fault Systems to the south in Baja California (see Figure 4.3.3). The Rose Canyon Fault extends inland from La Jolla Cove, south through Rose Canyon, along the east side of Mission Bay, and out into San Diego Bay. The Rose Canyon Fault is considered to be the greatest potential threat to San Diego as a region, due to its proximity to areas of high population. The La Nacion Fault Zone is located near National City and Chula Vista. The Elsinore Fault Zone is a branch of the San Andreas Fault System. It originates near downtown Los Angeles, and enters San Diego County through the communities of Rainbow and Pala; it then travels in a southeasterly direction through Lake Henshaw, Santa Ysabel, Julian; then down into Anza-Borrego Desert State Park at Agua Caliente Springs, ending at Ocotillo, approximately 40 miles east of downtown. The San Jacinto Fault is also a branch of the San Andreas Fault System. This fault branches off from the major fault as it passes through the San Bernardino Mountains. Traveling southeasterly, the fault passes through Clark Valley, Borrego Springs, Ocotillo Wells, and then east toward El Centro in Imperial County. This fault is the most active large fault within County of San Diego. The Coronado Bank fault is located about 10 miles offshore. The San Clemente Fault lies about 40 miles off La Jolla and is the largest offshore fault at 110 miles or more in length (Unified San Diego County Emergency Services Organization Operational Area Emergency Plan, 2000).

4.3.3.2 Disaster History

Historic documents record that a very strong earthquake struck San Diego on May 27, 1862, damaging buildings in Old Town and opening up cracks in the earth near the San Diego River mouth. This destructive earthquake was centered on either the Rose Canyon or Coronado Bank faults and descriptions of damage suggest that it had a magnitude of about 6.0 (M6). The strongest recently recorded earthquake in San Diego County was a M5.3 earthquake that occurred on July 13, 1986 on the Coronado Bank Fault, 25 miles west of Solana Beach. In recent years there have been several moderate earthquakes recorded within the Rose Canyon Fault Zone as it passes beneath the city. Three temblors shook the city on 17 June 1985 (M3.9, 4.0, 3.9) and a stronger quake occurred on 28 October 1986 (M4.7) (Demere, SDNHM website 2003).

4.3.3.3 Location and Extent/Probability of Occurrence and Magnitude

Figure 4.3.3 displays the location and extent of the profiled earthquake hazard areas for San Diego County. This is based on a USGS earthquake model that shows probabilistic peak ground acceleration for every location in San Diego County. Since 1984, earthquake activity in San Diego County has increased twofold over the preceding 50 years (Demere, SDNHM website 2003). All buildings that have been built in recent decades must adhere to building codes that require them to be able to withstand earthquake magnitudes that create a PGA of 0.4 or greater. Ongoing field and laboratory studies suggest the following maximum likely magnitudes for local faults: San Jacinto (M6.4 to 7.3), Elsinore (M6.5 to 7.3), Rose Canyon (M6.2 to 7.0), La Nacion (M6.2 to 6.6), Coronado Bank (M6.0 to 7.7), San Clemente (M6.6 to 7.7) (Demere, SDNHM website 2003).

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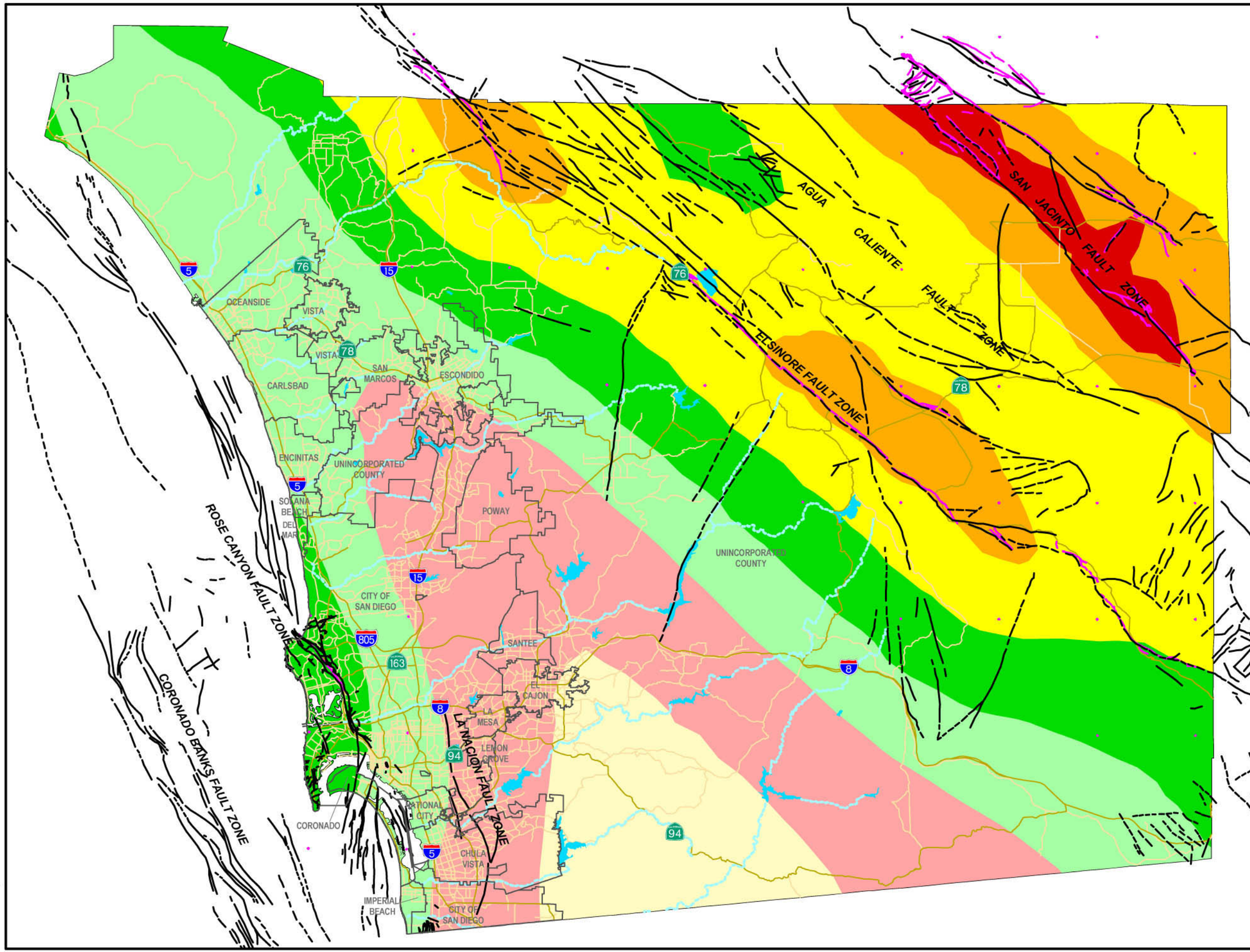

EARTHQUAKE
COUNTY OF SAN DIEGO
HAZARD MITIGATION PLANNING

Profiling Hazards

LEGEND:

Earthquake Faults:
- Fault (WWC)
- Zoned Earthquake Fault (CDMG)

Probabilistic Peak Ground Acceleration:
0.15-0.25 was classified by the Hazard Mitigation Work Group (HMWG) as "Low Shake" Potential, 0.3-0.8 was classified as "High Shake" Potential.
- 0.15
- 0.2
- 0.25
- 0.3
- 0.4
- 0.6
- 0.8

Base Layers:
- Incorporated City Boundary
- Streams
- Freeway
- Major Roads
- Lakes

OVERVIEW MAP:

N

3.5 0 3.5 7 Miles

SCALE: 1" = 7 MILES (1:443520)

URS

SOURCES: SANDAG (Roads, 1993; Streams, 1992; Lakes, 1992), SanGIS* (Incorporated City Boundaries, 2003; GeoHazards, 2000), Woodward Clyde (WWC) (Faults, 1995), California Division of Mines and Geology (CDMG) (Zoned Earthquake Faults, 1996), USGS (Probabilistic Peak Gound Acceleration (PGA), 2001).

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Data used to profile earthquake hazard included probabilistic PGA data from the United States Geological Survey (USGS) and a Scenario Earthquake Shake map for Rose Canyon from the California Integrated Seismic Network (CISN) (refer to Attachment A for complete data matrix). From these data, the HMWG determined that risk level for earthquake is determined to be high if an area lies within a 0.3 or greater PGA designation. Earthquakes were modeled using HAZUS-MH, which uses base information to derive probabilistic peak ground accelerations much like the PGA map from USGS that was used for the profiling process.

4.3.4 Flood

4.3.4.1 Nature of Hazard

A flood occurs when excess water from snowmelt, rainfall, or storm surge accumulates and overflows onto a river's bank or to adjacent floodplains. Floodplains are lowlands adjacent to rivers, lakes, and oceans that are subject to recurring floods. Most injury and death from flood occurs when people are swept away by flood currents, and property damage typically occurs as a result of inundation by sediment-filled water. Average annual precipitation in San Diego County ranges from 10 inches on the coast to approximately 45 inches on the highest point of the Peninsular Mountain Range that transects the county, and 3 inches in the desert east of the mountains.

Several factors determine the severity of floods, including rainfall intensity and duration. A large amount of rainfall over a short time span can result in flash flood conditions. A sudden thunderstorm or heavy rain, dam failure, or sudden spills can cause flash flooding. The National Weather Service's definition of a flash flood is a flood occurring in a watershed where the time of travel of the peak of flow from one end of the watershed to the other is less than six hours. There are no watersheds in San Diego County that have a longer response time than six hours. Flash floods in this county range from the stereotypical wall of water to a gradually rising stream. The central and eastern portions of San Diego County are most susceptible to flash floods where mountain canyons, dry creek beds, and high deserts are the prevailing terrain.

4.3.4.2 Disaster History

From 1770 until 1952, 29 floods were recorded in San Diego County. Between 1950 and 1997, flooding prompted 10 Proclaimed States of Emergency in the County of San Diego. Several very large floods have caused significant damage in the County of San Diego in the past. The Hatfield Flood of 1916 destroyed the Sweetwater and Lower Otay Dams, and caused 22 deaths and $4.5 million in damages. The flood of 1927 caused $117,000 in damages, and washed out the Old Town railroad bridge (Bainbridge, 1997). The floods of 1937 and 1938 caused approximately $600,000 in damages. (County of San Diego Sanitation and Flood Control, 1996). In the 1980 floods, the San Diego River at Mission Valley peaked at 27,000 cubic feet per second (cfs) and caused $120 million in damage (Bainbridge, 1997).

Table 4.3-2 displays a history of flooding in San Diego County, as well as loss associated with each flood event.

Table 4.3-2
Historical Records of Large Floods in San Diego County

Date	Loss Estimation	Source of Estimate	Comments
1862	Not available	County of San Diego Sanitation and Flood Control	6 weeks of rain
1891	Not available	County of San Diego Sanitation and Flood Control	33 inches in 60 hours
1916	$4.5 million	County of San Diego Sanitation and Flood Control	Destroyed 2 dams, 22 deaths
1927	$117,000	County of San Diego Sanitation and Flood Control	Washed out railroad bridge Old Town
1937 & 1938	$600,000	County of San Diego Sanitation and Flood Control	N/A
1965	Not available	San Diego Union	6 killed
1969	Not available	San Diego Union	All of State declared disaster area
1979	$2,766,268	County OES	Cities of La Mesa, Lemon Grove, National City, San Marcos, San Diego and unincorporated areas
1980	$120 million	County of San Diego Sanitation and Flood Control; Earth Times	San Diego river topped out in Mission Valley
Oct-87	$640,500	State OES	N/A
1995	$Tens of Millions	County OES	San Diego County Declared Disaster Area

4.3.4.3 Location and Extent/Probability of Occurrence and Magnitude

In regions such as San Diego, without extended periods of below-freezing temperatures, floods usually occur during the season of highest precipitations or during heavy rainfalls after long dry spells. The areas surrounding the river valleys in all of San Diego County are susceptible to flooding because of the wide, flat floodplains surrounding the riverbeds, and the numerous structures that are built in the floodplains. One unusual characteristic of San Diego's hydrology is that it has a high level of variability in its runoff. The western watershed of the County of San Diego extends about 80 miles north from the Mexican border and approximately 45 miles east of the Pacific Ocean. From west to east, there are about 10 miles of rolling, broken coastal plain, 10 to 15 miles of foothill ranges with elevations of 600 to 1,700 feet; and approximately 20 miles of mountain country where elevations range from 3,000 to 6,000 feet. This western watershed constitutes about 75% of the County, with the remaining 25% mainly desert country. There are over 3,600 miles of rivers and streams which threaten residents and over 200,000 acres of flood-prone property. Seven principle streams originate or traverse through the unincorporated area. From north to south they are the Santa Margarita, San Luis Rey, San Dieguito, San Diego, Sweetwater, Otay,

and Tijuana Rivers (Unified San Diego County Emergency Services Organization Operational Area Emergency Plan, 2000).

FEMA FIRM data was used to determine hazard risk for floods in the County of San Diego. FEMA defines flood risk primarily by a 100-year flood zone, which is applied to those areas with a 1% chance, on average, of flooding in any given year. Any area that lies within the FEMA-designated 100-year floodplain is designated as high risk. Any area found in the 500-year floodplain is designated at low risk. Base flood elevations (BFE) were also used in the Hazus-MH modeling process. A BFE is the elevation of the water surface resulting from a flood that has a 1% chance of occurring in any given year (i.e. the height of the base flood).

Figure 4.3.4 displays the location and extent of flood hazard areas for the County of San Diego. As shown in this figure, high hazard (100-year floodway) zones in San Diego County are generally concentrated within the coastal areas, including bays, coastal inlets and estuaries. Major watershed areas connecting the local mountain range to the coastal region, where flash floods are more common, show several 100-year flood hazard areas.

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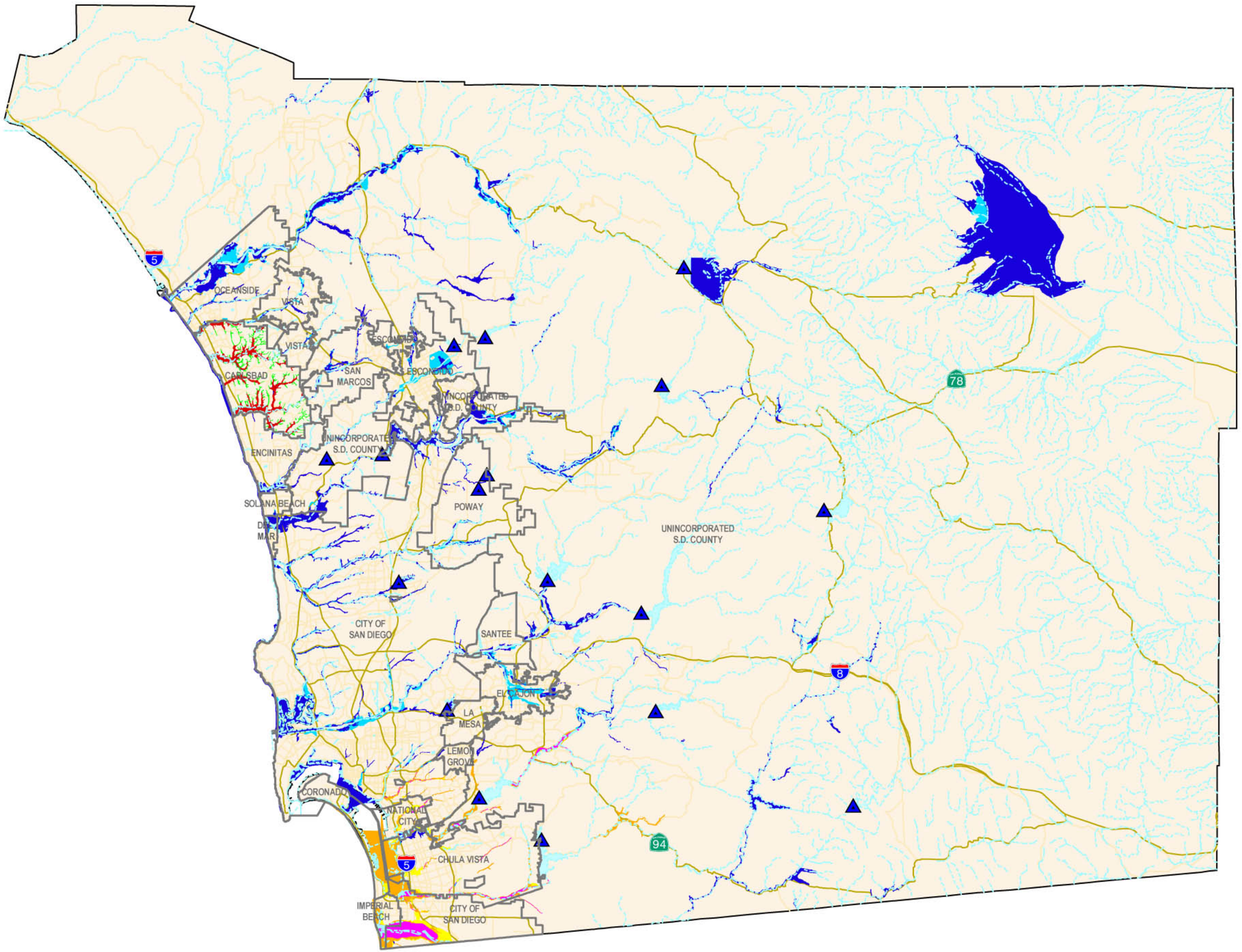

FLOOD
COUNTY OF SAN DIEGO
HAZARD MITIGATION PLANNING

Profiling Hazards

LEGEND:

Flood Layers:
- FEMA FIRM 100-year Floodplain ***(High Risk)***
- FEMA FIRM 500-year Floodplain ***(Low Risk)***
- Dam Location

City of Carlsbad Flood Data:
- High Flood Hazard
- Moderate Flood Hazard
- Low Flood Hazard

City of Chula Vista Flood Data:
- High Flood Hazard
- Moderate Flood Hazard
- Low Flood Hazard

Base Layers:
- Incorporated City Boundary
- Streams
- Freeways
- Major Roads
- Lakes

OVERVIEW MAP:

N

3.5 0 3.5 7 Miles

SCALE: 1" = 7 MILES (1:443520)

URS

SOURCES: SANDAG (Roads, 1993; Lakes, 1992), TIGER (Streams, 2000), SanGIS* (Incorporated City Boundaries, 2003), FEMA (Flood Insurance Rate Map (FIRM) Flood Data, 1997; Dam Locations, 2000), City of Carlsbad (Additional Flood Data, 1992) City of Chula Vista (Additional Flood Data, 2003).

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4.3.5 Rain-Induced Landslide

4.3.5.1 Nature of Hazard

Landslides occur when masses of rock, earth, or debris move down a slope, including rock falls, deep failure of slopes, and shallow debris flows. Landslides are influenced by human activity (mining and construction of buildings, railroads, and highways) and natural factors (geology, precipitation, and topography). Frequently they accompany other natural hazards such as floods, earthquakes, and volcanic eruptions. Although landslides sometimes occur during earthquake activity, earthquakes are rarely their primary cause. The most common cause of a landslide is an increase in the down slope gravitational stress applied to slope materials (oversteepening). This may be produced either by natural processes or by man's activities. Undercutting of a valley wall by stream erosion or of a sea cliff by wave erosion are ways in which slopes may be naturally oversteeped. Other ways include excessive rainfall or irrigation on a cliff or slope. Another type of soil failure is slope wash, the erosion of slopes by surface-water runoff. The intensity of slope wash is dependent on the discharge and velocity of surface runoff and on the resistance of surface materials to erosion. Surface runoff and velocity is greatly increased in urban and suburban areas due to the presence of roads, parking lots, and buildings, which have zero filtration capacities and provide generally smooth surfaces that do not slow down runoff.

Mudflows are another type of soil failure, and are defined as flows or rivers of liquid mud down a hillside. They occur when water accumulates under the ground, usually following long and heavy rainfalls. If there is no brush, tree, or ground cover to hold the soil, mud will form and flow down the slope.

4.3.5.2 Disaster History

Landslides and landslide prone sedimentary formations are present throughout the coastal plain of western San Diego County. Landslides also occur in the granitic mountains of East San Diego County, although they are less prevalent. Ancient landslides are those with subdued topographic expressions that suggest movements at least several hundred and possibly several thousands of years before present. Many of these landslides are thought to have occurred under much wetter climatic conditions than at present. Recent landslides are those with fresh or sharp geomorphic expressions suggestive of active (ongoing) movement or movement within the past several decades. Reactivations of existing landslides can be triggered by disturbances such as heavy rainfall, seismic shaking and/or grading. Many recent landslides are thought to be reactivations of ancient landslides.

Areas where significant landslides have occurred are: the Otay Mesa area, Oceanside, Mt. Soledad in La Jolla, Sorrento Valley, in the vicinity of Rancho Bernardo and Rancho Penasquitos, along the sides of Mission Gorge (San Carlos and Tierrasanta), western Santee, the Fletcher Hills area of western El Cajon, western Camp Pendleton, and the east side of Point Loma. Some of the more significant historical coastal bluff landslides have occurred along north La Jolla (Black's Beach), Torrey Pines, Del Mar, and Encinitas. Landslides tend to be more widespread in these areas where the underlying sedimentary formations contain weak claystone beds that are more susceptible to sliding.

Remedial grading and other mitigation measures have stabilized many but not all landslides in urban areas and other developments within San Diego County. Published geologic maps and other sources of information pertaining to landslide occurrence may not differentiate between known or suspected landslides. Moreover, published landslide maps (such as those used to compile the landslide areas for this effort) are not always updated or revised to reflect landslides that have been stabilized, or in some cases completely removed. The landslide maps for this study have been compiled for planning and emergency responses preparedness, and the compilation sources may not reflect current or existing conditions.

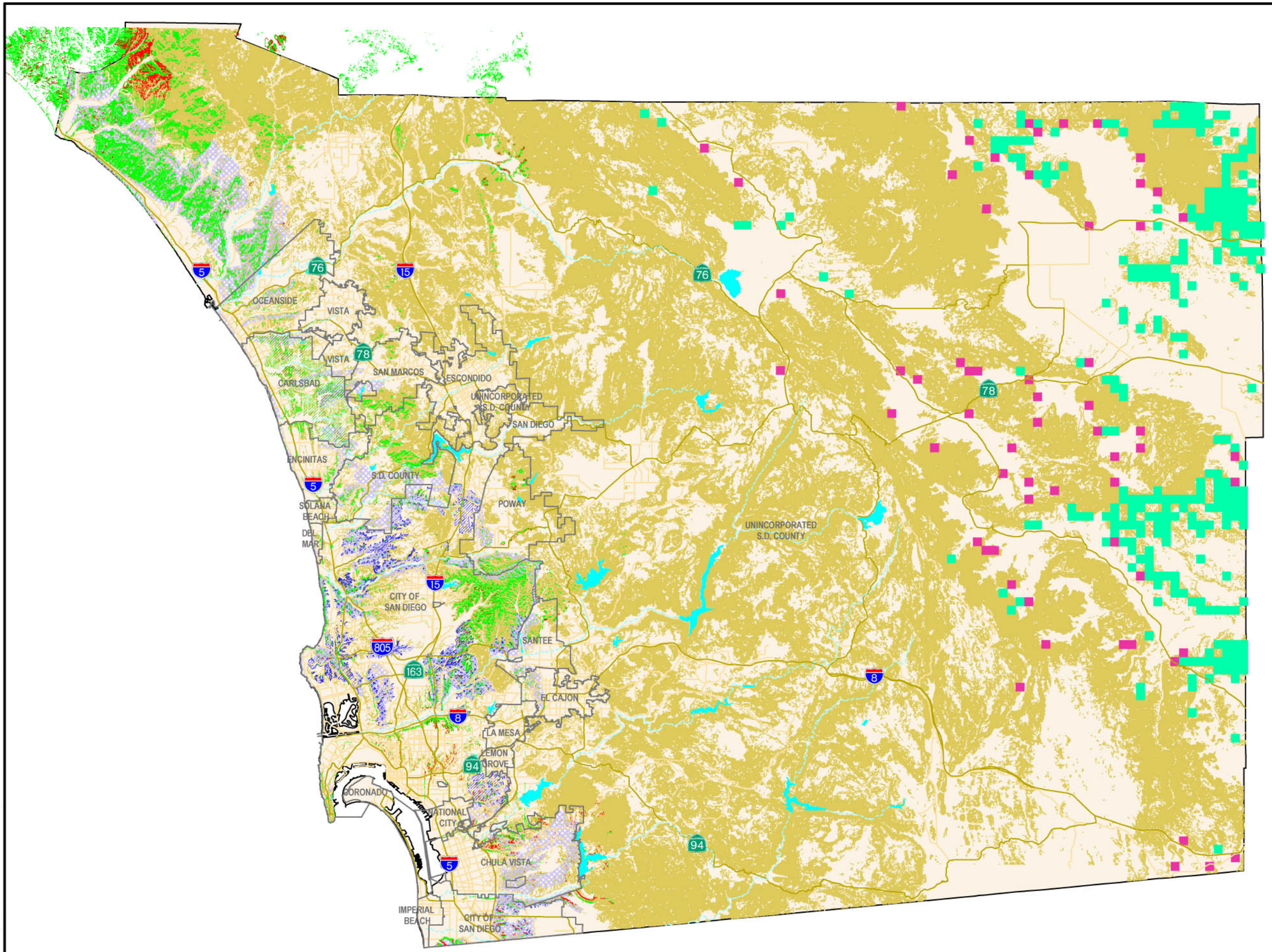
4.3.5.3 Location and Extent/Probability of Occurrence and Magnitude

Data used to determine landslide risk were steep slope (greater than 25%), soil series data (SANDAG, based on USGS 1970s series), and soil-slip susceptibility from USGS. Because landslide data in GIS format was not available for the entire county, a model was run using USGS soils and steep slope data to determine landslide risk areas for the entire County. Tan Landslide Susceptibility Maps that depict steep slope areas, landslide formations, and landslide susceptible areas based on a combination of slope, soils and geologic instability were also used in the analysis (refer to Attachment A for complete data matrix).

As shown in Figure 4.3.5, the location and extent of landslide hazard areas are generally concentrated along canyons near the coastal areas with steep slopes. The western portion of the county shows the soil-slip susceptibility data, while the eastern portion of the county shows the results of the model used to determine landslide risk for areas that were not included in the soil-slip susceptibility model. Housing development on marginal lands and in unstable but highly desirable coastal areas has increased the threat from landslides throughout San Diego County.

RAIN-INDUCED LANDSLIDE
COUNTY OF SAN DIEGO
HAZARD MITIGATION PLANNING

Profiling Hazards



LEGEND:

Soil-Slip Susceptibility (USGS 2003):
- HIGH
- MODERATE

Landslide Susceptibility (HAZUS 2003):
- HIGH
- MODERATE

Slope Instability Within Carlsbad Limits:
- High Slope Instability
- Moderate-High Slope Instability
- Low-Moderate Slope Instability
- Low Slope Instability

Geohazards Layers
- LANDSLIDES
- SLIDE PRONE FORMATIONS
- STEEP SLOPES (+25%)

Base Layers:
- Incorporated City Boundary
- Streams
- Freeway
- Major Roads
- Lakes

OVERVIEW MAP:

N

3.5 0 3.5 7 Miles

SCALE: 1" = 7 MILES (1:443520)

URS

SOURCES: SANDAG (Steep Slope Data, 1995; Roads, 1993; Streams, 1992; Lakes, 1992), SanGIS* (Incorporated City Boundaries, 2003; Geo-Hazards, 2000), Woodward Clyde (Landslides, 1995), USGS (Soil-Slip Susceptibility, 2003), HAZUS (Landslide susceptibility 2003), City of Carlsbad (Slope stability, 1992).

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4.3.6 Liquefaction

4.3.6.1 Nature of Hazard

Liquefaction is the phenomenon that occurs when ground shaking causes loose soils to lose strength and act like viscous fluid. Liquefaction causes two types of ground failure: lateral spread and loss of bearing strength. Lateral spreads develop on gentle slopes and entails the sidelong movement of large masses of soil as an underlying layer liquefies. Loss of bearing strength results when the soil supporting structures liquefies and causes structures to collapse.

4.3.6.2 Disaster History

Liquefaction is not known to have occurred historically in San Diego County, although liquefaction has occurred in the Imperial Valley in response to large earthquakes (Magnitude 6 or greater) originating in that area. Although San Diego is one of several major California cities in seismically active regions, ground failures or damage to structures has not occurred as a consequence of liquefaction. Historically, seismic shaking levels have not been sufficient to trigger liquefaction. Paleoseismic indicators of liquefaction have been recognized locally, and several pre-instrumental (prior to common use of seismographs) earthquakes could have been severe enough to cause at least some liquefaction.

4.3.6.3 Location and Extent/Probability of Occurrence and Magnitude

Recognizing active faults in the region, and the presence of geologically young, unconsolidated sediments and hydraulic fills, the potential for liquefaction to occur has been long recognized in the San Diego area. The regions of San Diego Bay and vicinity are thought to be especially vulnerable. The potential exists in areas of loose soils and/or shallow groundwater in earthquake fault zones throughout the County. Figure 4.3.6 displays the location and extent of areas with a risk of liquefaction.

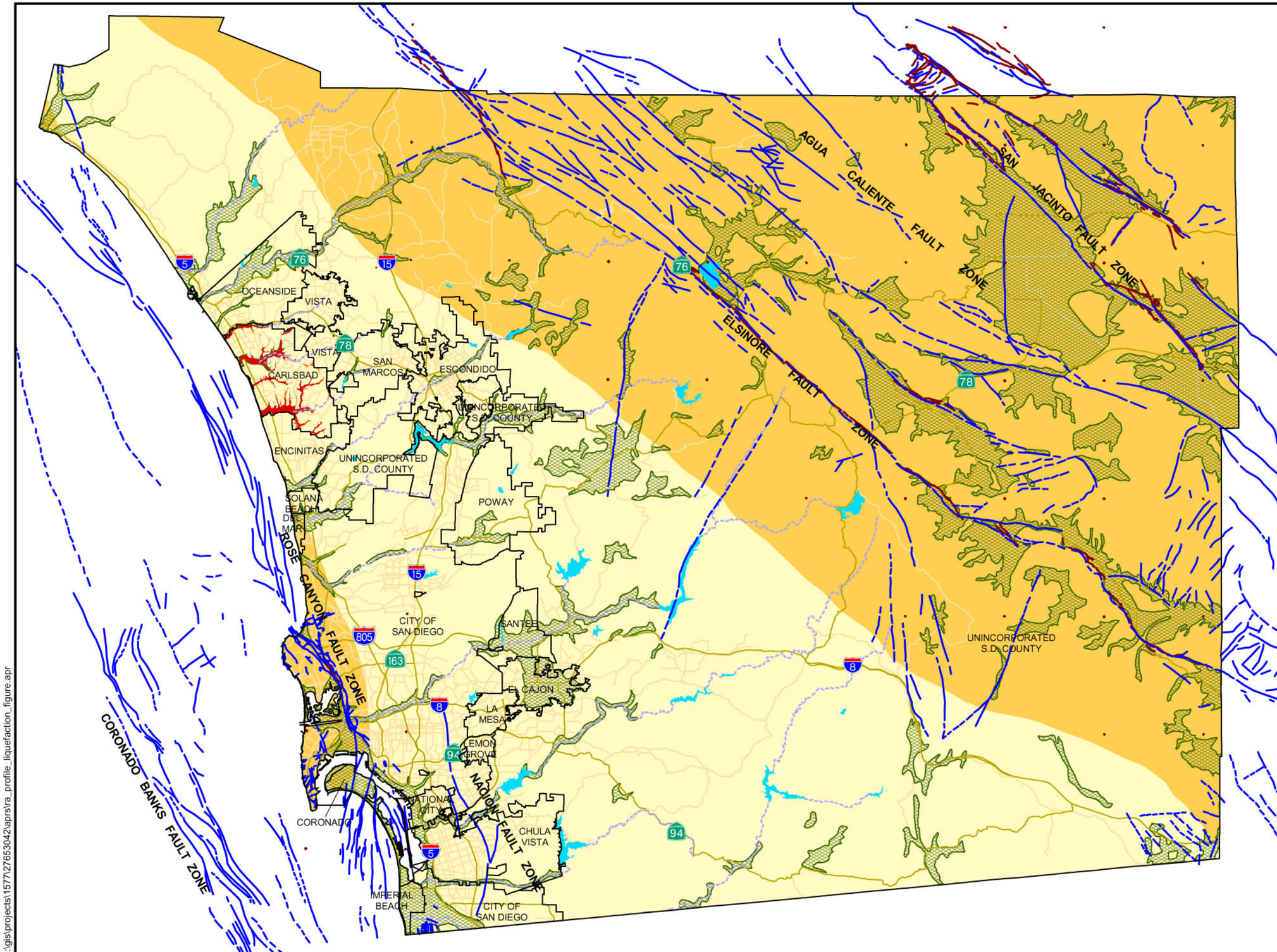
Data used to profile liquefaction hazard included probabilistic PGA data from the United States Geological Survey (USGS) and a Scenario Earthquake Shake map for Rose Canyon from the California Integrated Seismic Network (CISN), along with existing liquefaction hazard areas from local maps (refer to Attachment A for complete data matrix). Liquefaction hazards were modeled as collateral damages of earthquakes using HAZUS-MH, which uses base information and NEHRP soils data to derive probabilistic peak ground accelerations much like the PGA map from USGS. Soils were considered because liquefaction risk may be amplified depending on the type of soil found in a given area. The National Earthquake Hazards Reduction Program (NEHRP) rates soils from hard to soft, and give the soils ratings from Type A through Type E, with the hardest soils being Type A, and the softest soils rated at Type E. Liquefaction risk was considered high if there were soft soils (Types D or E) present within an active fault zone. Liquefaction risk was considered low if the PGA risk value was less than 0.3, and hard soils were present (Types A-C). For example, an area may lie in a PGA zone of 0.2, which would be a low liquefaction risk in hard soils identified by the NEHRP. However, if that same PGA value is found within a soft soil such as Type D or E, a PGA of 0.2, when multiplied by 1.4 or 1.7 (amplification values for type D and E soil, shown below), would become a PGA value of at least 0.28 to 0.3. This would increase the liquefaction risk to high. Areas where soil types D or E are located are illustrated in Figure 4.3.6.

Soil Amplification Factors

	Soil Type				
PGA	A	B	C	D	E
0.1	0.80	1.00	1.20	1.60	2.50
0.2	0.80	1.00	1.20	1.40	1.70
0.3	0.80	1.00	1.10	1.20	1.20
0.4	0.80	1.00	1.00	1.10	0.90
0.5	0.80	1.00	1.00	1.00	0.80

LIQUEFACTION
COUNTY OF SAN DIEGO
HAZARD MITIGATION PLANNING

Profiling Hazards



LEGEND:

Earthquake Faults:
- Fault (WWC)
- Zoned Earthquake Fault (CDMG)

Liquefaction Layers:
- NEHRP Soft Soil Types that may amplify effects of EQ to High Risk of Liquefaction

Probabilistic Peak Ground Acceleration:
- 0.15 - 0.25 (Low Liquefaction Risk)
- 0.3-0.8 (High Liquefaction Risk)

Within Carlsbad Limits:
- High Liquefaction
- Moderate Liquefaction
- Low-Moderate Liquefaction

Artificial Fill Areas Within Coronado Limits:
- Subject to Liquefaction

Base Layers:
- Incorporated City Boundary
- Streams
- Freeway
- Major Road
- Lakes

OVERVIEW MAP:

N

3.5 0 3.5 7 Miles

SCALE: 1" = 7 MILES (1:443520)

URS

SOURCES: SANDAG (Roads, 1993; Streams, 1992; Lakes, 1992), SanGIS* (Incorporated City Boundaries, 2003; GeoHazards, 2000), Woodward Clyde (WWC) (Faults, 1995), California Division of Mines and Geology (CDMG) (Zoned Earthquake Faults, 1996), USGS (Probabilistic Peak Ground Acceleration (PGA), 2001), National Earthquake Hazards Protection Program (NEHRP) (Soft Soil Types, 1994), Kennedy Geology Maps (Artificial Fill Areas, 1975), City of Carlsbad (Liquefaction, 1992).

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4.3.7 Structure/Wildfire Fire

4.3.7.1 Nature of Hazard

A structural fire hazard is one where there is a risk of a fire starting in an urban setting and spreading uncontrollably from one building to another across several city blocks, or within hi-rise buildings.

A wildfire is an uncontrolled fire spreading through vegetative fuels and exposing or possibly consuming structures. They often begin unnoticed and spread quickly. Naturally occurring and non-native species of grasses, brush, and trees fuel wildfires. A wildland fire is a wildfire in an area in which development is essentially nonexistent, except for roads, railroads, power lines and similar facilities. An Urban-Wildland/Urban Interface fire is a wildfire in a geographical area where structures and other human development meet or intermingle with wildland or vegetative fuels. Significant development in San Diego County is located along canyon ridges at the wildland/urban interface. Areas that have experienced prolonged droughts or are excessively dry are at risk of wildfires.

People start more than 80 percent of wildfires, usually as debris burns, arson, or carelessness. Lightening strikes are the next leading cause of wildfires. Wildfire behavior is based on three primary factors: fuel, topography, and weather. The type, and amount of fuel, as well as its burning qualities and level of moisture affect wildfire potential and behavior. The continuity of fuels, expressed in both horizontal and vertical components is also a determinant of wildfire potential and behavior. Topography is important because it affects the movement of air (and thus the fire) over the ground surface. The slope and shape of terrain can change the speed at which the fire travels, and the ability of firefighters to reach and extinguish the fire. Weather affects the probability of wildfire and has a significant effect on its behavior. Temperature, humidity and wind (both short and long term) affect the severity and duration of wildfires.

San Diego County's topography, consisting of a semi-arid coastal plain and rolling highlands, when fueled by shrub overgrowth, occasional Santa Ana winds and high temperatures, creates an ever-present threat of wildland fire. Extreme weather conditions such as high temperature, low humidity, and/or winds of extraordinary force may cause an ordinary fire to expand into one of massive proportions.

Large fires would have several indirect effects beyond those that a smaller, more localized fire would create. These may include air quality and health issues, road closures, business closures, and others that increase the potential losses that can occur from this hazard. Modeling for a larger type of fire would be difficult, but the consequences of the most recent San Diego fires (Firestorm of October 2003) should be used as a guide for fire planning and mitigation.

4.3.7.2 Disaster History

Table 4.3-3 lists the most recent major wildfires in San Diego County. Wildland fires prompted five (5) Proclaimed States of Emergency, and Urban/Intermix Fires prompted two (2) Proclaimed States of Emergency in the County of San Diego between 1950-2003. San Diego County's worst wildfire occurred in October 2003. Several fires burned at the same time throughout the County, burning over 392,000 acres in the urban areas and the backcountry. The fires destroyed 2,668 residential and commercial structures and damaged 165 structures, with a dollar cost to date of $450 million. Costs of the fire are still being determined, and the risk of erosion during the winter rains has increased due to the loss of

vegetative cover on slopes throughout the county. San Diego County's second worst wildfire in history, known as the Laguna Fire, destroyed thousands of acres in the backcountry in September of 1970. The fire resulted in the loss or destruction of 383 homes and 1,200 other structures ($5.7 million); 225,000 acres of trees and other watershed ($30 million); small dams ($3 million); and bridges and roads ($600,000). The total dollar cost of the Laguna Fire was approximately $40 million.

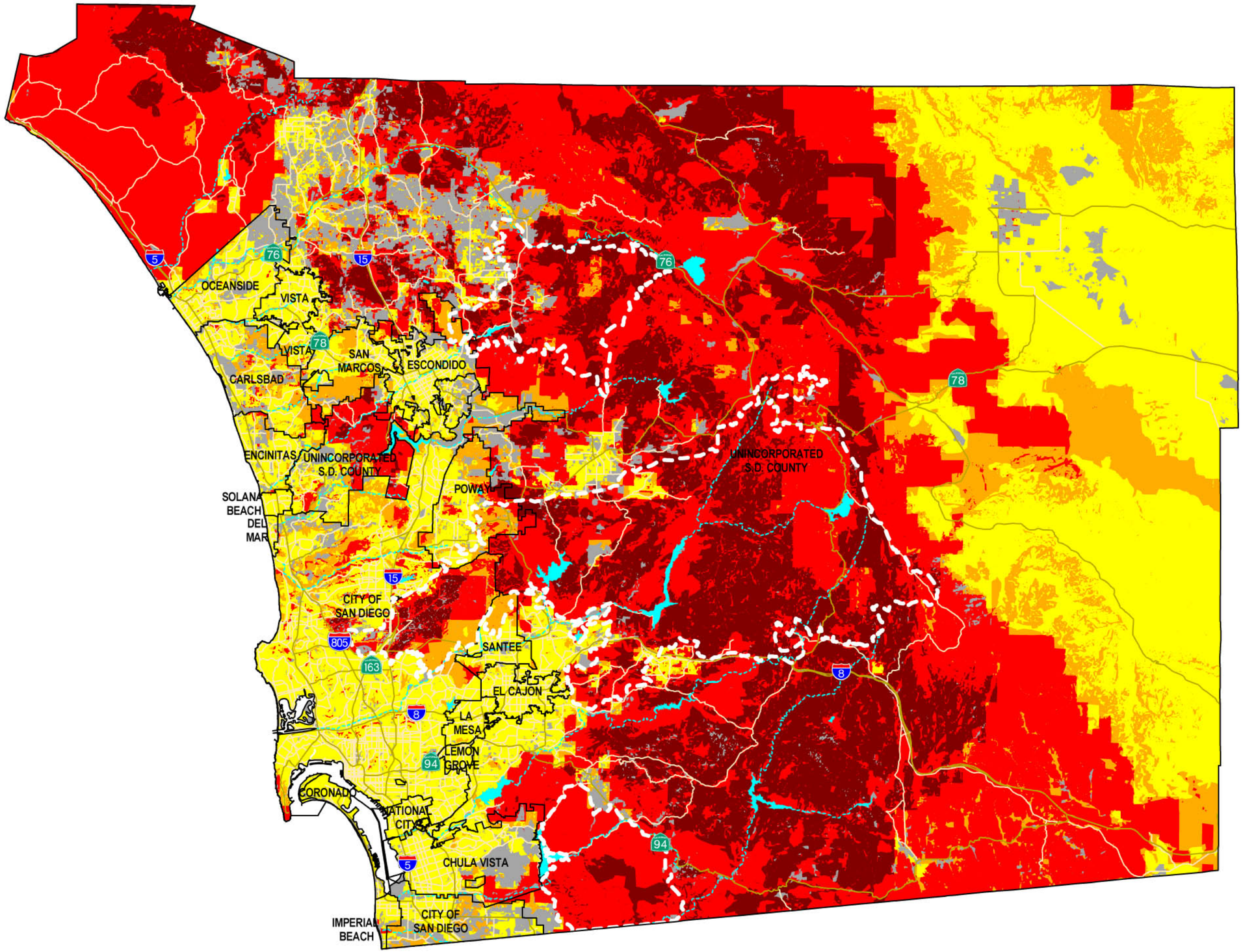
Table 4.3-3
Major Wildfires in San Diego County

Fire	Date	Acres Burned	Structures Destroyed	Structures Damaged	Deaths
Paradise Fire	October 2003	57,000	415	15	2
Cedar Fire	October 2003	280,278	5,171	63	14
Otay Fire	October 2003	46,291	6	0	0
Roblar (Pendleton)	October 2003	8,592	0	0	0
Pines Fire (Julian, Ranchita)	July 2002	61,690	45	121	0
Gavilan Fire (Fallbrook)	February 2002	6,000	43	13	0
Viejas Fire	January 2001	10,353	23	6	0
La Jolla Fire (Palomar Mtn)	September 1999	7,800	2	2	1
Harmony Fire (Carlsbad, Elfin Forest, San Marcos)	October 1996	8,600	122	142	1
Conejos Fire	July 1950	62,000	Not Available	Not Available	0
Laguna Fire	October 1970	190,000	382	Not Available	5

4.3.7.3 Location and Extent/Probability of Occurrence and Magnitude

CDF-FRAP modeled wildland fire threat for the state of California in 2002. This model was used in GIS to profile the fire hazard throughout the County, and is described in detail below in the Vulnerability Assessment portion of this document. This data was updated as requested by the San Marcos and Escondido jurisdictions, and is reflected in the hazard modeling process and subsequent mapping (refer to Attachment A for the complete data matrix). Figure 4.3.7 displays the location and extent of the risk level for wildfire/structure fire throughout the county, and shows the perimeters of the 2003 fires.

It should be noted that the hazard level depicted within the boundaries of the October 2003 fires (Figure 4.3.7) will change after CDF re-evaluates these very recently burned areas. After this re-evaluation is complete, it is expected that CDF-FRAP will remodel the fire risk and provide updated risk maps. These updated maps should be included in future revisions of this plan.



STRUCTURE FIRE/WILDFIRE
COUNTY OF SAN DIEGO
HAZARD MITIGATION PLANNING

Profiling Hazards

LEGEND:

Wildfire Hazard Level:
- Little or No Threat
- Moderate
- High
- Very High
- Extreme
- 2003 Approximate Fire Perimeters

Base Layers:
- Incorporated City Boundary
- Streams
- Freeways
- Major Roads
- Lakes

OVERVIEW MAP:

N

3.5 0 3.5 7 Miles

SCALE: 1" = 7 MILES (1:443520)

URS

SOURCES: SANDAG (Roads, 1993; Lakes, 1992), SANGIS* (Incorporated City Boundaries, 2003), TIGER (Streams, 2000), CA Dept. of Forestry-FRAP (Fire Threat Model/Wildfire Hazard Level, 2003), CA Dept. of Forestry (Approximate Fire Perimeters, 2003), San Marcos Fire Dept. (Updated Fire Information, January 2003), Escondido Fire Dept. (Updated Fire Information, 2003).

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4.3.8 Manmade Hazards

4.3.8.1 Nature of Hazard

Manmade hazards are distinct from natural hazards in that they result directly from the actions of people. Two types of manmade hazards can be identified: technological hazards and terrorism. Technological hazards refer to incidents that can arise from human activities such as the manufacture, storage, transport, and use of hazardous materials, which include toxic chemicals, radioactive materials, and infectious substances. Technological hazards are assumed to be accidental and their consequences unintended. Terrorism, on the other hand, encompasses intentional, criminal, and malicious acts involving weapons of mass destruction (WMDs) or conventional weapons. WMDs can involve the deployment of biological, chemical, nuclear, and radiological weapons. Conventional weapons and techniques include the use of arson, incendiary explosives, armed attacks, intentional hazardous materials release, and cyber-terrorism (attack via computer).

Hazardous Materials

Technological hazards involving hazardous material releases can occur at facilities (fixed site) or along transportation routes (off-site). They can occur as a result of human carelessness, technological failure, intentional acts, and natural hazards. When caused by natural hazards, these incidents are known as secondary hazards, whereas intentional acts are terrorism. Hazardous materials releases, depending on the substance involved and type of release, can directly cause injuries and death and contaminate air, water, and soils. While the probability of a major release at any particular facility or at any point along a known transportation corridor is relatively low, the consequences of releases of these materials can be very serious.

Some hazardous materials present a radiation risk. Radiation is any form of energy propagated as rays, waves or energetic particles that travel through the air or a material medium. Radioactive materials are composed of atoms that are unstable. An unstable atom gives off its excess energy until it becomes stable. The energy emitted is radiation. The process by which an atom changes from an unstable state to a more stable state by emitting radiation is called radioactive decay or radioactivity.

Radiological materials have many uses in San Diego County including:

- use by doctors to detect and treat serious diseases,
- use by educational institutions and companies for research,
- use by the military to power large ships and submarines, and
- use as a critical base material to help produce the commercial electrical power that is generated by a nuclear power plant.

Radioactive materials, if handled improperly, or radiation accidentally released into the environment, can be dangerous because of the harmful effects of certain types of radiation on the body. The longer a person is exposed to radiation and the closer the person is to the radiation, the greater the risk. Although radiation cannot be detected by the senses (sight, smell, etc.), it is easily detected by scientists with sophisticated

instruments that can detect even the smallest levels of radiation. Under extreme circumstances an accident or intentional explosion involving radiological materials can cause very serious problems. Consequences may include death, severe health risks to the public, damage to the environment, and extraordinary loss of, or damage to, property.

Terrorism

Following a number of serious international and domestic terrorist incidents during the 1990's and early 2000's, citizens across the United States have paid increased attention to the potential for deliberate, harmful terrorist actions by individuals or groups with political, social, cultural, and religious motives. There is no single, universally accepted definition of terrorism, and it can be interpreted in a variety of ways. However, terrorism is defined in the Code of Federal Regulations as "…the unlawful use of force and violence against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of political or social objectives" (28 CFR, Section 0.85). The Federal Bureau of Investigation (FBI) further characterizes terrorism as either domestic or international, depending on the origin, base, and objectives of the terrorist organization. However, the origin of the terrorist or person causing the hazard is far less relevant to mitigation planning than the hazard itself and its consequences. Terrorists utilize a wide variety of agents and delivery systems.

4.3.8.2 Disaster History

Hazardous Material Releases

Hazardous materials can include toxic chemicals, radioactive materials, infectious substances, and hazardous wastes. The State of California defines a hazardous material as a substance that is toxic, ignitable or flammable, or reactive and/or corrosive. An extremely hazardous material is defined as a substance that shows high acute or chronic toxicity, carcinogenicity, bio-accumulative properties, persistence in the environment, or is water reactive (California Code of Regulations, Title 22). "Hazardous waste," a subset of hazardous materials, is material that is to be abandoned, discarded, or recycled, and includes chemical, radioactive, and biohazardous waste (including medical waste). An accidental hazardous material release can occur wherever hazardous materials are manufactured, stored, transported, or used. Such releases can affect nearby populations and contaminate critical or sensitive environmental areas.

Numerous facilities in San Diego County generate hazardous wastes in addition to storing and using large numbers of hazardous materials. There are a total of 13,034 sites with permits to store and maintain chemical, biological and radiological agents, and explosives in the County. Although the scale is usually small, emergencies involving the release of these substances can occur daily at both these fixed sites and on the County's streets and roadways. The major transit corridors of Interstates 5 and 805 have been the locations of the majority of incidents the Hazardous Incident Response Team (HIRT) has responded to in recent years. In fact, the *Unified San Diego County Emergency Services Organization's Operational Area Emergency Plan* notes in 2000 that 85% of the incidents HIRT responded to were along the I-5 and I-805 corridor.

Facilities that use, manufacture, or store hazardous materials in California must comply with several state and federal regulations. The Superfund Amendments and Reauthorization Act (SARA Title III), which was enacted in 1986 as a legislative response to airborne releases of methyl isocyanate at Union Carbide plants in Bhopal, India and in Institute, West Virginia. SARA Title III, also known as the Emergency Planning and Community-Right-To-Know Act (EPCRA), directs businesses that handle, store or manufacture hazardous materials in specified amounts to develop emergency response plans and report releases of toxic chemicals. Additionally, Section 312 of Title III requires businesses to submit an annual inventory report of hazardous materials to a state-administering agency. The California legislature passed Assembly Bill 2185 in 1987, incorporating the provisions of SARA Title III into a state program. The community right-to-know requirements keep communities abreast of the presence and release of hazardous wastes at individual facilities.

Table 4.3-4 shows a breakdown by jurisdiction of facilities in the County with permits to store and maintain chemical, biological and radiological agents, and explosives. Facilities with EPA ID Numbers are facilities that generate hazardous waste.

Table 4.3-4
Licensed Hazardous Material Sites by Jurisdiction

Jurisdiction	Facilities with County Environmental Health Hazardous Material Permits	Facilities with EPA ID Numbers	Facilities with Approved Hazmat Response Plans
Carlsbad	338	180	242
Chula Vista	726	356	400
Coronado	79	42	38
Del Mar	48	19	25
El Cajon	742	378	532
Encinitas	346	107	164
Escondido	826	396	560
Imperial Beach	43	23	30
La Mesa	299	110	128
Lemon Grove	121	69	93
National City	376	198	241
Oceanside	508	271	331
Poway	293	133	166
San Diego	5561	2766	3367
San Marcos	485	270	361
Santee	264	141	199
Solana Beach	65	22	29
Unincorporated	1372	556	894
Vista	542	292	382
TOTAL	**13,034**	**6,329**	**8,182**

Additional information about the chemicals handled by manufacturing or processing facilities is contained in the U.S. Environmental Protection Agency's (EPA) Toxic Release Inventory (TRI) database. The TRI is a publicly available EPA database that contains information on toxic chemical emissions and waste

management activities reported by certain industry groups as well as federal facilities. This inventory was established under EPCRA and expanded by the Pollution Prevention Act of 1990. Facilities that exceed threshold emissions levels must report TRI information to the U.S. EPA, the federal enforcement agency for SARA Title III.

Hazardous materials spills and releases in San Diego County have occurred as a result of clandestine drug manufacturing; spills from commercial, military and recreational vessels on the region's waterways; traffic accidents; sewer breaks and overflows; and various accidents/incidents related to the manufacture, use, and storage of hazardous materials by County industrial, commercial and government facilities. Although the following emergency response history for San Diego County chronicles various hazardous materials releases, the incidents do not necessarily indicate the degree of exposure to the public.

There were 363 chemical waste, 83 infectious waste and two radioactive waste incidents in San Diego County in 2002 that required response by the County Hazardous Incident Response Team (HIRT). Table 4.3-5 indicates the number of chemical waste, infectious waste, and radioactive waste incidents that the HIRT responded to in each jurisdiction in 2002.

Table 4.3-5
County of San Diego Environmental Health Department
Hazardous Materials Division HIRT Responses in 2002

City	Number of Chemical Waste Responses	Number of Infectious Waste Responses	Number of Radioactive Waste Responses
Carlsbad	11	3	1
Chula Vista	8	1	0
Coronado	2	1	0
Del Mar	3	1	0
El Cajon	21	3	0
Encinitas	3	0	0
Escondido	15	1	0
Imperial Beach	3	3	0
La Mesa	5	2	0
Lemon Grove	3	0	0
National City	4	0	0
Oceanside	6	3	0
Poway	7	3	0
San Diego	222	47	1
San Marcos	5	1	0
Santee	5	3	0
Solana Beach	2	1	0
Unincorporated	33	10	0
Vista	5	0	0
TOTAL RESPONSES IN 2002	**363**	**83**	**2**

Chemical air emissions, surface water discharges, underground injections, and releases to land are considered chemical releases. The release of a biological agent capable of causing illness in people is considered an infectious release.

There has not been significant exposure to the public in San Diego County due to manmade releases of chemical or biological agents, although there have been several smaller-scale incidents. Chemical spills and releases from transportation and industrial accidents have resulted in short-term chemical exposure to individuals in the vicinity of the release. San Diego beaches are routinely closed because of sewage spills and storm run-off. Bacterial levels can increase significantly in ocean and bay waters, especially near storm drain, river, and lagoon outlets, during and after rainstorms. Elevated bacterial levels may continue for a period of up to 3 days depending upon the intensity of rainfall and volume of runoff. Waters contaminated by urban runoff may contain human pathogens (bacteria, viruses, or protozoa) that can cause illnesses.

San Diego experienced its first significant E. coli bacteria outbreak in 10 years after patrons ate tainted food at local area restaurants in 2003. In 1992 and 1993 a similar outbreak occurred in San Diego County, which resulted in the death of a child after he ate tainted food from a Carlsbad fast-food restaurant. Additionally, in the early 1980s a hepatitis outbreak associated with poor food handling techniques resulting in the closure of a major restaurant in Mission Valley and the implementation of a food-handler certification program by the San Diego County Health Department.

The only known release of radiological agents in the County was the result of an accident at San Onofre Nuclear Generating Station (SONGS). In 1981, an accidental "ignition" of hydrogen gases in a holding tank of the San Onofre Nuclear Generating Station (SONGS) caused an explosion - which bent the bolts of an inspection hatch on the tank, allowing radioactive gases in the tank to escape into a radioactive waste room. From there, the radioactive material was released into the atmosphere. The plant was shut down for several weeks following the event (W.I.S.E. Vol.3 No.4 p.18). This incident occurred during the plant's operation of its Unit 1 generator, which has since been decommissioned. No serious injuries occurred.

On February 3, 2001 another accident occurred at SONGS when a circuit breaker fault caused a fire that resulted in a loss of offsite power. Published reports suggest that rolling blackouts during the same week in California were partially due to the shutdown of the SONGS reactors in response to the 3-hour fire. Although no radiation was released and no nuclear safety issues were involved, the federal Nuclear Regulatory Commission sent a Special Inspection Team to the plant site to investigate the accident.

Terrorism

While San Diego County has not experienced any high profile attacks by groups or individuals associated with international terrorist organizations, the region has been the site of several incidents with domestic origins. Most notable is the August 1, 2003 arson attack on a mixed-use housing and office development under construction in the University City neighborhood. The blaze, which officials estimate caused around $50 million in damage, was allegedly set by the Earth Liberation Front, a radical environmentalist group.

San Diego has been linked to the 9-11 attacks in New York City and on the Pentagon; two of the confirmed hijackers of the commercial aircraft used in the attacks took flight school lessons while living in San Diego.

San Diego County has received numerous bomb threats to schools, government buildings, religious sites, and commercial facilities over the years. While the majority of bomb threats are hoaxes, authorities have been required to mobilize resources and activate emergency procedures on a fairly regular basis in response.

Other Manmade Disasters

On September 25th, 1978 San Diego was the scene of one of the worst air disasters in the United States. A mid-air collision between a Cessna 172 and a Pacific Southwest Airlines (PSA) Boeing 727 caused both planes to crash into the North Park neighborhood below. A total of 144 lives were lost including 7 people on the ground. More than 20 residences were damaged or destroyed.

In 1984, a gunman opened fire in a San Ysidro McDonald's restaurant, killing 21 people. This event was not considered an act of terrorism as no political or social objectives were associated with this event.

4.3.8.3 Location and Extent/Probability of Occurrence and Magnitude

Information related to the probability and magnitude of manmade hazards is considered sensitive homeland security related information. Consequently, this information is provided in a separate confidential document (Attachment C).

4.4 VULNERABILITY ASSESSMENT

Vulnerability describes how exposed or susceptible to damage an asset is, and depends on an asset's construction, contents and the economic value of its functions. This vulnerability analysis predicts the extent of injury and damage that may result from a hazard event of a given intensity in a given area on the existing and future built environment. Like indirect damages, the vulnerability of one element of the community is often related to the vulnerability of another. Indirect effects can be much more widespread and damaging than direct effects. For example, damage to a major utility line could result in significant inconveniences and business disruption that would far exceed the cost of repairing the utility line.

4.4.1 Asset Inventory

Hazards that occur in San Diego County can impact critical facilities located in the County. A critical facility is defined as a facility in either the public or private sector that provides essential products and services to the general public, is otherwise necessary to preserve the welfare and quality of life in the County, or fulfills important public safety, emergency response, and/or disaster recovery functions. Figure 4.4-1 shows the critical facilities identified for the County. The critical facilities identified in San Diego County include 57 hospitals and other health care facilities; 289 emergency operations facilities, fire stations, and police stations; 1,057 schools, 3,732 hazardous material sites, 7 transportation systems that include 46 airport facilities, 1,985 bridges, 23 bus and 40 rail facilities; 68 marinas and port facilities, and 1,040 kilometers of highways; utility systems that include 21 electric power facilities, natural gas

facilities, crude and refined oil facilities, 13 potable and waste water facilities, and 672 communications facilities and utilities; 56 dams, 124 government office/civic centers, jails, prisons, military facilities, religious facilities, and post offices (Figure 4.4.1).

GIS, HAZUS-MH, and other modeling tools were used to map the critical facilities in the county and to determine which would most likely be affected by each of the profiled hazards. San Diego County covers 4,264 square miles with several different climate patterns and types of terrain, which allows for several hazards to affect several different parts of the county and several jurisdictions at once or separately. The hazards addressed are described in Section 4.3.

4.4.2 Estimating Potential Exposure and Losses, and Future Development Trends

GIS modeling was used to estimate exposure to population, critical facilities, infrastructure, and residential/commercial properties, from coastal storms/erosion, tsunami, structure fire/wildfire, dam failure, landslide, and manmade hazards. The specific methods and results of all analyses are presented below. The results are shown as potential exposure in thousands of dollars, and as the worst-case scenario. For infrastructure, which has been identified as highways, railways and energy pipelines, the length of exposure/impact is given in kilometers. Exposure characterizes the value of structures within the hazard zone, and is shown as estimated exposure based on the overlay of the hazard on the critical facilities, infrastructure, and other structures, which are given an assumed cost of replacement for each type of structure exposed. These replacement costs are estimated using a building square footage inventory purchased from Dun and Bradstreet. The square footage information was classified based on Standard Industrial Code (SIC) and provided at a 2002 census-tract resolution. The loss or exposure value is then determined with the assumption that the given structure is totally destroyed (worst case scenario), which is not always the case in hazard events. This assumption was valuable in the planning process, so that the total potential damage value was identified when determining capabilities and mitigation measures for each jurisdiction. Table 4.4-1 provides abbreviations and average replacement costs used for critical facilities and infrastructure listed in all subsequent exposure/loss tables. Table 4.4-2 provides the total inventory and exposure estimates for the critical facilities and infrastructure by jurisdiction. Table 4.4-3 shows the estimated exposure inventory for infrastructure by jurisdiction. Table 4.4-4 provides an inventory of the maximum population and building exposure by jurisdiction.

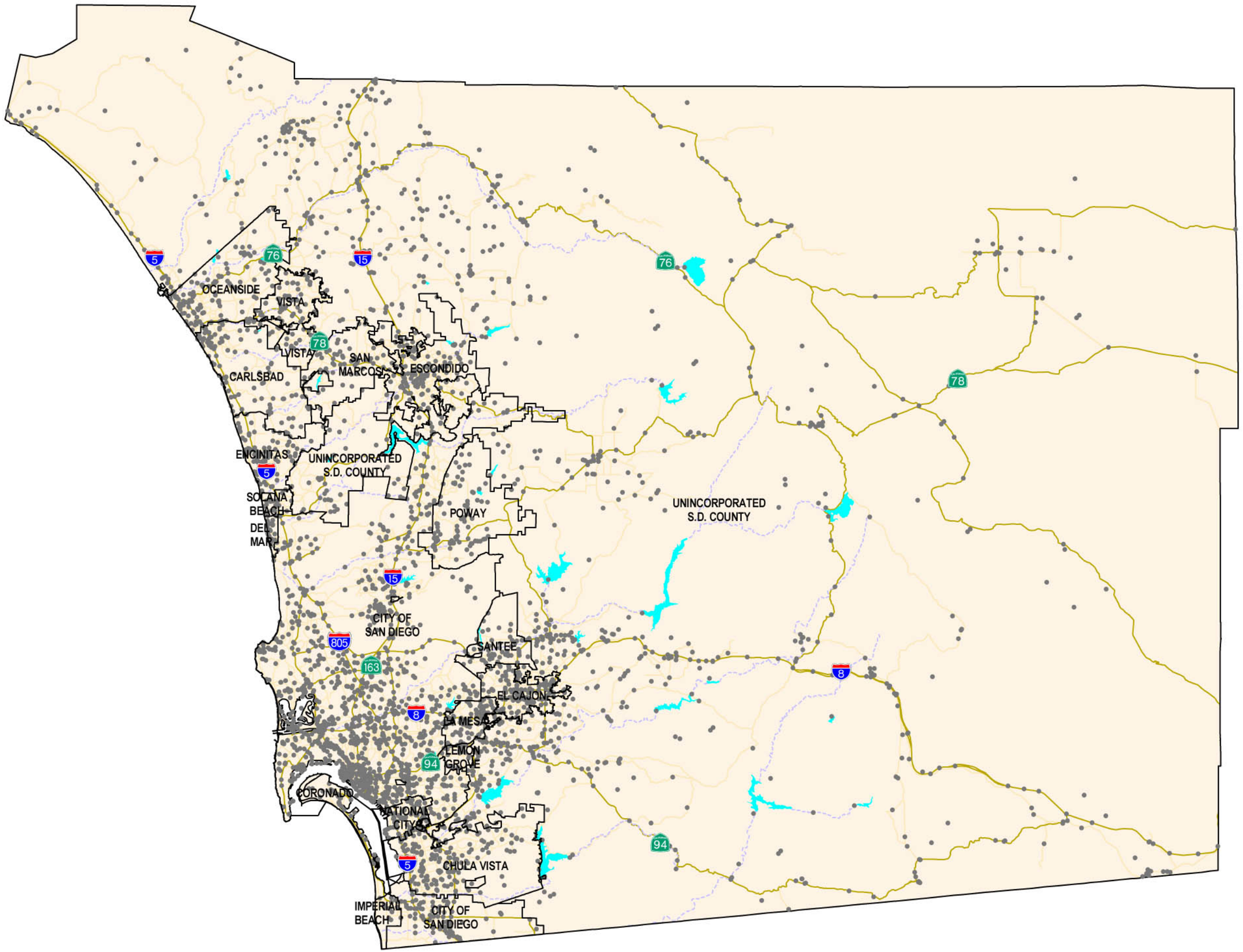
In addition to estimating potential exposure for structures, at-risk populations were also identified per hazard area. At-risk populations were defined as low-income, disabled and/or elderly and were based upon the 2000 census information.

Loss was estimated for earthquake and flood hazards in the County, in addition to exposure. Loss is that portion of the exposure that is expected to be lost to a hazard, and is estimated by referencing frequency and severity of previous hazards. Hazard risk assessment methodologies embedded in HAZUS, FEMA's loss estimation software, were applied to earthquake and flood hazards in San Diego County. HAZUS is a loss estimation software, which integrates with a GIS to provide estimates for the potential impact of earthquake and flood hazards by using a common, systematic framework for evaluation. This software contains economic and structural data on infrastructure and critical facilities, including replacement value costs with 2002 square footage and valuation parameters to use in loss estimation assumptions. This approach provides estimates for the potential impact by using a common, systematic framework for

evaluation. The HAZUS risk assessment methodology is parametric, in that distinct hazard and inventory parameters (e.g. ground shaking and building types) were modeled to determine the impact (damages and losses) on the built environment. The HAZUS-MH models were used to estimate losses from earthquake and flood hazards to critical facilities, infrastructure, and residential/commercial properties, as well as economic losses on several return period events and annualized levels. Loss estimates used available data, and the methodologies applied resulted in an approximation of risk. The economic loss results are presented as the Annualized Loss (AL) for the earthquake hazard. AL addresses the two key components of risk: the probability of the hazard occurring in the study area and the consequences of the hazard, largely a function of building construction type and quality, and of the intensity of the hazard event. By annualizing estimated exposure values, the AL takes into account historic patterns of frequent smaller events with infrequent but larger events to provide a balanced presentation of the risk. These estimates should be used to understand relative risk from hazards and potential losses. Uncertainties are inherent in any loss estimation methodology, arising in part from incomplete scientific knowledge concerning natural hazards and their effects on the built environment. Uncertainties also result from approximations and simplifications that are necessary for a comprehensive analysis (such as incomplete inventories, demographics, or economic parameters).

CRITICAL FACILITY LOCATIONS
COUNTY OF SAN DIEGO
HAZARD MITIGATION PLANNING

Profiling Hazards



LEGEND:

- Critical Facility Location

Base Layers:

- Incorporated City Boundary
- Streams
- Freeways
- Major Road
- Lakes

OVERVIEW MAP:

3.5 0 3.5 7 Miles

SCALE: 1" = 7 MILES (1:443520)

URS

SOURCES: SANDAG (Roads, 1993; Streams, 1992; Lakes, 1992), SanGIS* (Incorporated City Boundaries, 2003), FEMA-Hazus (Critical Facilities, 2000), SANDAG (Critical Facilities, 2000), Cities of: Chula Vista, Del Mar, El Cajon, Encinitas, Escondido, Imperial Beach, La Mesa, National City, Poway, and San Marcos (Critical Facilities Updates, 2003).

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CHKD BY: AJ	DATE: 2-19-04	FIG. NO: 4.4.1
PM: DM	PROJ. NO: 27653042	

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Table 4.4-1
Abbreviations and Costs Used for Critical Facilities and Infrastructure

Abr.	Name	Building Type (where applicable)	Average Replacement Cost
AIR	Airport facilities	s1l	200,000,000
BRDG	Bridges	n/a	191,600
BUS	Bus facilities	c1l	2,000,000
COM	Communication facilities and Utilities	c1l	2,000,000
ELEC	Electric Power facility	c1l	10,000,000
EMER	Emergency Centers, Fire Stations and Police Stations	c1l	2,000,000
GOVT	Government Office/Civic Center	c1l	2,000,000
HOSP	Hospitals/Care facilities	s1m	100,000,000
INFR	Kilometers of Infrastructure. Includes:		
	Oil/Gas Pipelines (OG)	n/a	300
	Railroad Tracks (RR)	n/a	860
	Highway (HWY)	n/a	3,860
PORT	Port facilities	c1l	20,000,000
POT	Potable and Waste Water facilities	c1l	100,000,000
RAIL	Rail facilities	c1l	2,000,000
SCH	Schools	rm1l	1,000,000

Table 4.4-2
Inventory of Critical Facilities and Infrastructure and Exposure Value by Jurisdiction

Jurisdiction	Data	AIR	BRDG	BUS	COM	ELEC	EMER	GOVT	HOSP	INFR	PORT	POT	RAIL	SCH	Total
Carlsbad	Number	1	33	0	18	1	9	4	0	95	0	2	2	30	**195**
	Exposure (x$1000)	200,000	74,354	0	36,000	10,000	18,000	8,000	0	175,638	0	200,000	4,000	30,000	**755,992**
Chula Vista	Number	0	44	2	32	1	10	4	5	67	1	1	2	60	**229**
	Exposure (x$1000)	0	135,766	4,000	64,000	10,000	20,000	8,000	500,000	150,904	20,000	100,000	4,000	60,000	**1,076,670**
Coronado	Number	1	1	0	3	0	3	2	1	40	0	0	0	11	**62**
	Exposure (x$1000)	200,000	832	0	6,000	0	6,000	4,000	100,000	74,074	0	0	0	11,000	**401,906**
Del Mar	Number	0	5	0	6	0	1	7	0	18	0	0	0	1	**38**
	Exposure (x$1000)	0	18,282	0	12,000	0	2,000	14,000	0	23,253	0	0	0	1,000	**70,535**
El Cajon	Number	1	37	1	10	3	8	3	10	29	0	0	3	40	**145**
	Exposure (x$1000)	200,000	67,708	2,000	20,000	30,000	16,000	6,000	1,000,000	87,065	0	0	6,000	40,000	**1,474,773**
Encinitas	Number	0	16	0	22	1	8	3	7	50	0	1	0	35	**143**
	Exposure (x$1000)	0	29,965	0	44,000	10,000	16,000	6,000	700,000	107,642	0	100,000	0	35,000	**1,048,607**
Escondido	Number	0	74	1	19	0	6	5	1	34	0	1	1	48	**190**
	Exposure (x$1000)	0	147,554	2,000	38,000	0	12,000	10,000	100,000	82,310	0	100,000	2,000	48,000	**541,864**
Imperial Beach	Number	1	1	0	1	0	2	1	0	5	0	0	0	9	**20**
	Exposure (x$1000)	200,000	2,222	0	2,000	0	4,000	2,000	0	11,220	0	0	0	9,000	**230,442**
La Mesa	Number	0	36	0	8	1	5	1	2	30	0	1	5	27	**116**
	Exposure (x$1000)	0	148,196	0	16,000	10,000	10,000	2,000	200,000	52,435	0	100,000	10,000	27,000	**575,631**
Lemon Grove	Number	0	8	0	1	0	2	2	0	11	0	0	1	10	**35**
	Exposure (x$1000)	0	17,032	0	2,000	0	4,000	4,000	0	19,018	0	0	2,000	10,000	**58,050**
National City	Number	0	47	1	4	2	3	2	3	42	5	1	5	28	**143**
	Exposure (x$1000)	0	210,943	2,000	8,000	20,000	6,000	4,000	300,000	76,974	100,000	100,000	10,000	28,000	**865,917**
Oceanside	Number	1	43	2	19	0	9	5	1	76	0	1	1	49	**207**
	Exposure (x$1000)	200,000	126,395	4,000	38,000	0	18,000	10,000	100,000	163,268	0	100,000	2,000	49,000	**810,663**
Poway	Number	0	45	1	27	0	3	0	0	14	0	0	0	24	**114**
	Exposure (x$1000)	0	143,008	2,000	54,000	0	6,000	0	0	45,605	0	0	0	24,000	**274,613**
San Diego (City)	Number	4	489	12	153	9	83	61	21	575	62	2	17	413	**1,901**
	Exposure (x$1000)	800,000	1,989,722	24,000	306,000	90,000	166,000	122,000	2,100,000	1,566,308	1,240,000	200,000	34,000	413,000	**9,051,030**
San Marcos	Number	0	12	0	12	0	9	5	2	32	0	0	1	22	**95**
	Exposure (x$1000)	0	36,019	0	24,000	0	18,000	10,000	200,000	60,969	0	0	2,000	22,000	**372,988**
Santee	Number	0	15	1	12	0	3	3	0	14	0	1	1	16	**66**
	Exposure (x$1000)	0	60,655	2,000	24,000	0	6,000	6,000	0	20,147	0	100,000	2,000	16,000	**236,802**
Solana Beach	Number	0	5	0	2	0	1	1	0	16	0	0	1	8	**34**
	Exposure (x$1000)	0	25,822	0	4,000	0	2,000	2,000	0	27,951	0	0	2,000	8,000	**71,773**
Unincorporated-Rural	Number	0	24	0	23	1	8	0	0	21	0	0	0	17	**94**
	Exposure (x$1000)	0	70,707	0	46,000	10,000	16,000	0	0	68,265	0	0	0	17,000	**227,972**
Unincorporated-Urban Core	Number	37	320	2	289	2	109	8	3	1,120	0	1	0	177	**2,068**
	Exposure (x$1000)	7,400,000	493,422	4,000	578,000	20,000	218,000	16,000	300,000	3,390,031	0	100,000	0	177,000	**12,696,453**
Vista	Number	0	12	0	11	0	7	4	0	23	0	0	0	32	**89**
	Exposure (x$1000)	0	32,762	0	22,000	0	14,000	8,000	0	32,747	0	0	0	32,000	**141,509**
Total Number		**46**	**1,267**	**23**	**672**	**21**	**289**	**121**	**56**	**2,315**	**68**	**12**	**40**	**1,057**	**5,987**
Total Exposure (x$1000)		**9,200,000**	**3,831,366**	**46,000**	**1,344,000**	**210,000**	**578,000**	**242,000**	**5,600,000**	**6,235,825**	**1,360,000**	**1,200,000**	**80,000**	**1,057,000**	**30,984,191**

Table 4.4-3
Inventory of Exposure for Infrastructure

Jurisdiction	Data	HWY	Replacen	RR	Total
Carlsbad	Number	36	48	11	**95**
	Exposure (x$1000)	152,105	14,453	9,080	**175,638**
Chula Vista	Number	27	25	15	**67**
	Exposure (x$1000)	130,482	7,563	12,860	**150,904**
Coronado	Number	17	0	24	**40**
	Exposure (x$1000)	53,867	0	20,208	**74,074**
Del Mar	Number	5	6	7	**18**
	Exposure (x$1000)	15,279	1,949	6,025	**23,253**
El Cajon	Number	14	10	6	**29**
	Oil/Gas Pipelines (O	79,263	2,893	4,909	**87,065**
Encinitas	Railroad Tracks (RR	20	21	9	**50**
	Exposure (x$1000)	93,355	6,306	7,981	**107,642**
Escondido	Number	13	15	6	**34**
	Exposure (x$1000)	72,496	4,416	5,398	**82,310**
Imperial Beach	Number	3	0	2	**5**
	Exposure (x$1000)	9,780	0	1,440	**11,220**
La Mesa	Number	8	17	6	**30**
	Exposure (x$1000)	42,479	5,061	4,895	**52,435**
Lemon Grove	Number	5	2	4	**11**
	Exposure (x$1000)	14,927	658	3,433	**19,018**
National City	Number	11	11	20	**42**
	Exposure (x$1000)	56,229	3,249	17,496	**76,974**
Oceanside	Number	38	19	19	**76**
	Exposure (x$1000)	141,136	5,738	16,394	**163,268**
Poway	Number	14	0	0	**14**
	Exposure (x$1000)	45,605	0	0	**45,605**
San Diego (City)	Number	296	192	87	**575**
	Exposure (x$1000)	1,433,790	57,743	74,775	**1,566,308**
San Marcos	Number	16	8	7	**32**
	Exposure (x$1000)	52,489	2,512	5,968	**60,969**
Santee	Number	5	9	0	**14**
	Exposure (x$1000)	17,551	2,596	0	**20,147**
Solana Beach	Number	5	9	2	**16**
	Exposure (x$1000)	23,326	2,825	1,800	**27,951**
Unincorporated-Rural	Number	14	7	0	**21**
	Exposure (x$1000)	66,301	1,964	0	**68,265**
Unincorporated-Urban Core	Number	813	141	166	**1,120**
	Exposure (x$1000)	3,204,787	42,410	142,834	**3,390,031**
Vista	Number	8	9	7	**23**
	Exposure (x$1000)	24,313	2,568	5,866	**32,747**
Total Number		**1,368**	**550**	**397**	**2,315**
Total Exposure (x$1000)		**5,729,558**	**164,903**	**341,363**	**6,235,825**

Table 4.4-4
Inventory of the Maximum Population and Building Exposure by Jurisdiction

Jurisdiction	Exposed Population	Residential Buildings at Risk		Commerical Buildings at Risk	
		Building Count	Potential Exposure (x$1000)	Building Count	Potential Exposure (x$1000)
Carlsbad	77,889	29,070	7,907,995	317	1,657,846
Chula Vista	173,491	43,573	11,347,235	407	1,629,766
Coronado	24,189	6,734	2,975,822	80	292,836
Del Mar	4,389	2,044	597,430	31	147,280
El Cajon	94,531	18,124	5,818,497	299	1,259,050
Encinitas	58,015	21,678	5,652,852	207	1,005,468
Escondido	133,666	31,374	8,310,439	409	1,891,392
Imperial Beach	26,849	5,185	1,606,094	36	123,364
La Mesa	53,856	14,205	4,309,581	158	735,906
Lemon Grove	26,114	7,224	1,783,371	50	223,048
National City	54,081	8,776	2,933,551	157	708,696
Oceanside	160,421	45,696	11,476,291	274	1,244,742
Poway	48,054	15,684	4,105,140	153	733,510
San Diego (City)	1,223,503	309,774	95,131,220	4,326	19,740,288
San Marcos	55,013	15,191	3,356,696	239	907,530
Santee	52,439	16,362	3,684,154	123	460,806
Solana Beach	12,766	5,171	1,531,192	100	438,930
Unincorporated- Rural	33,749	14,187	3,675,859	107	423,636
Unincorporated- Urban Core	410,798	126,360	31,446,688	639	2,762,220
Vista	89,926	20,725	5,517,933	210	911,012
Total	**2,813,739**	**757,137**	**213,168,040**	**8,322**	**37,297,326**

4.4.2.1 Coastal Storm/Erosion

FEMA FIRM flood hazard data compiled and digitized in 1997 was used to profile the coastal storm/erosion hazard. Specifically, the FEMA FIRM VE zone was used in the hazard modeling process in HAZUS-MH. As discussed earlier, the VE Zone is defined by FEMA as the coastal area subject to a velocity hazard (wave action). The identified vulnerable assets were superimposed on the identified hazard areas, resulting in three risk/exposure estimates: 1) the aggregated exposure and building count (both dollar exposure and population) at the census block level for residential and commercial occupancies, 2) lifeline infrastructure and 3) the critical infrastructure at risk (schools, hospitals, airports, bridges, and other facilities of critical nature). These results were then aggregated and presented by hazard risk level per jurisdiction.

Table 4.4-5 provides a breakdown of potential coastal storm/coastal erosion exposure by jurisdiction. No losses to critical facilities and infrastructure are expected from these hazards. Approximately 4,600 people may be at risk from coastal storm/coastal erosion hazards in San Diego County. In addition, special populations at risk that may be impacted by coastal storm/coastal erosion in San Diego County include: 331 low-income households and 813 elderly persons.

Table 4.4-5
Potential Exposure from Coastal Storm/Erosion Hazard by Jurisdiction

Jurisdiction	Exposed Population	Residential Buildings at Risk		Commercial Buildings at Risk	
		Building Count	Potential Exposure (x$1000)	Building Count	Potential Exposure (x$1000)
Carlsbad	26	22	6,988	0	0
Chula Vista	0	0	0	0	0
Coronado	6	1	22,549	1	3,358
Del Mar	97	63	20,670	0	0
El Cajon	0	0	0	0	0
Encinitas	699	335	85,674	2	5,958
Escondido	0	0	0	0	0
Imperial Beach	453	95	41,124	0	0
La Mesa	0	0	0	0	0
Lemon Grove	0	0	0	0	0
National City	0	0	0	0	0
Oceanside	181	87	28,962	0	0
Poway	0	0	0	0	0
San Diego (City)	1,849	749	310,630	12	118,954
San Marcos	0	0	0	0	0
Santee	0	0	0	0	0
Solana Beach	821	253	113,905	1	732
Unincorporated- Rural	0	0	0	0	0
Unincorporated- Urban Core	499	320	70,575	0	0
Vista	0	0	0	0	0
Total	**4,631**	**1,925**	**701,077**	**16**	**129,002**

4.4.2.2 Tsunami

Tsunami maximum run-up projections were modeled for the entire San Diego County coastline in 2000 by the University of Southern California, and distributed by the CA Office of Emergency Services. The model was a result of a combination of inundation modeling and onsite surveys to show maximum predicted inundation levels due to tsunami. This was a scenario model, which uses a given earthquake intensity and location to determine resulting tsunami effects. The identified vulnerable assets were superimposed on top of this information, resulting in three risk/exposure estimates: 1) the aggregated exposure and building count (both dollar exposure and population) at the census block level for residential and commercial occupancies, 2) the aggregated population at risk at the census block level, and 3) the critical infrastructure at risk (schools, hospitals, airports, bridges, and other facilities of critical nature). These results were then aggregated and presented by hazard risk level per jurisdiction.

Table 4.4-6 provides a breakdown of potential exposure by jurisdiction, and Table 4.4-7 provides a breakdown of potential exposure to infrastructure and critical facility by jurisdiction. Approximately 37,000 people may be at risk from the tsunami hazard in San Diego County. In addition, special populations at risk that may be impacted by tsunami in San Diego County include: 2,558 low income households and 3,655 elderly persons.

Table 4.4-6
Potential Exposure from Tsunami Hazard by Jurisdiction

Jurisdiction	Exposed Population	Residential Buildings at Risk		Commercial Buildings at Risk	
		Building Count	Potential Exposure (x$1000)	Building Count	Potential Exposure (x$1000)
Carlsbad	1,162	361	129,484	3	19,952
Chula Vista	802	163	25,090	11	73,148
Coronado	5,149	1,822	630,179	3	25,776
Del Mar	1,021	539	158,928	5	28,200
El Cajon	0	0	0	0	0
Encinitas	704	320	85,060	2	7,172
Escondido	0	0	0	0	0
Imperial Beach	72	13	3,172	0	0
La Mesa	0	0	0	0	0
Lemon Grove	0	0	0	0	0
National City	258	51	12,214	8	41,166
Oceanside	1,506	405	224,276	9	21,400
Poway	0	0	0	0	0
San Diego (City)	25,578	5,145	3,395,635	294	1,077,374
San Marcos	0	0	0	0	0
Santee	0	0	0	0	0
Solana Beach	521	159	78,974	0	0
Unincorporated- Rural	0	0	0	0	0
Unincorporated- Urban Core	533	327	74,389	0	702
Vista	0	0	0	0	0
Total	**37,306**	**9,305**	**4,817,401**	**335**	**1,294,890**

Table 4.4-7
Potential Exposure to Critical Facilities and Infrastructure from Tsunami Hazard by Jurisdiction

Jurisdiction	Data	AIR	BRDG	BUS	COM	ELEC	EMER	GOVT	HOSP	INFR	PORT	POT	RAIL	SCH	Total
Carlsbad	Number	0	10	0	1	1	0	0	0	14	0	0	0	1	**27**
	Exposure (x$1000)	0	25,160	0	2,000	10,000	0	0	0	36,211	0	0	0	1,000	**74,371**
Chula Vista	Number	0	2	0	0	1	0	0	0	12	1	0	0	0	**16**
	Exposure (x$1000)	0	3,057	0	0	10,000	0	0	0	32,933	20,000	0	0	0	**65,990**
Coronado	Number	0	1	0	1	0	1	1	0	15	0	0	0	1	**20**
	Exposure (x$1000)	0	832	0	2,000	0	2,000	2,000	0	25,425	0	0	0	1,000	**33,257**
Del Mar	Number	0	4	0	1	0	1	3	0	12	0	0	0	0	**21**
	Exposure (x$1000)	0	16,292	0	2,000	0	2,000	6,000	0	14,508	0	0	0	0	**40,800**
El Cajon	Number	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Encinitas	Number	0	2	0	4	0	0	0	0	7	0	1	0	0	**14**
	Exposure (x$1000)	0	3,008	0	8,000	0	0	0	0	9,550	0	100,000	0	0	**120,558**
Escondido	Number	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Imperial Beach	Number	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
La Mesa	Number	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Lemon Grove	Number	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
National City	Number	0	4	0	0	2	0	0	0	15	2	1	3	0	**27**
	Exposure (x$1000)	0	6,712	0	0	20,000	0	0	0	26,258	40,000	100,000	6,000	0	**198,970**
Oceanside	Number	0	8	0	0	0	0	0	0	2	0	1	0	0	**11**
	Exposure (x$1000)	0	27,780	0	0	0	0	0	0	1,562	0	100,000	0	0	**129,342**
Poway	Number	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
San Diego (City)	Number	1	26	1	8	3	7	7	0	23	18	0	3	2	**99**
	Exposure (x$1000)	200,000	93,762	2,000	16,000	30,000	14,000	14,000	0	75,569	360,000	0	6,000	2,000	**813,331**
San Marcos	Number	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Santee	Number	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Solana Beach	Number	0	0	0	0	0	0	0	0	4	0	0	0	0	**4**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	2,426	0	0	0	0	**2,426**
Unincorporated-Rural	Number	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Unincorporated-Urban Core	Number	0	0	0	0	0	0	0	0	2	0	0	0	0	**2**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	6,778	0	0	0	0	**6,778**
Vista	Number	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Number		**1**	**57**	**1**	**15**	**7**	**9**	**11**	**0**	**105**	**21**	**3**	**6**	**4**	**240**
Total Exposure (x$1000)		**200,000**	**176,603**	**2,000**	**30,000**	**70,000**	**18,000**	**22,000**	**0**	**231,219**	**420,000**	**300,000**	**12,000**	**4,000**	**1,485,822**

Refer to Table 4.4-1 for abbreviation definition

4.4.2.3 Dam Failure

Dam inundation zones, compiled by FEMA or the National Inventory of Dams throughout San Diego County, and purchased through SanGIS, show areas that would be flooded if each dam failed. The San Diego County Water Authority provided the San Vicente Dam and Olivenhain Dam inundation maps. Olivenhain Dam is the newest dam in San Diego County, and had not yet been filled at the time of preparation of this report. Inundation areas for Olivenhain Dam however were identified and modeled as high risk. The identified vulnerable assets were superimposed on top of this information, resulting in three risk/exposure estimates: 1) the aggregated exposure and building count (both dollar exposure and population) at the census block level for residential and commercial occupancies, 2) the aggregated population at risk at the census block level, and 3) the critical infrastructure at risk (schools, hospitals, airports, bridges, and other facilities of critical nature). These results were then aggregated and presented by hazard risk level per jurisdiction.

Table 4.4-8 provides a breakdown of potential exposure by jurisdiction, and Table 4.4-9 provides a breakdown of potential exposure to infrastructure and critical facility by jurisdiction. Approximately 368,000 people are at risk from the dam failure hazard. In addition, special populations at risk that may be impacted by the dam failure hazard in San Diego County include 13,689 low-income households and 24,316 elderly persons.

Table 4.4.8
Potential Exposure from Dam Failure Hazard by Jurisdiction

Jurisdiction	Exposed Population	Residential Buildings at Risk		Commercial Buildings at Risk	
		Building Count	Potential Exposure (x$1000)	Building Count	Potential Exposure (x$1000)
Carlsbad	4,324	1,907	369,968	3	14,062
Chula Vista	13,083	3,032	692,488	94	348,684
Coronado	89	27	2,200	0	0
Del Mar	1,814	894	260,224	8	41,008
El Cajon	0	0	0	0	0
Encinitas	1,016	476	133,785	16	57,618
Escondido	86,360	12,393	3,834,476	424	1,561,872
Imperial Beach	4,897	879	345,660	1	9,092
La Mesa	1,337	262	101,715	11	52,736
Lemon Grove	0	0	0	0	0
National City	1,895	349	86,809	106	464,094
Oceanside	29,816	8,255	1,799,284	52	217,872
Poway	0	0	0	0	0
San Diego (City)	135,234	22,834	8,612,306	1,164	5,630,720
San Marcos	1,584	427	101,770	27	83,598
Santee	44,595	13,677	2,888,845	228	859,108
Solana Beach	0	0	0	0	0
Unincorporated- Rural	3,420	2,144	576,336	6	34,534
Unincorporated- Urban Core	38,004	8,824	2,536,977	135	508,858
Vista	772	199	65,252	2	9,300
Total	**368,240**	**76,579**	**22,408,095**	**2,277**	**9,893,156**

Table 4.4-9
Potential Exposure to Critical Facilities and Infrastructure from Dam Failure Hazard by Jurisdiction

Jurisdiction	Data	AIR	BRDG	BUS	COM	ELEC	EMER	GOVT	HOSP	INFR	PORT	POT	RAIL	SCH	Total
Carlsbad	Number	0	5	0	1	0	0	0	0	4	0	0	0	1	**11**
	Exposure (x$1000)	0	12,668	0	2,000	0	0	0	0	27,484	0	0	0	1,000	**43,152**
Chula Vista	Number	0	26	0	1	1	0	2	0	14	0	0	0	0	**44**
	Exposure (x$1000)	0	132,286	0	2,000	10,000	0	4,000	0	37,002	0	0	0	0	**185,288**
Coronado	Number	0	0	0	0	0	0	0	0	2	0	0	0	0	**2**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	1,332	0	0	0	0	**1,332**
Del Mar	Number	0	5	0	2	0	2	8	0	17	0	0	0	0	**34**
	Exposure (x$1000)	0	22,413	0	4,000	0	4,000	16,000	0	25,099	0	0	0	0	**71,512**
El Cajon	Number	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Encinitas	Number	0	12	0	7	0	1	0	0	9	0	0	0	0	**29**
	Exposure (x$1000)	0	36,657	0	14,000	0	2,000	0	0	2,829	0	0	0	0	**55,486**
Escondido	Number	0	65	2	7	0	8	10	2	16	0	0	2	29	**141**
	Exposure (x$1000)	0	93,708	4,000	14,000	0	16,000	20,000	200,000	10,361	0	0	4,000	29,000	**391,069**
Imperial Beach	Number	1	1	0	0	0	0	0	0	2	0	0	0	0	**4**
	Exposure (x$1000)	200,000	2,222	0	0	0	0	0	0	1,440	0	0	0	0	**203,662**
La Mesa	Number	0	2	0	0	0	0	0	0	8	0	0	3	0	**13**
	Exposure (x$1000)	0	5,317	0	0	0	0	0	0	11,527	0	0	6,000	0	**22,844**
Lemon Grove	Number	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
National City	Number	0	34	0	0	0	0	0	0	18	2	0	1	4	**59**
	Exposure (x$1000)	0	160,248	0	0	0	0	0	0	39,736	40,000	0	2,000	4,000	**245,984**
Oceanside	Number	1	16	0	2	0	2	0	0	13	0	0	0	9	**43**
	Exposure (x$1000)	200,000	72,657	0	4,000	0	4,000	0	0	29,321	0	0	0	9,000	**318,978**
Poway	Number	0	0	0	3	0	0	0	0	0	0	0	0	0	**3**
	Exposure (x$1000)	0	0	0	6,000	0	0	0	0	0	0	0	0	0	**6,000**
San Diego (City)	Number	0	256	0	38	2	11	5	3	175	0	3	12	18	**523**
	Exposure (x$1000)	0	1,453,248	0	76,000	20,000	22,000	10,000	300,000	581,571	0	300,000	24,000	18,000	**2,804,819**
San Marcos	Number	0	1	0	2	0	0	0	0	3	0	0	0	1	**7**
	Exposure (x$1000)	0	1,336	0	4,000	0	0	0	0	1,013	0	0	0	1,000	**7,349**
Santee	Number	0	35	4	14	0	4	2	0	18	0	1	4	12	**94**
	Exposure (x$1000)	0	209,918	8,000	28,000	0	8,000	4,000	0	16,262	0	100,000	8,000	12,000	**394,180**
Solana Beach	Number	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Unincorporated-Rural	Number	0	15	0	2	0	2	0	0	9	0	0	0	7	**35**
	Exposure (x$1000)	0	56,784	0	4,000	0	4,000	0	0	46,043	0	0	0	7,000	**117,827**
Unincorporated-Urban Core	Number	3	90	0	29	0	14	0	0	91	0	0	0	42	**269**
	Exposure (x$1000)	600,000	177,726	0	58,000	0	28,000	0	0	207,556	0	0	0	42,000	**1,113,282**
Vista	Number	0	2	0	1	0	0	0	0	0	0	0	0	0	**3**
	Exposure (x$1000)	0	5,134	0	2,000	0	0	0	0	0	0	0	0	0	**7,134**
Total Number		**5**	**565**	**6**	**109**	**3**	**44**	**27**	**5**	**398**	**2**	**4**	**22**	**123**	**1,313**
Total Exposure (x$1000)		**1,000,000**	**2,442,322**	**12,000**	**218,000**	**30,000**	**88,000**	**54,000**	**500,000**	**1,038,576**	**40,000**	**400,000**	**44,000**	**123,000**	**5,989,898**

Refer to Table 4.4-1 for abbreviation definition

4.4.2.4 Earthquake, Liquefaction and Earthquake-Induced Landslides

The data used in the earthquake hazard assessment were: 100-, 250-, 500-, 750-, 1000-, 1500-, 2000-, and 2500- year return period USGS probabilistic hazards. Soil conditions for San Diego County as developed by USGS were also used, which allowed for a better reflection of amplification of ground shaking that may occur. The HAZUS software model, which was developed for FEMA by the National Institute of Building Services as a tool to determine earthquake loss estimates, was used to model earthquake and flood for this assessment. This software program integrates with a GIS to facilitate the manipulation of data on building stock, population, and the regional economy with hazard models. PBS&J updated this model in 2003 to HAZUS-MH (Multiple Hazard), which can model earthquake and flood, along with collateral issues associated with each model, such as liquefaction and landslide with earthquakes. This software was not released prior to the beginning of the planning process; however, PBS&J performed vulnerability and loss estimation models for earthquakes and flood for this project using the newer model.

Additionally, the earthquake risk assessment explored the potential for collateral hazards such as liquefaction and earthquake-induced landslides. Three cases were examined, one case with shaking only, a second case with liquefaction potential, and a third with earthquake-induced landslides. Once the model was complete, the identified vulnerable assets were superimposed on top of this information, resulting in three risk/loss estimates: 1) the aggregated exposure and building count (both dollar exposure and population) at the census block level for residential and commercial occupancies, 2) the aggregated population at risk at the census block level, and 3) the critical infrastructure at risk (schools, hospitals, airports, bridges, and other facilities of critical nature). These results were then aggregated and presented by hazard risk level per jurisdiction. Results for residential and commercial properties were generated as annualized losses, which average all eight of the modeled return periods (100-year through 2500-year events). For critical facility losses it was helpful to look at 100- and 500-year return periods to plan for an event that is more likely to occur in the near-term. In the near term, a 500-year earthquake would cause increased shaking, liquefaction and landslide, which would be expected to increase loss numbers. Exposure for annualized earthquake included buildings and population in the entire county because a severe or worst case scenario earthquake could affect any structure in the County. Furthermore, the annualized earthquake loss table also shows potential collateral exposure and losses from liquefaction and landslide separately; this is the additional loss from earthquake due to liquefaction or landslide caused by earthquakes and should be added to the shaking-only loss values to get the correct value. (The collateral liquefaction and landslide loss results for critical facilities were included with earthquake in Tables 4.4-11 and 4.4-12, to plan for an event that is more likely to occur in the near-term as discussed above).

Table 4.4-10 provides a breakdown of potential exposure and losses due to annualized earthquake events by jurisdiction. Tables 4.4-11 and 4.4-12 provide a breakdown of infrastructure and critical facility losses from 100-year and 500-year earthquakes, respectively. Approximately 2,800,000 people may be at risk from the annualized earthquake and earthquake-induced liquefaction hazards. In addition, special populations at risk that may be impacted by the earthquake hazard in San Diego County include 13,689 low-income households and 24,316 elderly persons.

Table 4.4-10
Potential Exposure and Losses from Annualized Earthquake Hazard by Jurisdiction

Jurisdiction	Exposed Population	Residential Buildings at Risk					Commercial Buildings at Risk				
		Building Count	Potential Loss from **Shaking** (x$1000)	Potential Additional Loss from **Liquefaction** (x$1000)	Potential Additional Loss from **Landslide** (x$1000)	Potential Exposure (x$1000)	Building Count	Potential Loss from **Shaking** (x$1000)	Potential Additional Loss from **Liquefaction** (x$1000)	Potential Additional Loss from **Landslide** (x$1000)	Potential Exposure (x$1000)
Carlsbad	77,889	29,070	2,649	0	524	7,907,995	317	998	0	352	1,657,846
Chula Vista	173,491	43,573	3,086	332	586	11,347,235	407	772	50	262	1,629,766
Coronado	24,189	6,734	1,309	156	208	2,975,822	80	224	0	75	292,836
Del Mar	4,389	2,044	235	0	46	597,430	31	110	0	27	147,280
El Cajon	94,531	18,124	1,739	0	319	5,818,497	299	726	0	218	1,259,050
Encinitas	58,015	21,678	1,962	0	536	5,652,852	207	659	0	209	1,005,468
Escondido	133,666	31,374	2,743	0	399	8,310,439	409	1,149	0	339	1,891,392
Imperial Beach	26,849	5,185	680	149	94	1,606,094	36	87	8	34	123,364
La Mesa	53,856	14,205	1,026	0	121	4,309,581	158	318	0	82	735,906
Lemon Grove	26,114	7,224	454	0	56	1,783,371	50	95	0	32	223,048
National City	54,081	8,776	874	56	203	2,933,551	157	420	0	132	708,696
Oceanside	160,421	45,696	4,336	646	1,156	11,476,291	274	849	34	293	1,244,742
Poway	48,054	15,684	776	0	141	4,105,140	153	257	0	82	733,510
San Diego (City)	1,223,503	309,774	32,046	1,648	8,721	95,131,220	4,326	12,428	725	4,231	19,740,288
San Marcos	55,013	15,191	934	0	113	3,356,696	239	518	0	153	907,530
Santee	52,439	16,362	1,076	0	279	3,684,154	123	252	0	108	460,806
Solana Beach	12,766	5,171	573	62	108	1,531,192	100	312	15	84	438,930
Unincorporated-Rural	33,749	14,187	886	0	152	3,675,859	107	149	0	43	423,636
Unincorporated-Urban Core	410,798	126,360	8,963	1	2,113	31,446,688	639	1,123	0	329	2,762,220
Vista	89,926	20,725	1,597	0	251	5,517,933	210	411	0	116	911,012
Total	**2,813,739**	**757,137**	**67,943**	**3,050**	**16,126**	**213,168,040**	**8,322**	**21,860**	**832**	**7,202**	**37,297,326**

Table 4.4-11
Potential Exposure to Critical Facilities and Infrastructure from 100-Year Earthquake Hazard by Jurisdiction

Jurisdiction	Data	AIR	BRDG	BUS	COM	ELEC	EMER	GOVT	HOSP	INFR	PORT	POT	RAIL	SCH	Total
Carlsbad	Number	1	33	0	18	1	9	4	0	0	0	2	2	30	**100**
	Loss (x$1000)	4,075	858	0	486	158	242	125	0	80	0	3,220	63	267	**9,574**
Chula Vista	Number	0	44	2	32	1	10	4	5	0	1	1	2	60	**162**
	Loss (x$1000)	0	32	31	506	167	157	80	4,016	78	335	808	30	292	**6,533**
Coronado	Number	1	1	0	3	0	3	2	1	0	0	0	0	11	**22**
	Loss (x$1000)	4,345	0	0	102	0	98	65	1,628	151	0	0	0	109	**6,499**
Del Mar	Number	0	5	0	6	0	1	7	0	0	0	0	0	1	**20**
	Loss (x$1000)	0	14	0	155	0	45	242	0	27	0	0	0	8	**490**
El Cajon	Number	1	37	1	10	3	8	3	10	0	0	0	3	40	**116**
	Loss (x$1000)	5,009	443	42	219	609	254	109	11,500	137	0	0	122	431	**18,873**
Encinitas	Number	0	16	0	22	1	8	3	7	0	0	1	0	35	**93**
	Loss (x$1000)	0	286	0	652	135	230	78	9,798	8	0	1,346	0	309	**12,842**
Escondido	Number	0	74	1	19	0	6	5	1	0	0	1	1	48	**156**
	Loss (x$1000)	0	122	22	482	0	163	158	577	2	0	904	28	391	**2,849**
Imperial Beach	Number	1	1	0	1	0	2	1	0	0	0	0	0	9	**15**
	Loss (x$1000)	3,765	15	0	27	0	53	26	0	25	0	0	0	80	**3,991**
La Mesa	Number	0	36	0	8	1	5	1	2	0	0	1	5	27	**86**
	Loss (x$1000)	0	6	0	120	92	85	18	1,763	0	0	959	85	148	**3,275**
Lemon Grove	Number	0	8	0	1	0	2	2	0	0	0	0	1	10	**24**
	Loss (x$1000)	0	0	0	18	0	36	35	0	0	0	0	18	56	**164**
National City	Number	0	47	1	4	2	3	2	3	0	5	1	5	28	**101**
	Loss (x$1000)	0	175	33	65	335	64	31	2,424	86	1,673	1,673	150	140	**6,850**
Oceanside	Number	1	43	2	19	0	9	5	1	0	0	1	1	49	**131**
	Loss (x$1000)	7,647	881	63	652	0	408	163	1,565	99	0	1,579	32	553	**13,643**
Poway	Number	0	45	1	27	0	3	0	0	0	0	0	0	24	**100**
	Loss (x$1000)	0	8	47	555	0	110	0	0	28	0	0	0	250	**998**
San Diego (City)	Number	4	489	12	153	9	83	61	21	0	62	2	17	413	**1,326**
	Loss (x$1000)	12,692	3,661	283	3,422	1,199	1,725	1,325	20,466	676	20,575	2,174	466	2,545	**71,207**
San Marcos	Number	0	12	0	12	0	9	5	2	0	0	0	1	22	**63**
	Loss (x$1000)	0	1	0	309	0	256	156	934	1	0	0	34	173	**1,865**
Santee	Number	0	15	1	12	0	3	3	0	0	0	1	1	16	**52**
	Loss (x$1000)	0	194	42	345	0	125	96	0	5	0	701	42	173	**1,723**
Solana Beach	Number	0	5	0	2	0	1	1	0	0	0	0	1	8	**18**
	Loss (x$1000)	0	0	0	49	0	21	21	0	0	0	0	22	64	**177**
Unincorporated-Rural	Number	0	24	0	23	1	8	0	0	0	0	0	0	17	**73**
	Loss (x$1000)	0	37	0	488	77	198	0	0	51	0	0	0	164	**1,015**
Unincorporated-Urban Core	Number	37	320	2	289	2	109	8	3	1	0	1	0	177	**949**
	Loss (x$1000)	273,065	3,284	113	8,497	400	4,545	282	9,538	1,679	0	1,514	0	2,024	**304,940**
Vista	Number	0	12	0	11	0	7	4	0	0	0	0	0	32	**66**
	Loss (x$1000)	0	1	0	278	0	141	86	0	0	0	0	0	280	**785**
Total Number		**46**	**1,267**	**23**	**672**	**21**	**289**	**121**	**56**	**1**	**68**	**12**	**40**	**1,057**	**3,673**
Total Exposure (x$1000)		**310,599**	**10,018**	**677**	**17,427**	**3,170**	**8,955**	**3,094**	**64,211**	**3,133**	**22,583**	**14,879**	**1,093**	**8,455**	**468,294**

Refer to Table 4.4-1 for abbreviation definition

Table 4.4-12
Potential Exposure to Critical Facilities and Infrastructure from 500-Year Earthquake Hazard by Jurisdiction

Jurisdiction	Data	AIR	BRDG	BUS	COM	ELEC	EMER	GOVT	HOSP	INFR	PORT	POT	RAIL	SCH	Total
Carlsbad	Number	1	33	0	18	1	9	4	0	2	0	2	2	30	**102**
	Loss (x$1000)	12,028	6,664	0	2,017	722	1,019	532	0	5,404	0	13,382	289	1,378	**43,434**
Chula Vista	Number	0	44	2	32	1	10	4	5	2	1	1	2	60	**164**
	Loss (x$1000)	0	8,650	211	2,982	803	995	436	17,904	5,315	1,606	5,141	228	2,074	**46,344**
Coronado	Number	1	1	0	3	0	3	2	1	5	0	0	0	11	**27**
	Loss (x$1000)	16,623	46	0	512	0	480	320	7,813	10,134	0	0	0	612	**36,541**
Del Mar	Number	0	5	0	6	0	1	7	0	1	0	0	0	1	**21**
	Loss (x$1000)	0	1,092	0	911	0	181	1,161	0	1,884	0	0	0	51	**5,281**
El Cajon	Number	1	37	1	10	3	8	3	10	3	0	0	3	40	**119**
	Loss (x$1000)	12,127	6,243	111	735	1,663	762	329	38,423	9,173	0	0	333	1,380	**71,278**
Encinitas	Number	0	16	0	22	1	8	3	7	1	0	1	0	35	**94**
	Loss (x$1000)	0	2,496	0	3,017	651	1,088	388	38,605	564	0	6,512	0	1,583	**54,905**
Escondido	Number	0	74	1	19	0	6	5	1	0	0	1	1	48	**156**
	Loss (x$1000)	0	5,387	82	1,572	0	547	587	2,458	227	0	3,001	110	1,723	**15,693**
Imperial Beach	Number	1	1	0	1	0	2	1	0	1	0	0	0	9	**16**
	Loss (x$1000)	14,915	297	0	161	0	321	160	0	1,684	0	0	0	509	**18,047**
La Mesa	Number	0	36	0	8	1	5	1	2	0	0	1	5	27	**86**
	Loss (x$1000)	0	2,231	0	624	515	432	102	7,825	0	0	4,058	467	911	**17,166**
Lemon Grove	Number	0	8	0	1	0	2	2	0	0	0	0	1	10	**24**
	Loss (x$1000)	0	392	0	103	0	205	204	0	0	0	0	103	355	**1,361**
National City	Number	0	47	1	4	2	3	2	3	4	5	1	5	28	**105**
	Loss (x$1000)	0	10,930	161	411	1,606	360	228	11,514	5,784	8,032	8,032	770	1,019	**48,848**
Oceanside	Number	1	43	2	19	0	9	5	1	3	0	1	1	49	**134**
	Loss (x$1000)	16,124	8,963	289	2,325	0	1,329	669	5,360	6,700	0	7,218	144	2,297	**51,419**
Poway	Number	0	45	1	27	0	3	0	0	1	0	0	0	24	**101**
	Loss (x$1000)	0	1,012	125	1,783	0	306	0	0	1,906	0	0	0	814	**5,946**
San Diego (City)	Number	4	489	12	153	9	83	61	21	15	62	2	17	413	**1,341**
	Loss (x$1000)	46,949	104,741	1,544	19,447	6,473	10,747	8,060	114,004	45,201	101,291	14,036	2,426	17,904	**492,822**
San Marcos	Number	0	12	0	12	0	9	5	2	0	0	0	1	22	**63**
	Loss (x$1000)	0	1,125	0	1,075	0	890	550	3,950	94	0	0	121	755	**8,560**
Santee	Number	0	15	1	12	0	3	3	0	1	0	1	1	16	**53**
	Loss (x$1000)	0	3,550	111	1,029	0	331	266	0	396	0	2,418	111	547	**8,759**
Solana Beach	Number	0	5	0	2	0	1	1	0	0	0	0	1	8	**18**
	Loss (x$1000)	0	597	0	276	0	145	145	0	0	0	0	146	396	**1,706**
Unincorporated-Rural	Number	0	24	0	23	1	8	0	0	1	0	0	0	17	**74**
	Loss (x$1000)	0	5,019	0	1,795	417	754	0	0	3,454	0	0	0	708	**12,147**
Unincorporated-Urban Core	Number	37	320	2	289	2	109	8	3	35	0	1	0	177	**983**
	Loss (x$1000)	691,522	21,876	335	30,202	1,282	13,554	973	21,628	112,036	0	5,255	0	7,930	**906,594**
Vista	Number	0	12	0	11	0	7	4	0	0	0	0	0	32	**66**
	Loss (x$1000)	0	615	0	1,031	0	536	327	0	0	0	0	0	1,218	**3,727**
Total Number		**46**	**1,267**	**23**	**672**	**21**	**289**	**121**	**56**	**76**	**68**	**12**	**40**	**1,057**	**3,748**
Total Exposure (x$1000)		**810,288**	**191,926**	**2,969**	**72,009**	**14,132**	**34,982**	**15,436**	**269,485**	**209,956**	**110,929**	**69,053**	**5,247**	**44,164**	**1,850,576**

Refer to Table 4.4-1 for abbreviation definition

4.4.2.5 Flood

Digitized 100-year and 500-year flood maps with base flood elevation (BFE) from the FEMA FIRM program for most of the areas were utilized for this project. Census blocks with non-zero population and non-zero dollar exposure that intersect with these polygons were used in the analysis. For the areas that did not include BFE information, a base flood elevation was estimated for the final purpose of computing the flood depth at different locations of the region as follows:

- Transect lines across the flood polygon (perpendicular to the flow direction) were created using an approximation method for Zone A flood polygons. Zone A is the FEMA FIRM Zone that is defined as the 100-year base flood.
- A point file was extracted from the line (Begin node, End node and center point). The Zonal operation in the GIS tool Spatial Analyst (with the point file and a digital elevation model [DEM]) was used to estimate the ground elevation in the intersection of the line with the flood polygon borders. The average value of the End and Begin point of the line was calculated. This value was assumed as the base flood elevation for each transect.

A surface model (triangulated irregular network, or TIN) was derived from the original transect with the derived BFE value and the flood polygon. This TIN file approximated a continuous and variable flood elevation along the flood polygon. A grid file was then derived from the TIN file with the same extent and pixel resolution of the DEM (30-meter resolution). The difference of the flood elevation grid file and the DEM was calculated to produce an approximate flood depth for the whole study area. HAZUS-MH based damage functions, in a raster format, were created for each of the occupancies present in the census blocks. A customized Visual Basic (VBA) script was written to assign the ratio of damage expected (function of computed flood depth) for each type of occupancy based on the HAZUS-MH damage functions. HAZUS-MH exposure values ($) in raster format were created using Spatial Analyst. Since not all areas in the census blocks are completely within the flood area, the exposure at risk was weighted and estimated accordingly based on the number of pixels in flood area. Losses were then estimated through multiplication of damage ratio with the exposure at risk for each block. Losses were then approximated based on 100- and 500-year losses (high and low hazards).

Table 4.4-13 provides a breakdown of potential exposure and losses by jurisdiction for 100-year flood, and Table 4.4-14 provides a breakdown of infrastructure and critical facility losses for 100-year flood by jurisdiction. Table 4.4-15 provides a breakdown of potential exposure and losses by jurisdiction from 500-year flood, and Table 4.4-16 provides a breakdown of potential infrastructure and critical facility losses by jurisdiction. The loss tables also provide a breakdown of loss ratios for commercial and residential properties by jurisdiction. These loss ratios are determined by dividing the loss values by the exposure values for each jurisdiction, and give a perspective of the potential losses for each jurisdiction for this hazard. For example, a loss ratio value of 0.4 in El Cajon would mean that 40% of the exposed buildings in El Cajon would be lost due to a 100- or 500-year flood.

Approximately 134,000 people may be at risk from the 100-year flood hazard. In addition, special populations at risk that may be impacted by the 100-year flood hazard in San Diego County include 8,424 low-income households and 15,144 elderly persons. Approximately 215,000 people are at risk from the

500-year flood hazard. In addition, special populations at risk that may be impacted by the 500-year flood hazard in San Diego County include 13,689 low-income households and 24,316 elderly persons.

Table 4.4-13
Potential Exposure and Losses from 100-Year Flood Hazard by Jurisdiction

Jurisdiction	Exposed Population	Residential Buildings at Risk				Commercial Buildings at Risk			
		Building Count	Potential Loss (x$1000)	Potential Exposure (x$1000)	Loss Ratio	Building Count	Potential Loss (x$1000)	Potential Exposure (x$1000)	Loss Ratio
Carlsbad	3,439	1,284	50,980	349,060	0.15	14	10,081	70,252	6.97
Chula Vista	6,112	1,535	28,966	399,697	0.07	44	19,312	174,588	9.04
Coronado	1,469	409	29,080	180,617	0.16	4	2,186	12,475	5.71
Del Mar	1,032	481	4,716	140,471	0.03	5	2,517	23,705	9.42
El Cajon	3,562	683	89,232	219,195	0.41	26	46,466	107,743	2.32
Encinitas	1,398	523	17,726	136,197	0.13	10	8,015	47,307	5.90
Escondido	11,304	2,654	53,299	702,787	0.08	61	20,072	280,711	13.99
Imperial Beach	1,347	261	9,342	80,571	0.12	1	474	1,626	3.43
La Mesa	29	8	462	2,310	0.20	1	39	310	7.99
Lemon Grove	280	78	3,311	19,114	0.17	3	1,815	10,668	5.88
National City	2,702	439	19,845	146,557	0.14	37	21,306	163,349	7.67
Oceanside	16,487	4,697	78,453	1,179,427	0.07	58	15,922	258,954	16.26
Poway	3,986	1,301	14,390	340,434	0.04	12	1,666	56,298	33.80
San Diego (City)	49,530	12,541	338,856	3,851,085	0.09	331	153,581	1,509,387	9.83
San Marcos	2,751	760	8,227	167,840	0.05	51	11,394	191,996	16.85
Santee	3,286	1,026	8,386	230,816	0.04	24	2,572	86,723	33.72
Solana Beach	594	241	6,692	71,145	0.09	6	2,377	24,111	10.14
Unincorporated-Rural	1,339	563	25,619	145,818	0.18	6	2,633	22,015	8.36
Unincorporated-Urban Core	19,807	6,093	141,472	1,516,162	0.09	61	29,437	261,305	8.88
Vista	4,113	948	16,956	252,365	0.07	27	3,987	115,556	28.98
Total	**134,567**	**36,525**	**946,011**	**10,131,667**	**2.36**	**782**	**355,852**	**3,419,080**	**245.12**

Table 4.4-14
Potential Exposure to Critical Facilities and Infrastructure from 100-Year Flood Hazard by Jurisdiction

Jurisdiction	Data	AIR	BRDG	BUS	COM	ELEC	EMER	GOVT	HOSP	INFR	PORT	POT	RAIL	SCH	Total
Carlsbad	Number	0	6	0	5	0	0	0	0	6	0	0	0	0	**17**
	Exposure (x$1000)	0	13,065	0	21,838	0	0	0	0	1,933	0	0	0	0	**36,836**
Chula Vista	Number	0	16	0	0	0	0	1	0	9	0	0	0	0	**26**
	Exposure (x$1000)	0	68,811	0	0	0	0	2,000	0	21,357	0	0	0	0	**92,168**
Coronado	Number	0	0	0	0	0	0	1	0	3	0	0	0	0	**4**
	Exposure (x$1000)	0	0	0	0	0	0	2,000	0	2,777	0	0	0	0	**4,777**
Del Mar	Number	0	0	0	0	3	0	1	0	5	0	0	0	0	**9**
	Exposure (x$1000)	0	0	0	0	13,644	0	2,000	0	3,526	0	0	0	0	**19,170**
El Cajon	Number	0	1	0	0	0	0	0	0	0	0	0	0	3	**4**
	Exposure (x$1000)	0	2,083	0	0	0	0	0	0	0	0	0	0	3,000	**5,083**
Encinitas	Number	0	4	0	3	0	1	0	0	5	0	0	0	0	**13**
	Exposure (x$1000)	0	12,388	0	6,000	0	2,000	0	0	2,655	0	0	0	0	**23,043**
Escondido	Number	0	1	0	0	0	1	0	0	6	0	0	0	6	**14**
	Exposure (x$1000)	0	2,127	0	0	0	2,000	0	0	1,762	0	0	0	6,000	**11,889**
Imperial Beach	Number	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
La Mesa	Number	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Lemon Grove	Number	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
National City	Number	0	9	0	0	0	0	0	0	6	2	0	0	1	**18**
	Exposure (x$1000)	0	52,233	0	0	0	0	0	0	21,416	40,000	0	0	1,000	**114,649**
Oceanside	Number	1	19	0	1	0	2	1	0	10	0	0	0	2	**36**
	Exposure (x$1000)	200,000	69,736	0	2,000	0	4,000	2,000	0	15,959	0	0	0	2,000	**295,695**
Poway	Number	0	7	0	1	0	0	0	0	0	0	0	0	1	**9**
	Exposure (x$1000)	0	3,178	0	2,000	0	0	0	0	0	0	0	0	1,000	**6,178**
San Diego (City)	Number	0	50	1	4	0	0	0	2	52	49	0	2	2	**162**
	Exposure (x$1000)	0	281,985	2,000	8,000	0	0	0	200,000	111,415	980,000	0	4,000	2,000	**1,589,400**
San Marcos	Number	0	3	0	0	0	0	0	0	9	0	0	0	0	**12**
	Exposure (x$1000)	0	10,645	0	0	0	0	0	0	8,255	0	0	0	0	**18,900**
Santee	Number	0	9	0	0	0	0	0	0	0	0	0	0	0	**9**
	Exposure (x$1000)	0	52,648	0	0	0	0	0	0	0	0	0	0	0	**52,648**
Solana Beach	Number	0	1	0	0	0	0	0	0	0	0	0	0	0	**1**
	Exposure (x$1000)	0	1,920	0	0	0	0	0	0	0	0	0	0	0	**1,920**
Unincorporated-Rural	Number	0	5	0	0	0	0	0	0	2	0	0	0	2	**9**
	Exposure (x$1000)	0	7,754	0	0	0	0	0	0	747	0	0	0	2,000	**10,501**
Unincorporated-Urban Core	Number	3	48	0	10	0	9	0	0	39	0	0	0	12	**121**
	Exposure (x$1000)	600,000	68,527	0	20,000	0	18,000	0	0	111,335	0	0	0	12,000	**829,862**
Vista	Number	0	0	0	0	0	2	0	0	1	0	0	0	0	**3**
	Exposure (x$1000)	0	0	0	0	0	4,000	0	0	1,014	0	0	0	0	**5,014**
Total Number		**4**	**179**	**1**	**24**	**3**	**15**	**4**	**2**	**154**	**51**	**0**	**2**	**29**	**467**
Total Exposure (x$1000)		**800,000**	**647,100**	**2,000**	**59,838**	**13,644**	**30,000**	**8,000**	**200,000**	**304,151**	**1,020,000**	**0**	**4,000**	**29,000**	**3,117,733**

Refer to Table 4.4-1 for abbreviation definition

Table 4.4-15
Potential Exposure and Losses from 500-Year Flood Hazard by Jurisdiction

Jurisdiction	Exposed Population	Residential Buildings at Risk				Commerical Buildings at Risk			
		Building Count	Potential Loss (x$1000)	Potential Exposure (x$1000)	Loss Ratio	Building Count	Potential Loss (x$1000)	Potential Exposure (x$1000)	Loss Ratio
Carlsbad	3,485	1,301	51,969	353,823	0.15	14	10,081	71,437	0.14
Chula Vista	14,505	3,643	84,095	948,643	0.09	80	35,733	317,921	0.11
Coronado	2,155	600	37,464	265,099	0.14	5	2,745	17,812	0.15
Del Mar	1,063	495	5,717	144,600	0.04	6	2,641	24,524	0.11
El Cajon	4,096	786	101,929	252,074	0.40	30	53,145	123,905	0.43
Encinitas	1,427	534	18,097	139,023	0.13	11	8,218	49,067	0.17
Escondido	28,792	6,758	166,712	1,790,069	0.09	115	48,338	530,298	0.09
Imperial Beach	2,638	510	10,528	157,761	0.07	2	535	6,114	0.09
La Mesa	29	8	462	2,310	0.20	1	39	310	0.13
Lemon Grove	294	82	3,456	20,050	0.17	3	1,815	10,668	0.17
National City	6,206	1,007	26,843	336,590	0.08	71	35,786	319,499	0.11
Oceanside	32,014	9,120	193,198	2,290,231	0.08	73	22,570	327,958	0.07
Poway	5,345	1,745	28,045	456,544	0.06	16	3,805	72,154	0.05
San Diego (City)	74,812	18,942	540,536	5,816,853	0.09	581	277,197	2,650,980	0.10
San Marcos	2,971	821	9,825	181,245	0.05	54	13,125	204,173	0.06
Santee	4,282	1,337	16,283	300,830	0.05	31	6,466	116,060	0.06
Solana Beach	765	310	8,885	91,646	0.10	7	2,862	27,531	0.10
Unincorporated-Rural	1,623	683	28,828	176,746	0.16	7	2,833	23,910	0.12
Unincorporated-Urban Core	22,428	6,899	166,606	1,716,833	0.10	65	31,968	280,680	0.11
Vista	6,173	1,423	28,397	378,744	0.07	40	10,110	169,919	0.06
Total	**215,103**	**57,004**	**1,527,875**	**15,819,713**	**2.34**	**1,212**	**570,012**	**5,344,920**	**2.44**

Table 4.4-16
Potential Exposure to Critical Facilities and Infrastructure from 500-Year Flood Hazard by Jurisdiction ADD code table

Jurisdiction	Data	AIR	BRDG	BUS	COM	ELEC	EMER	GOVT	HOSP	INFR	PORT	POT	RAIL	SCH	Total
Carlsbad	Number	0	0	0	0	0	6	5	0	0	0	6	0	0	**17**
	Exposure (x$1000)	0	0	0	0	0	13,065	21,838	0	0	0	1,933	0	0	**36,836**
Chula Vista	Number	0	18	0	0	1	0	1	0	17	1	0	1	5	**44**
	Exposure (x$1000)	0	80,939	0	0	10,000	0	2,000	0	39,604	20,000	0	2,000	5,000	**159,543**
Coronado	Number	0	0	0	0	0	0	1	0	5	0	0	0	0	**6**
	Exposure (x$1000)	0	0	0	0	0	0	2,000	0	4,376	0	0	0	0	**6,376**
Del Mar	Number	0	3	0	0	0	0	2	0	5	0	0	0	0	**10**
	Exposure (x$1000)	0	13,644	0	0	0	0	4,000	0	3,526	0	0	0	0	**21,170**
El Cajon	Number	0	13	1	0	2	2	1	1	3	0	0	1	7	**31**
	Exposure (x$1000)	0	25,065	2,000	0	20,000	4,000	2,000	100,000	14,131	0	0	2,000	7,000	**176,196**
Encinitas	Number	0	4	0	3	0	1	0	0	5	0	0	0	0	**13**
	Exposure (x$1000)	0	12,388	0	6,000	0	2,000	0	0	2,655	0	0	0	0	**23,043**
Escondido	Number	0	20	0	1	0	3	2	0	9	0	0	1	12	**48**
	Exposure (x$1000)	0	18,945	0	2,000	0	6,000	4,000	0	2,682	0	0	2,000	12,000	**47,627**
Imperial Beach	Number	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
La Mesa	Number	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Lemon Grove	Number	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
National City	Number	0	11	0	0	0	0	0	0	9	2	0	0	1	**23**
	Exposure (x$1000)	0	61,731	0	0	0	0	0	0	25,159	40,000	0	0	1,000	**127,890**
Oceanside	Number	1	21	0	2	0	4	1	0	18	0	0	0	7	**54**
	Exposure (x$1000)	200,000	77,526	0	4,000	0	8,000	2,000	0	28,131	0	0	0	7,000	**326,657**
Poway	Number	0	8	0	1	0	0	0	0	0	0	0	0	2	**11**
	Exposure (x$1000)	0	4,044	0	2,000	0	0	0	0	0	0	0	0	2,000	**8,044**
San Diego (City)	Number	0	113	2	11	0	0	2	2	82	49	1	2	5	**269**
	Exposure (x$1000)	0	530,294	4,000	22,000	0	0	4,000	200,000	212,338	980,000	100,000	4,000	5,000	**2,061,632**
San Marcos	Number	0	4	0	0	0	0	0	0	9	0	0	0	0	**13**
	Exposure (x$1000)	0	11,565	0	0	0	0	0	0	8,255	0	0	0	0	**19,820**
Santee	Number	0	9	0	2	0	0	0	0	0	0	0	0	0	**11**
	Exposure (x$1000)	0	52,648	0	4,000	0	0	0	0	0	0	0	0	0	**56,648**
Solana Beach	Number	0	1	0	0	0	0	0	0	0	0	0	0	0	**1**
	Exposure (x$1000)	0	1,920	0	0	0	0	0	0	0	0	0	0	0	**1,920**
Unincorporated-Rural	Number	0	5	0	0	0	0	0	0	2	0	0	0	2	**9**
	Exposure (x$1000)	0	7,754	0	0	0	0	0	0	747	0	0	0	2,000	**10,501**
Unincorporated-Urban Core	Number	3	49	0	14	0	9	0	0	42	0	0	0	13	**130**
	Exposure (x$1000)	600,000	71,193	0	28,000	0	18,000	0	0	114,412	0	0	0	13,000	**844,605**
Vista	Number	0	1	0	0	0	2	1	0	1	0	0	0	2	**7**
	Exposure (x$1000)	0	3,444	0	0	0	4,000	2,000	0	1,014	0	0	0	2,000	**12,458**
Total Number		**4**	**280**	**3**	**34**	**3**	**27**	**16**	**3**	**207**	**52**	**7**	**5**	**56**	**697**
Total Exposure (x$1000)		**800,000**	**973,100**	**6,000**	**68,000**	**30,000**	**55,065**	**43,838**	**300,000**	**457,030**	**1,040,000**	**101,933**	**10,000**	**56,000**	**3,940,966**

Refer to Table 4.4-1 for abbreviation definition

4.4.2.6 Rain-Induced Landslide

Steep slope data from SANDAG dated 1995, for all of San Diego County, and soils data for San Diego County were combined and modeled to determine areas susceptible to rain-induced landslides. Soils that are prone to movement were determined from the database, and combined with areas that have greater than 25% slope, which are prone to sliding. The combination of these two factors gives a general idea of landslide susceptibility. Localized hard copy maps developed by Tan were also reviewed. The TAN landslide susceptibility modeling takes into account more information, such as past landslides, landslide-prone formations, and steep slope. The identified vulnerable assets were superimposed on top of this information, resulting in three risk/exposure estimates: 1) the aggregated exposure and building count (both dollar exposure and population) at the census block level for residential and commercial occupancies, 2) the aggregated population at risk at the census block level, and 3) the critical infrastructure at risk (schools, hospitals, airports, bridges, and other facilities of critical nature). These results were then aggregated and presented by hazard risk level per jurisdiction.

Table 4.4-17 provides a breakdown of potential exposure for high-risk rain-induced landslide hazard by jurisdiction, and Table 4.4-18 provides a breakdown of infrastructure and critical facility exposure for high risk. Table 4.4-19 provides a breakdown of potential exposure for moderate risk rain-induced landslide by jurisdiction, and Table 4.4-20 provides a breakdown of potential infrastructure and critical facility exposure for moderate risk. Approximately 505,000 people may be at risk from the rain-induced landslide hazard. In addition, special populations at risk that may be impacted by the rain-induced landslide hazard in San Diego County include 22,346 low-income households and 57,564 elderly persons.

Table 4.4-17
Potential Exposure from Rain-Induced Landslide Hazard (High Risk) by Jurisdiction

Jurisdiction	Exposed Population	Residential Buildings at Risk		Commercial Buildings at Risk	
		Building Count	Potential Exposure (x$1000)	Building Count	Potential Exposure (x$1000)
Carlsbad	9,523	3,496	915,056	65	271,284
Chula Vista	23,097	7,422	1,891,842	20	90,030
Coronado	0	0	0	0	0
Del Mar	12	8	2,141	0	0
El Cajon	6,346	2,276	549,540	1	20,072
Encinitas	7,982	3,286	870,205	11	61,640
Escondido	0	0	0	0	0
Imperial Beach	0	0	0	0	0
La Mesa	3,880	696	349,310	10	29,634
Lemon Grove	199	56	12,135	0	0
National City	4,544	754	232,328	7	31,202
Oceanside	29,870	9,037	2,374,682	31	162,948
Poway	2,515	874	169,170	56	317,358
San Diego (City)	192,141	58,959	16,407,169	454	2,085,282
San Marcos	0	0	0	0	0
Santee	5,139	1,637	393,653	7	26,456
Solana Beach	3,792	1,282	401,003	14	69,664
Unincorporated- Rural	3,308	1,562	445,494	64	202,478
Unincorporated- Urban Core	11,326	2,644	1,020,225	4	29,492
Vista	889	280	61,655	1	10,892
Total	**304,563**	**94,269**	**26,095,608**	**745**	**3,408,432**

Table 4.4-18
Potential Exposure to Critical Facilities and Infrastructure from Rain-Induced Landslide Hazard (High Risk) by Jurisdiction

Jurisdiction	Data	AIR	BRDG	BUS	COM	ELEC	EMER	GOVT	HOSP	INFR	PORT	POT	RAIL	SCH	Total
Carlsbad	Number	0	1	0	1	0	4	0	0	13	0	0	0	1	**20**
	Exposure (x$1000)	0	846	0	2,000	0	8,000	0	0	7,758	0	0	0	1,000	**19,604**
Chula Vista	Number	0	0	0	6	0	0	0	1	11	0	0	0	6	**24**
	Exposure (x$1000)	0	0	0	12,000	0	0	0	100,000	17,309	0	0	0	6,000	**135,309**
Coronado	Number	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Del Mar	Number	0	1	0	0	0	0	0	0	2	0	0	0	0	**3**
	Exposure (x$1000)	0	1,990	0	0	0	0	0	0	631	0	0	0	0	**2,621**
El Cajon	Number	0	1	0	2	0	1	0	1	5	0	0	0	1	**11**
	Exposure (x$1000)	0	963	0	4,000	0	2,000	0	100,000	1,895	0	0	0	1,000	**109,858**
Encinitas	Number	0	4	0	3	0	0	0	0	6	0	1	0	6	**20**
	Exposure (x$1000)	0	7,230	0	6,000	0	0	0	0	4,262	0	100,000	0	6,000	**123,492**
Escondido	Number	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Imperial Beach	Number	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
La Mesa	Number	0	2	0	0	0	0	0	0	5	0	0	0	1	**8**
	Exposure (x$1000)	0	9,328	0	0	0	0	0	0	14,466	0	0	0	1,000	**24,794**
Lemon Grove	Number	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
National City	Number	0	2	0	1	0	0	0	0	2	0	0	0	3	**8**
	Exposure (x$1000)	0	7,417	0	2,000	0	0	0	0	13,194	0	0	0	3,000	**25,611**
Oceanside	Number	0	3	0	2	0	2	2	0	12	0	0	0	6	**27**
	Exposure (x$1000)	0	1,424	0	4,000	0	4,000	4,000	0	17,638	0	0	0	6,000	**37,062**
Poway	Number	0	1	0	3	0	0	0	0	0	0	0	0	0	**4**
	Exposure (x$1000)	0	157	0	6,000	0	0	0	0	0	0	0	0	0	**6,157**
San Diego (City)	Number	0	80	0	34	0	12	2	4	78	0	0	0	46	**256**
	Exposure (x$1000)	0	254,783	0	68,000	0	24,000	4,000	400,000	183,460	0	0	0	46,000	**980,243**
San Marcos	Number	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Santee	Number	0	0	0	2	0	0	0	0	2	0	0	0	1	**5**
	Exposure (x$1000)	0	0	0	4,000	0	0	0	0	7,096	0	0	0	1,000	**12,096**
Solana Beach	Number	0	1	0	0	0	0	0	0	0	0	0	0	1	**2**
	Exposure (x$1000)	0	1,920	0	0	0	0	0	0	0	0	0	0	1,000	**2,920**
Unincorporated-Rural	Number	0	3	0	0	0	0	0	0	3	0	0	0	5	**11**
	Exposure (x$1000)	0	510	0	0	0	0	0	0	9,278	0	0	0	5,000	**14,788**
Unincorporated-Urban Core	Number	0	8	0	8	0	1	0	0	42	0	0	0	5	**64**
	Exposure (x$1000)	0	6,306	0	16,000	0	2,000	0	0	57,027	0	0	0	5,000	**86,333**
Vista	Number	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	138	0	0	0	0	**138**
Total Number		**0**	**107**	**0**	**62**	**0**	**20**	**4**	**6**	**182**	**0**	**1**	**0**	**82**	**464**
Total Exposure (x$1000)		**0**	**292,874**	**0**	**124,000**	**0**	**40,000**	**8,000**	**600,000**	**334,150**	**0**	**100,000**	**0**	**82,000**	**1,581,024**

Refer to Table 4.4-1 for abbreviation definition

Table 4.4-19
Potential Exposure to Rain-Induced Landslide Hazard (Moderate Risk) by Jurisdiction

Jurisdiction	Exposed Population	Residential Buildings at Risk		Commercial Buildings at Risk	
		Building Count	Potential Exposure (x$1000)	Building Count	Potential Exposure (x$1000)
Carlsbad	3,366	1,262	351,103	0	10,484
Chula Vista	0	0	0	0	0
Coronado	0	0	0	0	0
Del Mar	125	71	19,860	0	480
El Cajon	4,494	1,305	285,104	1	6,826
Encinitas	417	167	46,539	0	0
Escondido	15,158	5,880	1,406,240	40	421,612
Imperial Beach	0	0	0	0	0
La Mesa	473	195	49,170	0	1,300
Lemon Grove	137	24	10,063	0	2,336
National City	0	0	0	0	0
Oceanside	2,500	965	232,517	1	8,168
Poway	11,354	4,030	1,120,165	27	98,302
San Diego (City)	27,973	8,898	2,561,491	53	207,458
San Marcos	7,627	2,382	564,765	30	127,238
Santee	5,728	1,627	357,839	17	51,630
Solana Beach	0	0	0	0	0
Unincorporated- Rural	6,243	2,449	614,584	2	25,342
Unincorporated- Urban Core	109,812	35,879	9,337,594	175	775,556
Vista	5,217	1,473	324,566	10	64,936
Total	**200,624**	**66,607**	**17,281,600**	**356**	**1,801,668**

Table 4.4-20
Potential Exposure to Critical Facilities and Infrastructure from Rain-Induced Landslide Hazard (Moderate Risk) by Jurisdiction

Jurisdiction	Data	AIR	BRDG	BUS	COM	ELEC	EMER	GOVT	HOSP	INFR	PORT	POT	RAIL	SCH	Total
Carlsbad	Number	0	0	0	4	0	0	0	0	0	0	0	0	0	**4**
	Exposure (x$1000)	0	0	0	8,000	0	0	0	0	0	0	0	0	0	**8,000**
Chula Vista	Number	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Coronado	Number	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Del Mar	Number	0	0	0	1	0	0	0	0	0	0	0	0	0	**1**
	Exposure (x$1000)	0	0	0	2,000	0	0	0	0	0	0	0	0	0	**2,000**
El Cajon	Number	0	0	0	2	0	0	0	0	0	0	0	0	1	**3**
	Exposure (x$1000)	0	0	0	4,000	0	0	0	0	0	0	0	0	1,000	**5,000**
Encinitas	Number	0	0	0	1	0	0	0	0	0	0	0	0	0	**1**
	Exposure (x$1000)	0	0	0	2,000	0	0	0	0	0	0	0	0	0	**2,000**
Escondido	Number	0	5	0	11	0	1	0	0	4	0	0	0	2	**23**
	Exposure (x$1000)	0	18,248	0	22,000	0	2,000	0	0	11,301	0	0	0	2,000	**55,549**
Imperial Beach	Number	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
La Mesa	Number	0	4	0	1	0	0	0	0	1	0	0	0	0	**6**
	Exposure (x$1000)	0	22,762	0	2,000	0	0	0	0	407	0	0	0	0	**25,169**
Lemon Grove	Number	0	3	0	0	0	0	0	0	4	0	0	0	1	**8**
	Exposure (x$1000)	0	9,566	0	0	0	0	0	0	8,119	0	0	0	1,000	**18,685**
National City	Number	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Oceanside	Number	0	0	0	4	0	0	0	0	0	0	0	0	2	**6**
	Exposure (x$1000)	0	0	0	8,000	0	0	0	0	42	0	0	0	2,000	**10,042**
Poway	Number	0	24	0	11	0	0	0	0	0	0	0	0	2	**37**
	Exposure (x$1000)	0	135,013	0	22,000	0	0	0	0	0	0	0	0	2,000	**159,013**
San Diego (City)	Number	0	9	0	7	0	0	0	0	15	0	0	0	7	**38**
	Exposure (x$1000)	0	49,998	0	14,000	0	0	0	0	40,861	0	0	0	7,000	**111,859**
San Marcos	Number	0	2	0	4	0	0	2	0	4	0	0	0	2	**14**
	Exposure (x$1000)	0	3,443	0	8,000	0	0	4,000	0	2,425	0	0	0	2,000	**19,868**
Santee	Number	0	0	0	2	0	0	0	0	0	0	0	0	0	**2**
	Exposure (x$1000)	0	0	0	4,000	0	0	0	0	838	0	0	0	0	**4,838**
Solana Beach	Number	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Unincorporated-Rural	Number	0	1	0	10	0	3	0	0	3	0	0	0	0	**17**
	Exposure (x$1000)	0	1,805	0	20,000	0	6,000	0	0	2,608	0	0	0	0	**30,413**
Unincorporated-Urban Core	Number	5	81	1	138	0	24	1	0	283	0	0	0	31	**564**
	Exposure (x$1000)	1,000,000	141,145	2,000	276,000	0	48,000	2,000	0	956,084	0	0	0	31,000	**2,456,229**
Vista	Number	0	1	0	0	0	0	1	0	0	0	0	0	0	**2**
	Exposure (x$1000)	0	3,444	0	0	0	0	2,000	0	0	0	0	0	0	**5,444**
Total Number		**5**	**130**	**1**	**196**	**0**	**28**	**4**	**0**	**314**	**0**	**0**	**0**	**48**	**726**
Total Exposure (x$1000)		**1,000,000**	**385,424**	**2,000**	**392,000**	**0**	**56,000**	**8,000**	**0**	**1,022,685**	**0**	**0**	**0**	**48,000**	**2,914,109**

Refer to Table 4.4-1 for abbreviation definition

4.4.2.7 Wildfire/Structure Fire

Wildfire loss estimates were determined using the CDF-FRAP Fire Threat Model. CDF-FRAP modeled wildland fire threat for the state of California in 2002. This model was used in GIS to profile the fire hazard throughout the County, then used in overlays to determine loss estimates. In the model, fire threat is a combination of two factors; 1) fire rotation, or the likelihood of a given area burning, and 2) potential fire behavior (fuel rank). These two factors were combined to create five threat classes ranging from little or no threat to extreme. The fuel ranking methodology assigned ranks based on expected fire behavior for unique combinations of topography and vegetative fuels under a given severe weather condition (wind speed, humidity, temperature, and fuel moistures). The procedure made an initial assessment of rank based on an assigned fuel model and slope, then potentially increases ranks based on the amount of ladder and/or crown fuel present to arrive at a final fuel rank. Fire rotation class intervals were calculated from fifty years of fire history on land areas grouped into "strata" based on fire environment conditions. These strata are defined by climate, vegetation, and land ownership. The Fire rotation interval is the number of years it would take for past fires to burn an area equivalent to the area of a given stratum. Fire rotation interval for a given stratum is calculated by dividing the annual number of acres burned into the total area of the stratum. Finally, fire rotation values were grouped into classes. The larger fire rotation values correspond to less frequent burning. CDF calculated a numerical index of fire threat based on the combination of fuel rank and fire rotation. A 1-3 ranking of fuel rank was summed with the 1-3 ranking from rotation class to develop a threat index ranging from 2 to 6. This threat index was then grouped into four threat classes. Areas that do not support wildland fuels (e.g. open water, agriculture lands, etc.,) were omitted from the calculation, however areas of very large urban centers (i.e. concrete jungles) were left in but received a moderate threat value. This data was updated as requested by the San Marcos and Escondido jurisdictions, to more accurately reflect their fire risks and is reflected in the hazard modeling process and subsequent mapping. The identified vulnerable assets were superimposed on top of this information, resulting in three risk/exposure estimates: 1) the aggregated exposure and building count (both dollar exposure and population) at the census block level for residential and commercial occupancies, 2) the aggregated population at risk at the census block level, and 3) the critical infrastructure at risk (schools, hospitals, airports, bridges, and other facilities of critical nature). These results were then aggregated and presented by hazard risk level per jurisdiction.

As previously noted, the CDF-FRAP model for San Diego has not been updated to reflect the recent October 2003 fires, and the estimates in this section will need to be revised when the model update becomes available. Wildfire can create a multi-hazard effect, where areas that are burned by wildfire suddenly have greater flooding risks because the vegetation that prevented erosion is now gone. Watershed from streams and rivers will change and floodplain mapping may need to be updated. Also, air quality issues during a large-scale fire would cause further economic losses than only the structural losses described below. Road closures and business closures due to large-scale fires would also increase the economic losses shown below.

Tables 4.4-21 through 4.4-25 provide a breakdown of potential exposure to extreme, very high, high and moderate wildfire hazard by jurisdiction with Table 4.4-26 depicting the combined totals of exposure from wildfire, and Tables 4.4-26 through 4.4-30 provide a breakdown of potential infrastructure and critical facility exposure for the same series of fire hazards. Table 4.4-30 gives the combined total of all wildfire hazard levels. As demonstrated in the October 2003 fires, a major fire(s) in the region can

indirectly impact the entire community. Consequently, approximately 2,800,000 people may be at risk from the wildfire/structure fire hazard. In addition, special populations at risk that may be impacted by the wildfire/structure fire hazard in San Diego County include 180,377 low-income households and 313,198 elderly persons.

Table 4.4-21
Potential Exposure from Extreme Wildfire Hazard by Jurisdiction

Jurisdiction	Exposed Population	Residential Buildings at Risk		Commercial Buildings at Risk	
		Building Count	Potential Exposure (x$1000)	Building Count	Potential Exposure (x$1000)
Carlsbad	0	0	0	0	0
Chula Vista	0	0	0	0	0
Coronado	0	0	0	0	0
Del Mar	0	0	0	0	0
El Cajon	0	0	0	0	0
Encinitas	0	0	0	0	0
Escondido	0	0	0	0	0
Imperial Beach	0	0	0	0	0
La Mesa	0	0	0	0	0
Lemon Grove	0	0	0	0	0
National City	0	0	0	0	0
Oceanside	0	0	0	0	0
Poway	0	0	0	0	0
San Diego (City)	35	12	3,561	0	0
San Marcos	0	0	0	0	0
Santee	0	0	0	0	0
Solana Beach	0	0	0	0	0
Unincorporated- Rural	235	96	26,517	1	2,312
Unincorporated- Urban Core	24,109	9,665	2,063,481	24	133,544
Vista	0	0	0	0	0
Total	**24,379**	**9,773**	**2,093,559**	**25**	**135,856**

Table 4.4-22
Potential Exposure from Very High Wildfire Hazard by Jurisdiction

Jurisdiction	Exposed Population	Residential Buildings at Risk		Commercial Buildings at Risk	
		Building Count	Potential Exposure (x$1000)	Building Count	Potential Exposure (x$1000)
Carlsbad	2,788	1,143	342,678	15	157,266
Chula Vista	6	5	1,099	3	9,562
Coronado	0	0	0	0	0
Del Mar	0	0	0	0	0
El Cajon	89	28	7,009	0	0
Encinitas	2,268	890	245,656	0	4,054
Escondido	988	485	107,309	1	7,190
Imperial Beach	0	0	0	0	0
La Mesa	0	0	0	0	0
Lemon Grove	0	0	0	0	0
National City	0	0	0	0	0
Oceanside	625	223	55,113	0	5,768
Poway	3,720	1,141	348,023	4	20,162
San Diego (City)	21,010	7,687	2,091,726	66	363,040
San Marcos	258	86	14,062	0	3,580
Santee	957	276	72,739	1	2,044
Solana Beach	0	0	0	0	0
Unincorporated- Rural	3,642	1,468	408,587	18	68,774
Unincorporated- Urban Core	84,535	25,459	7,498,636	147	557,292
Vista	50	17	4,571	10	44,306
Total	**120,936**	**38,908**	**11,197,208**	**265**	**1,243,038**

Table 4.4-23
Potential Exposure from High Wildfire Hazard by Jurisdiction

Jurisdiction	Exposed Population	Residential Buildings at Risk		Commercial Buildings at Risk	
		Building Count	Potential Exposure (x$1000)	Building Count	Potential Exposure (x$1000)
Carlsbad	3,302	1,338	347,437	16	55,266
Chula Vista	1,208	346	82,589	10	39,696
Coronado	0	0	0	0	0
Del Mar	43	10	2,617	0	0
El Cajon	41	13	3,877	0	0
Encinitas	1,068	500	139,546	6	25,326
Escondido	2,332	925	175,972	4	30,008
Imperial Beach	0	0	0	0	0
La Mesa	326	131	32,236	0	1,300
Lemon Grove	0	0	0	0	0
National City	0	0	0	11	70,984
Oceanside	1,942	688	177,599	6	33,956
Poway	4,826	1,696	469,703	32	116,278
San Diego (City)	16,351	6,070	1,792,312	197	1,215,156
San Marcos	4,598	1,447	346,034	10	54,236
Santee	3,007	948	231,225	6	25,404
Solana Beach	0	0	0	0	0
Unincorporated- Rural	2,533	1,218	331,493	1	18,510
Unincorporated- Urban Core	16,015	5,846	1,379,109	20	131,244
Vista	852	292	70,352	0	15,584
Total	**58,444**	**21,468**	**5,582,101**	**319**	**1,832,948**

Table 4.4-24
Potential Exposure from Moderate Wildfire Hazard by Jurisdiction

Jurisdiction	Exposed Population	Residential Buildings at Risk		Commercial Buildings at Risk	
		Building Count	Potential Exposure (x$1000)	Building Count	Potential Exposure (x$1000)
Carlsbad	65,251	23,652	6,438,078	203	1,040,982
Chula Vista	164,451	40,595	10,558,507	385	1,533,360
Coronado	20,337	5,645	2,548,634	77	270,068
Del Mar	3,996	1,883	551,739	30	140,984
El Cajon	94,216	18,034	5,795,780	299	1,255,948
Encinitas	50,130	18,725	4,852,512	188	930,172
Escondido	127,927	29,056	7,815,012	401	1,842,766
Imperial Beach	25,731	5,034	1,494,983	33	118,082
La Mesa	53,530	14,074	4,277,345	158	734,606
Lemon Grove	25,023	6,871	1,706,745	47	208,246
National City	51,399	8,691	2,556,844	146	635,882
Oceanside	152,424	43,223	10,824,378	259	1,164,678
Poway	36,900	11,904	3,044,913	106	554,400
San Diego (City)	1,143,729	285,539	87,721,495	3,828	17,178,244
San Marcos	47,998	12,927	2,823,430	227	829,950
Santee	45,775	14,641	3,237,198	107	401,928
Solana Beach	12,766	5,171	1,531,192	100	438,930
Unincorporated- Rural	22,333	9,365	2,382,885	78	291,132
Unincorporated- Urban Core	252,430	72,814	17,721,767	409	1,706,920
Vista	85,312	19,398	5,168,023	177	765,900
Total	**2,481,658**	**647,242**	**183,051,460**	**7,258**	**32,043,178**

Table 4.4-25
Potential Exposure from Wildfire (Moderate, High, Very High, Extreme Combined) Hazard by Jurisdiction

Jurisdiction	Exposed Population	Residential Buildings at Risk		Commercial Buildings at Risk	
		Building Count (Res.)	Potential Exposure (x$1000)	Building Count (Com.)	Potential Exposure (x$1000)
Carlsbad	71,341	26,133	7,128,193	234	1,253,514
Chula Vista	165,665	40,946	10,642,195	398	1,582,618
Coronado	20,337	5,645	2,548,634	77	270,068
Del Mar	4,039	1,893	554,356	30	140,984
El Cajon	94,346	18,075	5,806,666	299	1,255,948
Encinitas	53,466	20,115	5,237,714	194	959,552
Escondido	131,247	30,466	8,098,293	406	1,879,964
Imperial Beach	25,731	5,034	1,494,983	33	118,082
La Mesa	53,856	14,205	4,309,581	158	735,906
Lemon Grove	25,023	6,871	1,706,745	47	208,246
National City	51,399	8,691	2,556,844	157	706,866
Oceanside	154,991	44,134	11,057,090	265	1,204,402
Poway	45,446	14,741	3,862,639	142	690,840
San Diego (City)	1,181,125	299,308	91,609,094	4,091	18,756,440
San Marcos	52,854	14,460	3,183,526	237	887,766
Santee	49,739	15,865	3,541,162	114	429,376
Solana Beach	12,766	5,171	1,531,192	100	438,930
Unincorporated- Rural	28,743	12,147	3,149,482	98	380,728
Unincorporated- Urban Core	377,089	113,784	28,662,993	600	2,529,000
Vista	86,214	19,707	5,242,946	187	825,790
Total	**2,685,417**	**717,391**	**201,924,328**	**7,867**	**35,255,020**

Table 4.4-26
Potential Exposure to Critical Facilities and Infrastructures from Extreme Wildfire Hazard by Jurisdiction

Jurisdiction	Data	AIR	BRDG	BUS	COM	ELEC	EMER	GOVT	HOSP	INFR	PORT	POT	RAIL	SCH	Total
Carlsbad	Number	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Chula Vista	Number	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Coronado	Number	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Del Mar	Number	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
El Cajon	Number	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Encinitas	Number	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Escondido	Number	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Imperial Beach	Number	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
La Mesa	Number	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Lemon Grove	Number	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
National City	Number	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Oceanside	Number	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Poway	Number	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
San Diego (City)	Number	0	3	0	3	0	0	0	0	4	0	0	0	0	**10**
	Exposure (x$1000)	0	11,149	0	6,000	0	0	0	0	1,945	0	0	0	0	**19,094**
San Marcos	Number	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Santee	Number	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Solana Beach	Number	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Unincorporated-Rural	Number	0	0	0	1	0	0	0	0	0	0	0	0	0	**1**
	Exposure (x$1000)	0	0	0	2,000	0	0	0	0	0	0	0	0	0	**2,000**
Unincorporated-Urban Core	Number	2	26	0	10	0	5	0	0	76	0	0	0	4	**123**
	Exposure (x$1000)	400,000	49,201	0	20,000	0	10,000	0	0	255,962	0	0	0	4,000	**739,163**
Vista	Number	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Number		**2**	**29**	**0**	**14**	**0**	**5**	**0**	**0**	**80**	**0**	**0**	**0**	**4**	**134**
Total Exposure (x$1000)		**400,000**	**60,350**	**0**	**28,000**	**0**	**10,000**	**0**	**0**	**257,907**	**0**	**0**	**0**	**4,000**	**760,257**

Refer to Table 4.4-1 for abbreviation definition

Table 4.4-27
Potential Exposure to Critical Facilities and Infrastructures from Very High Wildfire Hazard by Jurisdiction

Jurisdiction	Data	AIR	BRDG	BUS	COM	ELEC	EMER	GOVT	HOSP	INFR	PORT	POT	RAIL	SCH	Total
Carlsbad	Number	0	1	0	0	0	0	0	0	2	0	0	0	1	**4**
	Exposure (x$1000)	0	1,468	0	0	0	0	0	0	636	0	0	0	1,000	**3,104**
Chula Vista	Number	0	0	0	0	0	0	0	0	2	0	0	0	0	**2**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	693	0	0	0	0	**693**
Coronado	Number	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Del Mar	Number	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
El Cajon	Number	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Encinitas	Number	0	0	0	1	0	0	0	0	0	0	0	0	0	**1**
	Exposure (x$1000)	0	0	0	2,000	0	0	0	0	0	0	0	0	0	**2,000**
Escondido	Number	0	3	0	5	0	0	0	0	0	0	0	0	0	**8**
	Exposure (x$1000)	0	4,781	0	10,000	0	0	0	0	0	0	0	0	0	**14,781**
Imperial Beach	Number	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
La Mesa	Number	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Lemon Grove	Number	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
National City	Number	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Oceanside	Number	0	0	0	0	0	0	0	0	1	0	0	0	0	**1**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	298	0	0	0	0	**298**
Poway	Number	0	0	0	1	0	0	0	0	1	0	0	0	0	**2**
	Exposure (x$1000)	0	0	0	2,000	0	0	0	0	2,409	0	0	0	0	**4,409**
San Diego (City)	Number	0	5	0	6	0	1	0	0	34	0	1	0	4	**51**
	Exposure (x$1000)	0	14,000	0	12,000	0	2,000	0	0	88,012	0	100,000	0	4,000	**220,012**
San Marcos	Number	0	0	0	0	0	0	0	0	1	0	0	0	0	**1**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	4,272	0	0	0	0	**4,272**
Santee	Number	0	0	0	0	0	0	0	0	2	0	0	0	0	**2**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	686	0	0	0	0	**686**
Solana Beach	Number	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Unincorporated-Rural	Number	0	3	0	8	0	0	0	0	3	0	0	0	0	**14**
	Exposure (x$1000)	0	3,022	0	16,000	0	0	0	0	9,509	0	0	0	0	**28,531**
Unincorporated-Urban Core	Number	12	113	0	86	0	40	0	1	537	0	0	0	31	**820**
	Exposure (x$1000)	2,400,000	179,660	0	172,000	0	80,000	0	100,000	1,535,376	0	0	0	31,000	**4,498,036**
Vista	Number	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Number		**12**	**125**	**0**	**107**	**0**	**41**	**0**	**1**	**584**	**0**	**1**	**0**	**36**	**907**
Total Exposure (x$1000)		**2,400,000**	**202,931**	**0**	**214,000**	**0**	**82,000**	**0**	**100,000**	**1,641,889**	**0**	**100,000**	**0**	**36,000**	**4,776,820**

Refer to Table 4.4-1 for abbreviation definition

Table 4.4-28
Potential Exposure to Critical Facilities and Infrastructures from High Wildfire Hazard by Jurisdiction

Jurisdiction	Data	AIR	BRDG	BUS	COM	ELEC	EMER	GOVT	HOSP	INFR	PORT	POT	RAIL	SCH	Total
Carlsbad	Number	0	2	0	1	0	0	0	0	8	0	0	0	1	**12**
	Exposure (x$1000)	0	5,257	0	2,000	0	0	0	0	17,544	0	0	0	1,000	**25,801**
Chula Vista	Number	0	2	0	1	0	0	0	0	1	0	0	0	0	**4**
	Exposure (x$1000)	0	1,284	0	2,000	0	0	0	0	414	0	0	0	0	**3,698**
Coronado	Number	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Del Mar	Number	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
El Cajon	Number	0	0	0	0	0	1	0	0	0	0	0	0	0	**1**
	Exposure (x$1000)	0	0	0	0	0	2,000	0	0	0	0	0	0	0	**2,000**
Encinitas	Number	0	1	0	0	0	0	0	0	4	0	0	0	0	**5**
	Exposure (x$1000)	0	1,468	0	0	0	0	0	0	1,204	0	0	0	0	**2,672**
Escondido	Number	0	0	0	3	0	0	0	0	4	0	0	0	0	**7**
	Exposure (x$1000)	0	0	0	6,000	0	0	0	0	13,966	0	0	0	0	**19,966**
Imperial Beach	Number	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
La Mesa	Number	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Lemon Grove	Number	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
National City	Number	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Oceanside	Number	0	1	0	2	0	0	0	0	7	0	0	0	0	**10**
	Exposure (x$1000)	0	4,653	0	4,000	0	0	0	0	19,584	0	0	0	0	**28,237**
Poway	Number	0	23	0	6	0	0	0	0	4	0	0	0	2	**35**
	Exposure (x$1000)	0	134,678	0	12,000	0	0	0	0	14,207	0	0	0	2,000	**162,885**
San Diego (City)	Number	0	12	0	9	0	0	0	1	44	0	0	0	1	**67**
	Exposure (x$1000)	0	47,830	0	18,000	0	0	0	100,000	54,916	0	0	0	1,000	**221,746**
San Marcos	Number	0	0	0	4	0	0	0	0	0	0	0	0	0	**4**
	Exposure (x$1000)	0	0	0	8,000	0	0	0	0	0	0	0	0	0	**8,000**
Santee	Number	0	3	0	3	0	0	0	0	2	0	0	0	0	**8**
	Exposure (x$1000)	0	35,687	0	6,000	0	0	0	0	7,096	0	0	0	0	**48,783**
Solana Beach	Number	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Unincorporated-Rural	Number	0	1	0	1	0	0	0	0	0	0	0	0	0	**2**
	Exposure (x$1000)	0	3,433	0	2,000	0	0	0	0	0	0	0	0	0	**5,433**
Unincorporated-Urban Core	Number	3	29	2	20	0	10	1	0	94	0	0	0	7	**166**
	Exposure (x$1000)	600,000	53,121	4,000	40,000	0	20,000	2,000	0	276,617	0	0	0	7,000	**1,002,738**
Vista	Number	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Exposure (x$1000)	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Number		**3**	**74**	**2**	**50**	**0**	**11**	**1**	**1**	**169**	**0**	**0**	**0**	**11**	**322**
Total Exposure (x$1000)		**600,000**	**287,411**	**4,000**	**100,000**	**0**	**22,000**	**2,000**	**100,000**	**405,547**	**0**	**0**	**0**	**11,000**	**1,531,958**

Refer to Table 4.4-1 for abbreviation definition

Table 4.4-29
Potential Exposure to Critical Facilities and Infrastructures from Moderate Wildfire Hazard by Jurisdiction

Jurisdiction	Data	AIR	BRDG	BUS	COM	ELEC	EMER	GOVT	HOSP	INFR	PORT	POT	RAIL	SCH	Total
Carlsbad	Number	1	24	0	10	1	7	4	0	64	0	2	1	27	**141**
	Exposure (x$1000)	200,000	55,050	0	20,000	10,000	14,000	8,000	0	146,495	0	200,000	2,000	27,000	**682,545**
Chula Vista	Number	0	37	2	22	1	10	4	4	55	0	1	2	60	**198**
	Exposure (x$1000)	0	103,089	4,000	44,000	10,000	20,000	8,000	400,000	130,534	0	100,000	4,000	60,000	**883,623**
Coronado	Number	1	1	0	3	0	3	1	1	31	0	0	0	11	**52**
	Exposure (x$1000)	200,000	832	0	6,000	0	6,000	2,000	100,000	60,595	0	0	0	11,000	**386,427**
Del Mar	Number	0	5	0	5	0	1	5	0	17	0	0	0	1	**34**
	Exposure (x$1000)	0	18,282	0	10,000	0	2,000	10,000	0	20,829	0	0	0	1,000	**62,111**
El Cajon	Number	1	37	1	10	3	7	3	10	29	0	0	2	40	**143**
	Exposure (x$1000)	200,000	67,708	2,000	20,000	30,000	14,000	6,000	1,000,000	86,560	0	0	4,000	40,000	**1,470,268**
Encinitas	Number	0	13	0	19	1	8	3	6	44	0	1	0	33	**128**
	Exposure (x$1000)	0	24,543	0	38,000	10,000	16,000	6,000	600,000	105,335	0	100,000	0	33,000	**932,878**
Escondido	Number	0	68	1	11	0	6	5	1	28	0	1	1	48	**170**
	Exposure (x$1000)	0	137,403	2,000	22,000	0	12,000	10,000	100,000	63,029	0	100,000	2,000	48,000	**496,432**
Imperial Beach	Number	1	1	0	1	0	2	1	0	5	0	0	0	9	**20**
	Exposure (x$1000)	200,000	2,222	0	2,000	0	4,000	2,000	0	11,220	0	0	0	9,000	**230,442**
La Mesa	Number	0	35	0	8	1	5	1	2	30	0	1	5	27	**115**
	Exposure (x$1000)	0	145,123	0	16,000	10,000	10,000	2,000	200,000	52,435	0	100,000	10,000	27,000	**572,558**
Lemon Grove	Number	0	8	0	1	0	2	2	0	11	0	0	1	10	**35**
	Exposure (x$1000)	0	17,032	0	2,000	0	4,000	4,000	0	19,018	0	0	2,000	10,000	**58,050**
National City	Number	0	47	1	4	2	3	2	3	42	1	1	5	28	**139**
	Exposure (x$1000)	0	210,943	2,000	8,000	20,000	6,000	4,000	300,000	76,974	20,000	100,000	10,000	28,000	**785,917**
Oceanside	Number	1	37	2	15	0	8	5	1	59	0	1	1	47	**177**
	Exposure (x$1000)	200,000	88,965	4,000	30,000	0	16,000	10,000	100,000	131,006	0	100,000	2,000	47,000	**728,971**
Poway	Number	0	20	1	15	0	2	0	0	5	0	0	0	20	**63**
	Exposure (x$1000)	0	7,606	2,000	30,000	0	4,000	0	0	16,066	0	0	0	20,000	**79,672**
San Diego (City)	Number	3	428	12	114	8	81	60	20	436	5	1	16	400	**1,584**
	Exposure (x$1000)	600,000	1,733,742	24,000	228,000	80,000	162,000	120,000	1,000,000	1,305,207	100,000	100,000	32,000	400,000	**5,884,949**
San Marcos	Number	0	11	0	6	0	9	5	2	28	0	0	1	20	**82**
	Exposure (x$1000)	0	31,023	0	12,000	0	18,000	10,000	200,000	56,090	0	0	2,000	20,000	**349,113**
Santee	Number	0	10	0	6	0	3	3	0	9	0	1	0	16	**48**
	Exposure (x$1000)	0	18,094	0	12,000	0	6,000	6,000	0	9,387	0	100,000	0	16,000	**167,481**
Solana Beach	Number	0	5	0	2	0	1	1	0	16	0	0	1	8	**34**
	Exposure (x$1000)	0	25,822	0	4,000	0	2,000	2,000	0	27,951	0	0	2,000	8,000	**71,773**
Unincorporated-Rural	Number	0	19	0	8	1	3	0	0	16	0	0	0	14	**61**
	Exposure (x$1000)	0	63,539	0	16,000	10,000	6,000	0	0	53,643	0	0	0	14,000	**163,182**
Unincorporated-Urban Core	Number	15	106	0	119	2	40	7	2	289	0	1	0	107	**688**
	Exposure (x$1000)	3,000,000	127,251	0	238,000	20,000	80,000	14,000	200,000	864,843	0	100,000	0	107,000	**4,751,094**
Vista	Number	0	11	0	10	0	7	4	0	19	0	0	0	31	**82**
	Exposure (x$1000)	0	29,407	0	20,000	0	14,000	8,000	0	31,536	0	0	0	31,000	**133,943**
Total Number		**23**	**923**	**20**	**389**	**20**	**208**	**116**	**52**	**1,233**	**6**	**11**	**36**	**957**	**3,994**
Total Exposure (x$1000)		**4,600,000**	**2,907,676**	**40,000**	**778,000**	**200,000**	**416,000**	**232,000**	**4,200,000**	**3,268,753**	**120,000**	**1,100,000**	**72,000**	**957,000**	**18,891,429**

Refer to Table 4.4-1 for abbreviation definition

Table 4.4-30
Potential Exposure to Critical Facilities and Infrastructures from (Moderate, High, Very High, Extreme Combined) Wildfire Hazard by Jurisdiction

Jurisdiction	Data	AIR	BRDG	BUS	COM	ELEC	EMER	GOVT	HOSP	INFR	PORT	POT	RAIL	SCH	Total
Carlsbad	Number	1	27	0	11	1	7	4	0	73	0	2	1	29	**156**
	Exposure (x$1000)	200,000	61,775	0	22,000	10,000	14,000	8,000	0	164,675	0	200,000	2,000	29,000	**711,450**
Chula Vista	Number	0	39	2	23	1	10	4	4	59	0	1	2	60	**205**
	Exposure (x$1000)	0	104,373	4,000	46,000	10,000	20,000	8,000	400,000	131,641	0	100,000	4,000	60,000	**888,014**
Coronado	Number	1	1	0	3	0	3	1	1	31	0	0	0	11	**52**
	Exposure (x$1000)	200,000	832	0	6,000	0	6,000	2,000	100,000	60,595	0	0	0	11,000	**386,427**
Del Mar	Number	0	5	0	5	0	1	5	0	17	0	0	0	1	**34**
	Exposure (x$1000)	0	18,282	0	10,000	0	2,000	10,000	0	20,829	0	0	0	1,000	**62,111**
El Cajon	Number	1	37	1	10	3	8	3	10	29	0	0	2	40	**144**
	Exposure (x$1000)	200,000	67,708	2,000	20,000	30,000	16,000	6,000	1,000,000	86,560	0	0	4,000	40,000	**1,472,268**
Encinitas	Number	0	14	0	20	1	8	3	6	48	0	1	0	33	**134**
	Exposure (x$1000)	0	26,011	0	40,000	10,000	16,000	6,000	600,000	106,539	0	100,000	0	33,000	**937,550**
Escondido	Number	0	71	1	19	0	6	5	1	32	0	1	1	48	**185**
	Exposure (x$1000)	0	142,184	2,000	38,000	0	12,000	10,000	100,000	76,995	0	100,000	2,000	48,000	**531,179**
Imperial Beach	Number	1	1	0	1	0	2	1	0	5	0	0	0	9	**20**
	Exposure (x$1000)	200,000	2,222	0	2,000	0	4,000	2,000	0	11,220	0	0	0	9,000	**230,442**
La Mesa	Number	0	35	0	8	1	5	1	2	30	0	1	5	27	**115**
	Exposure (x$1000)	0	145,123	0	16,000	10,000	10,000	2,000	200,000	52,435	0	100,000	10,000	27,000	**572,558**
Lemon Grove	Number	0	8	0	1	0	2	2	0	11	0	0	1	10	**35**
	Exposure (x$1000)	0	17,032	0	2,000	0	4,000	4,000	0	19,018	0	0	2,000	10,000	**58,050**
National City	Number	0	47	1	4	2	3	2	3	42	1	1	5	28	**139**
	Exposure (x$1000)	0	210,943	2,000	8,000	20,000	6,000	4,000	300,000	76,974	20,000	100,000	10,000	28,000	**785,917**
Oceanside	Number	1	38	2	17	0	8	5	1	67	0	1	1	47	**188**
	Exposure (x$1000)	200,000	93,618	4,000	34,000	0	16,000	10,000	100,000	150,887	0	100,000	2,000	47,000	**757,505**
Poway	Number	0	43	1	22	0	2	0	0	10	0	0	0	22	**100**
	Exposure (x$1000)	0	142,284	2,000	44,000	0	4,000	0	0	32,683	0	0	0	22,000	**246,967**
San Diego (City)	Number	3	448	12	132	8	82	60	21	518	5	2	16	405	**1,712**
	Exposure (x$1000)	600,000	1,806,721	24,000	264,000	80,000	164,000	120,000	1,100,000	1,450,079	100,000	200,000	32,000	405,000	**6,345,800**
San Marcos	Number	0	11	0	10	0	9	5	2	30	0	0	1	20	**88**
	Exposure (x$1000)	0	31,023	0	20,000	0	18,000	10,000	200,000	60,362	0	0	2,000	20,000	**361,385**
Santee	Number	0	13	0	9	0	3	3	0	13	0	1	0	16	**58**
	Exposure (x$1000)	0	53,781	0	18,000	0	6,000	6,000	0	17,168	0	100,000	0	16,000	**216,949**
Solana Beach	Number	0	5	0	2	0	1	1	0	16	0	0	1	8	**34**
	Exposure (x$1000)	0	25,822	0	4,000	0	2,000	2,000	0	27,951	0	0	2,000	8,000	**71,773**
Unincorporated-Rural	Number	0	23	0	18	1	3	0	0	19	0	0	0	14	**78**
	Exposure (x$1000)	0	69,994	0	36,000	10,000	6,000	0	0	63,152	0	0	0	14,000	**199,146**
Unincorporated-Urban Core	Number	32	274	2	235	2	95	8	3	996	0	1	0	149	**1,797**
	Exposure (x$1000)	6,400,000	409,233	4,000	470,000	20,000	190,000	16,000	300,000	2,932,797	0	100,000	0	149,000	**10,991,030**
Vista	Number	0	11	0	10	0	7	4	0	19	0	0	0	31	**82**
	Exposure (x$1000)	0	29,407	0	20,000	0	14,000	8,000	0	31,536	0	0	0	31,000	**133,943**
Total Number		**40**	**1,151**	**22**	**560**	**20**	**265**	**117**	**54**	**2,065**	**6**	**12**	**36**	**1,008**	**5,356**
Total Exposure (x$1000)		**8,000,000**	**3,458,368**	**44,000**	**1,120,000**	**200,000**	**530,000**	**234,000**	**4,400,000**	**5,574,096**	**120,000**	**1,200,000**	**72,000**	**1,008,000**	**25,960,464**

Refer to Table 4.4-1 for abbreviation definition

4.4.2.8 Manmade Hazards

Vulnerability assessment information for manmade hazards is considered sensitive homeland security information and is provided in a separate confidential document (Attachment A).

4.5 MULTI-JURISDICTIONAL ASSESSMENT

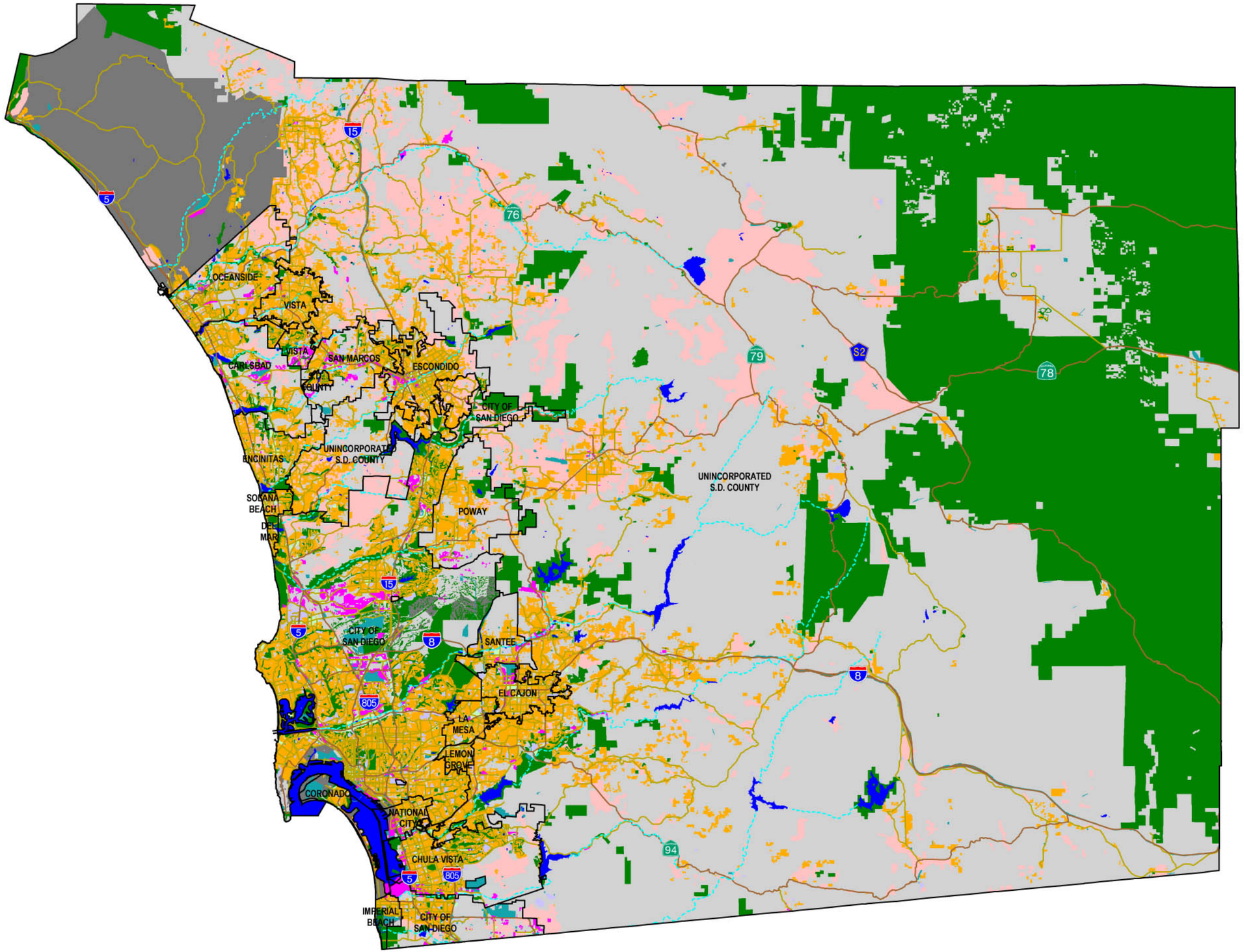
It should be noted that individual risk assessment maps were completed for each of the 18 participating incorporated cities as well as the unincorporated County. Hazard profile maps were created at a local (1:2,000) scale, complete with land use information, critical facility information, infrastructure and hazard areas for each of the 19 jurisdictions. Jurisdictional HMWG leads were presented copies of these maps to provide to their Local Mitigation Planning teams. The local teams utilized these maps to help identify their jurisdictional Goals, Objectives, and Mitigation Measures. Several of the local goals, objectives, and action items identified in the proceeding section (Section 5) relate directly to these risk assessment maps. Due to concern of sensitivity of information depicted on these localized maps, only the County-scale maps are included in the Plan.

4.5.1 Analysis of Land Use

San Diego County covers 4,264 square miles and is located in the southernmost corner of the state, bordering Mexico and the Pacific Ocean. There are 18 jurisdictions in the County with a total of over 888 thousand households in the region and a total population of 2,813,833 (2000 Census Bureau data). Existing land use data (Figure 4.5.1) was utilized in the hazard profiling process. Forecast land use information for 2030 from the Regional Economic Development Information system (REDI) was evaluated in analyzing future development trends. Existing land use consists of mainly residential, commercial and industrial in the western (urban core) portion of the county. The eastern area (unincorporated rural) is spotted with residential surrounded by park and 'not in use' areas. The forecast land use describes residential land use becoming the most predominant land use in the urban core of the county and expanding largely into the eastern portion of the county. In the eastern portion of the county, Native American Reservations and parks will make up the rest of the land use designations.

EXISTING LANDUSE
COUNTY OF SAN DIEGO
HAZARD MITIGATION PLANNING

Profiling Hazards



LEGEND:

2000 LANDUSE:

- AGRICULTURE
- COMMERCIAL AND OFFICE
- EDUCATION/INSTITUTIONS
- INDUSTRIAL
- MILITARY
- PARKS AND RECREATION
- RESIDENTIAL
- TRANSPORTATION, COMMUNICATION AND UTILITIES
- UNDEVELOPED
- WATER

Base Layers:

- Incorporated City Boundary
- Streams
- Freeways
- Major roads
- Lakes

OVERVIEW MAP:

N

3.5 0 3.5 7 Miles

SCALE: 1" = 7 MILES (1:443520)

URS

SOURCES: SANDAG (Landuse, 2000; Roads, 1993; Lakes, 1992; Streams, 1992), SanGIS* (Incorporated City Boundaries, 2003).

*Portions of this DERIVED PRODUCT contains geographic information copyrighted by SANGIS. All Rights Reserved.

The information on this map was derived from various digital databases, sourced above. Care was taken in the creation of this map but it is provided "as is". URS cannot accept any responsibility for any errors, omissions, or positional accuracy, and therefore, there are no warranties which accompany this product. Users are cautioned to field verify information on this product before making any decisions.

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Within the county, there are 18 incorporated jurisdictions and the County jurisdiction, all of which contributed to the risk assessment analyses for the San Diego County Hazard Mitigation Plan. Wildfire and flood were identified as the most significant risks to the County, however, all hazards are addressed in the Mitigation Plan. Each jurisdiction has unique hazard situations that require additional or unique mitigation measures. The loss estimates are summarized above in tables that show potential total exposure and/or losses for each jurisdiction. The Mitigation Strategy (Section 5) approaches each jurisdiction separately.

4.5.2 Analysis of Development Trends

Development in the near term will occur in the unincorporated urban core and southeastern portion of San Diego County in and around the city of Chula Vista. Hazards mapped in these areas include wildfire, flood, earthquake, and dam failure. The two most prevalent hazards related to development trends appear to be the increasing density in downtown San Diego near the Rose Canyon Fault Zone (earthquake and liquefaction hazard) and the expansion of the urban/wildland interface by new development throughout the county, but especially in Chula Vista and south county (wildfire hazard). It should also be noted that high-rise residential and commercial development has increased significantly in the downtown San Diego and Golden Triangle areas and these developments present a potential new type of structural fire hazard risk.

The population is estimated to increase to approximately 3,889,604 in 2030 (SANDAG, 2003) (Figure 4.5.2). The forecast land use describes residential land use becoming the most predominant land use in the urban core of the county and expanding largely into the eastern portion of the county.

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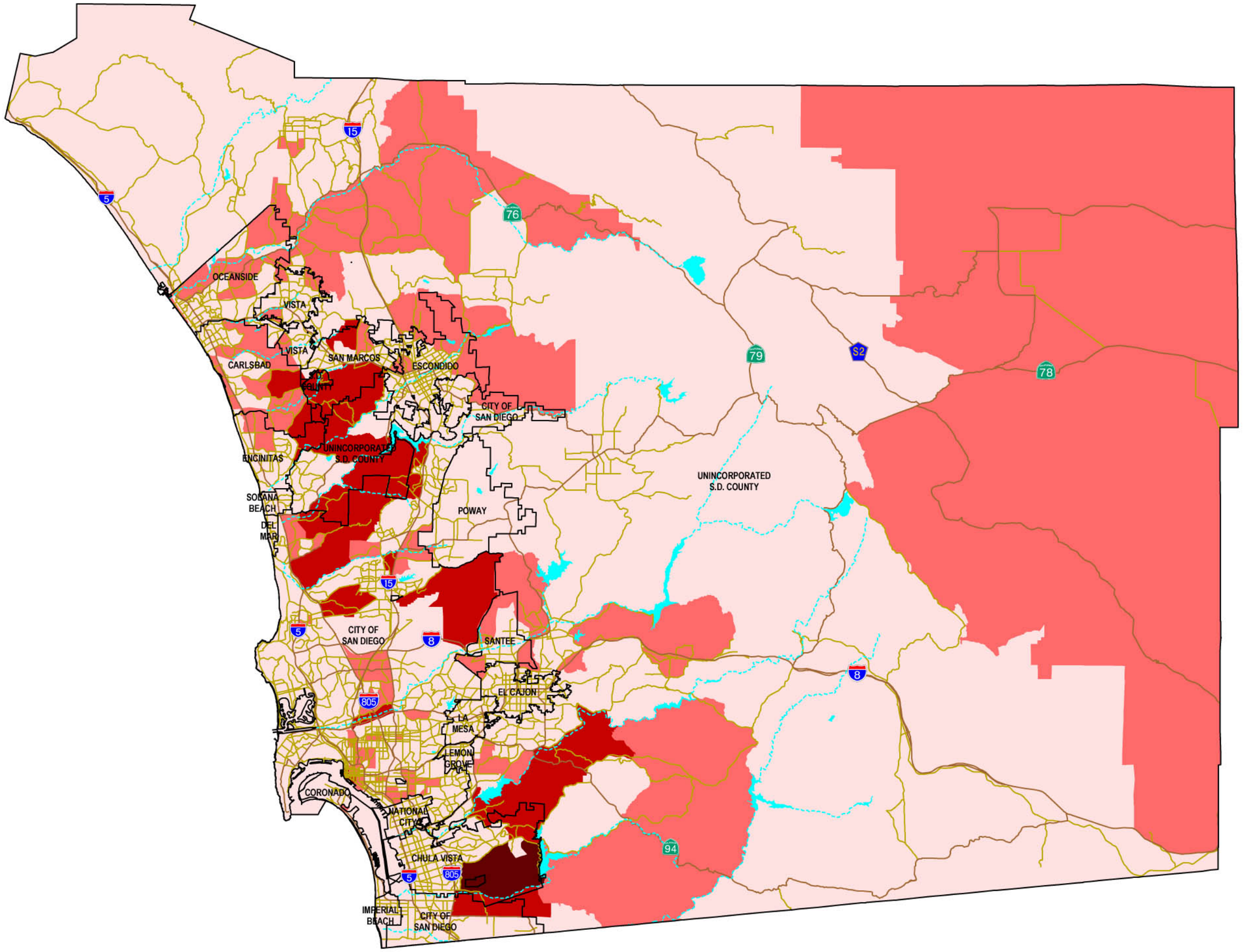
POPULATION GROWTH
COUNTY OF SAN DIEGO
HAZARD MITIGATION PLANNING

Profiling Hazards



LEGEND:

Change in Population between 2000 and 2010

- 0 - 1,000
- 1,001 - 3,000
- 3,001 - 8,000
- 8,001 - 35,500

Base Layers:

- Incorporated City Boundary
- Streams
- Freeways
- Major roads
- Lakes

OVERVIEW MAP:

N

3.5 0 3.5 7 Miles

SCALE: 1" = 7 MILES (1:443520)

URS

SOURCES: SANDAG (Population Forecasts, 2000; Roads, 1993; Lakes, 1992; Streams, 1992), SanGIS* (Incorporated City Boundaries, 2003).

**Portions of this DERIVED PRODUCT contains geographic information copyrighted by SANGIS. All Rights Reserved.*

The information on this map was derived from various digital databases, sourced above. Care was taken in the creation of this map but it is provided "as is". URS cannot accept any responsibility for any errors, omissions, or positional accuracy, and therefore, there are no warranties which accompany this product. Users are cautioned to field verify information on this product before making any decisions.

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4.5.2.1 Data Limitations

It should be noted that the analysis presented here is based upon "best available data". See Appendix B for a complete listing of sources and their unique data limitations (if any). Data used in updates to this plan should be reassessed upon each review period to incorporate new or more accurate data if/when possible.

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SECTION 5 GOALS, OBJECTIVES AND ACTIONS

5.1 OVERVIEW

After each participating jurisdiction reviewed the Risk Assessment (Section 4), jurisdictional leads met with their individual Local Planning Groups (LPG) to identify appropriate jurisdictional-level goals, objectives, and mitigation action items. This section of the Plan incorporates each of the nineteen (19) participating jurisdiction's: 1) mitigation goals and objectives, 2) mitigation actions and priorities, 3) an implementation plan, and 4) documentation of the mitigation planning process. Each of these steps is described as follows.

Develop Mitigation Goals and Objectives

Each jurisdiction reviewed hazard profile and loss estimation information presented in Section 4 and utilized this as a basis for developing mitigation goals and objectives. Mitigation goals are defined as general guidelines explaining what each jurisdiction wants to achieve in terms of hazard and loss prevention. Goal statements are typically long-range, policy-oriented statements representing jurisdiction-wide visions. Objectives are statements that detail how each jurisdiction's goals will be achieved, and typically define strategies or implementation steps to attain identified goals. Other important inputs to the development of jurisdiction-level goals and objectives include performing reviews of existing local plans, policy documents, and regulations for consistency and complementary goals, as well as soliciting input from the public.

Identify and Prioritize Mitigation Actions

Mitigation actions that address the goals and objectives developed in the previous step were identified, evaluated, and prioritized. These actions form the core of the mitigation plan. Jurisdictions conducted a capabilities assessment, reviewing existing local plans, policies, regulations for any other capabilities relevant to hazard mitigation planning. An analysis of their capability to carry out these implementation measures with an eye toward hazard and loss prevention was conducted. The capabilities assessment required an inventory of each jurisdiction's legal, administrative, fiscal and technical capacities to support hazard mitigation planning. After completion of the capabilities assessment, each jurisdiction evaluated and prioritized their proposed mitigations. Each jurisdiction considered the social, technical, administrative, political, legal, economic, and environmental (STAPLEE) opportunities and constraints of implementing a particular mitigation action. This step resulted in a list of acceptable and realistic actions that address the hazards identified in each jurisdiction.

A full suite of goals, objectives and action items for each jurisdiction is presented in this Plan. Each jurisdiction then identified and prioritized actions with the highest short to medium term priorities. An implementation, schedule, funding source and coordinating individual or agency are identified for each prioritized action item.

Prepare an Implementation Plan

Each jurisdiction prepared a strategy for implementing the mitigation actions identified in the previous step. The implementation strategies identify who is responsible for which action, what kind of funding mechanisms and other resources are available or will be pursued, and when the strategies will be completed.

In combination, the goals, objectives, actions and implementation strategies form the body of each jurisdiction's Plan. The following subsections present individual Plans for each of the 19 jurisdictions.

5.2 REGIONAL CONSIDERATIONS

The Risk Assessment (Section 4) indicates that each participating jurisdiction is susceptible to a variety of potentially serious hazards in the region. This had been recognized and formally addressed as early as the 1960s. At that time all of the cities and the County formed a Joint Powers Agreement which established the Unified San Diego County Emergency Services Organization (Organization) and the Unified Disaster Council (UDC) which is the policy making group of the Organization. It also created the Office of Disaster Preparedness (now OES), which is staff to the Organization.

The Organization approach to emergency planning has been comprehensive, i.e., planned for and prepared to respond to all hazards: natural disasters, man-made emergencies, and war-related emergencies, utilizing the Standardized Emergency Management System (SEMS) and a coordinated Incident Command System. OES is the agency charged with developing and maintaining the San Diego County Operational Area Emergency Plan, which is considered a preparedness document.

The Disaster Mitigation Act of 2000 requires that in addition to having emergency response and emergency preparedness documents, regions should develop and maintain a document outlining measures that can be taken before a hazard event occurs that would help minimize the damage to life and property. UDC assigned OES the role of coordinating the development of the Plan as a multi-jurisdictional plan.

The Plan includes specific goals, objectives, and mitigation action items each of the participating jurisdictions developed that will help minimize the effects of the specified hazards that potentially affect their jurisdiction. Some overall goals and objectives shared some commonalities (including promoting disaster-resistant future development; increasing public understanding, support, and demand for effective hazard mitigation; building and supporting local capacity and commitment to continuously becoming less vulnerable to hazards; and improving coordination and communication with federal, state, local and tribal governments). However, the specific hazards and degree of risk vary greatly between the different jurisdictions; and the mix of other goals and objectives, and most action items are unique to each jurisdiction. Consequently, the goals, objectives and action items in this Plan are presented by individual jurisdiction.

It is also envisioned that these mitigation actions will be implement on a jurisdiction-by-jurisdiction basis. However, UDC and OES will provide general oversight to this process to help reduce duplication of efforts between jurisdictions as appropriate, and to spearhead coordination of initiatives and action items that could be accomplished more efficiently on a regional level.

5.3 CITY OF CARLSBAD

The City of Carlsbad (Carlsbad) reviewed a set of jurisdictional-level hazard maps including detailed critical facility information and localized potential hazard exposure/loss estimates to help identify the top hazards threatening their jurisdiction. In addition, LPGs were supplied with exposure/loss estimates for Carlsbad summarized in Table 5.3-1. See Section 4.0 for additional details.

Table 5.3-1
Summary of Potential Hazard-Related Exposure/Loss in Carlsbad

		Residential		Commercial		Critical Facilities	
Hazard Type	**Exposed Population**	**Number of Residential Buildings**	**Potential Exposure/ Loss for Residential Buildings (x $1,000)**	**Number of Commercial Buildings**	**Potential Exposure/ Loss for Commercial Buildings (x $1,000)**	**Number of Critical Facilities**	**Potential Exposure for Critical Facilities (x $1,000)**
Coastal Storm / Erosion	26	22	6,988	0	0	0	0
Dam Failure	4,324	1,907	369,968	3	14,062	11	43,152
Earthquake (Annualized Loss - Includes shaking, liquefaction and landslide components)	77,889	29,072	3,173	317	1,350	100* / 102**	9,574* / 43,434**
Floods (Loss)							
100 Year	3,439	1,284	50,980	14	10,081	17	36,836
500 Year	3,485	1,301	51,969	14	10,081	17	36,836
Rain-Induced Landslide							
High Risk	9,523	3,496	915,056	65	271,284	20	19,604
Moderate Risk	3,366	1,262	351,103	0	10,484	4	8,000
Tsunami	1,162	361	129,484	3	19,952	27	74,371
Wildfire/ Structure Fire							
Extreme	0	0	0	0	0	0	0
Very High	2,788	1,143	342,678	15	157,266	4	3,104
High	3,302	1,338	347,437	16	55,266	12	25,801
Moderate	65,251	23,652	6,438,078	203	1,040,982	141	682,545

* Represents 100-year earthquake value under three earthquake scenarios (shake only, shake and liquefaction, and shake and landslide).

** Represents 500-year earthquake value under three earthquake scenarios (shake only, shake and liquefaction, and shake and landslide).

After reviewing the localized hazard maps and exposure/loss table above, the following hazards were identified by the Carlsbad LPG as their top five. A brief rational for including each of these is included.

- Earthquake: The potential for loss of life, injuries, and damage to property, as well as disruption of services, is significant.

- Structural Fire/Wildfire: The potential of damage and losses to existing assets, including people, critical facilities/infrastructure, and public facilities can be significant.
- Hazardous Materials: One major freeway and one major railway pass through the community. The community also hosts several fixed facilities that utilize hazardous materials.
- Dam Failure: There are several dammed reservoirs located within the community.
- Flooding: There are several areas of the community, which are near natural creek crossings and channels, as well as lagoons.

5.3.1 Capabilities Assessment

The LPG identified current capabilities available for implementing hazard mitigation activities. The Capability Assessment (Assessment) portion of the jurisdictional mitigation plan identifies administrative, technical, legal and fiscal capabilities. This includes a summary of departments and their responsibilities associated to hazard mitigation planning as well as codes, ordinances, and plans already in place associated to hazard mitigation planning. The second part of the Assessment provides Carlsbad's fiscal capabilities that may be applicable to providing financial resources to implement identified mitigation action items.

5.3.1.1 Existing Institutions, Plans, Policies and Ordinances

The following is a summary of existing departments in Carlsbad and their responsibilities related to hazard mitigation planning and implementation, as well as existing planning documents and regulations related to mitigation efforts within the community. The administrative and technical capabilities of Carlsbad, as shown in Table 5.3-2, provides an identification of the staff, personnel, and department resources available to implement the actions identified in the mitigation section of the Plan. Specific resources reviewed include those involving technical personnel such as planners/engineers with knowledge of land development and land management practices, engineers trained in construction practices related to building and infrastructure, planners and engineers with an understanding of natural or manmade hazards, floodplain managers, surveyors, personnel with GIS skills and scientists familiar with hazards in the community.

Table 5.3-2
City of Carlsbad: Administrative and Technical Capacity

Staff/Personnel Resources	Y/N	Department/Agency and Position
A. Planner(s) or engineer(s) with knowledge of land development and land management practices	Y	Engineering, Planning, Redevelopment
B. Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Y	Building Department
C. Planners or Engineer(s) with an understanding of natural and/or manmade hazards	Y	Engineering, Planning, Fire Marshals
D. Floodplain manager	Y	Engineering, Public Works
E. Surveyors	N	
F. Staff with education or expertise to assess the community's vulnerability to hazards	Y	Building, Fire, Engineering, Public Works
G. Personnel skilled in GIS and/or HAZUS	Y	GIS Staff in Planning, GIS, Public Works
H. Scientists familiar with the hazards of the community	N	
I. Emergency manager	Y	City Manager (EOC Director or Designee)
J. Grant writers	Y	Various Departments throughout City of Carlsbad.

The legal and regulatory capabilities of Carlsbad are shown in Table 5.3-3, which presents the existing ordinances and codes that affect the physical or built environment of Carlsbad. Examples of legal and/or regulatory capabilities can include: the City's building codes, zoning ordinances, subdivision ordnances, special purpose ordinances, growth management ordinances, site plan review, general plans, capital improvement plans, economic development plans, emergency response plans, and real estate disclosure plans.

Table 5.3-3
City of Carlsbad: Legal and Regulatory Capability

Regulatory Tools (ordinances, codes, plans)	Local Authority (Y/N)	Does State Prohibit? (Y/N)
A. Building code	Y	N
B. Zoning ordinance	Y	N
C. Subdivision ordinance or regulations	Y	N
D. Special purpose ordinances (floodplain management, storm water management, hillside or steep slope ordinances, wildfire ordinances, hazard setback requirements)	Y	N
E. Growth management ordinances (also called "smart growth" or anti-sprawl programs)	Y	N
F. Site plan review requirements	Y	N
G. General or comprehensive plan	Y	N
H. A capital improvements plan	Y	N
I. An economic development plan	N	
J. An emergency response plan	Y	N
K. A post-disaster recovery plan	N	
L. A post-disaster recovery ordinance	N	
M. Real estate disclosure requirements	Y	N
N. Habitat Management Plan	Y	N
O. Master Drainage, Sewer, Water, & Reclaimed Water	Y	N
P. Redevelopment Master Plan	Y	N

5.3.1.2 Fiscal Resources

Table 5.3-4 shows specific financial and budgetary tools available to Carlsbad such as community development block grants; capital improvements project funding; authority to levy taxes for specific purposes; fees for water, sewer, gas, or electric services; impact fees for homebuyers or developers for new development; ability to incur debt through general obligations bonds; and withholding spending in hazard-prone areas.

Table 5.3-4
City of Carlsbad: Fiscal Capability

Financial Resources	Accessible or Eligible to Use Yes/No
A. Community Development Block Grants (CDBG)	Yes
B. Capital improvements project funding	Yes
C. Authority to levy taxes for specific purposes	Limited (Voter Approval)
D. Fees for water, sewer, gas, or electric service	Yes
E. Impact fees for homebuyers or developers for new developments/homes	Yes
F. Incur debt through general obligation bonds	Limited (Voter Approval)
G. Incur debt through special tax and revenue bonds	Limited (Voter Approval)
H. Incur debt through private activity bonds	Yes
I. Withhold spending in hazard-prone areas	Yes

5.3.2 Goals, Objectives and Actions

Listed below are Carlsbad's specific hazard mitigation goals, objectives and related potential actions. For each goal, one or more objectives have been identified that provide strategies to attain the goal. Where appropriate, the City has identified a range of specific actions to achieve the objective and goal.

The goals and objectives were developed by considering the risk assessment findings, localized hazard identification and loss/exposure estimates, and an analysis of the jurisdiction's current capabilities assessment. These preliminary goals, objectives and actions were developed to represent a vision of long-term hazard reduction or enhancement of capabilities. To help in further development of these goals and objectives, the LPG compiled and reviewed current jurisdictional sources including the City's planning documents, codes, and ordinances. In addition, City representatives met with consultant staff and/or OES to specifically discuss these hazard-related goals, objectives and actions as they related to the overall Plan. Representatives of numerous City departments involved in hazard mitigation planning, including Fire, Police, and Public Works provided input to the Carlsbad LPG. The Carlsbad LPG members were Michele Masterson, Joe Garwea and Kurt Musser. Once developed, City staff presented them to the City of Carlsbad City Council for their approval.

Public meetings were held throughout the County to present these preliminary goals, objectives and actions to citizens and to receive public input. At these meetings, specific consideration was given to hazard identification/profiles and the vulnerability assessment results. The following sections present the hazard-related goals, objectives and actions as prepared by Carlsbad's LPG in conjunction with the Hazard Mitigation Working Group, locally elected officials, and local citizens.

5.3.2.1 Goals

The City of Carlsbad has developed the following 8 Goals for their Hazard Mitigation Plan (See Attachment A for Goals 7 and 8).

Goal 1. Increase public understanding and support for effective hazard mitigation.

Goal 2. Build and support local capacity and commitment to become less vulnerable to hazards.

"Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to":

Goal 3. Dam Failure.

Goal 4. Earthquakes.

Goal 5. Floods.

Goal 6. Structural Fire/Wildfires.

Goal 7. Hazardous Materials-Related Hazards.

Goal 8. Manmade Hazards.

5.3.2.2 Objectives and Actions

The City of Carlsbad developed the following broad list of objectives and actions to assist in the implementation of each of their 8 identified goals. The City of Carlsbad developed objectives to assist in achieving their hazard mitigation goals. For each of these objectives, specific actions were developed that would assist in their implementation. A discussion of the prioritization and implementation of the action items is provided in Section 5.3.2.3

Goal 1: Increase public understanding and support for effective hazard mitigation.	
Objective 1.A: Educate the public to increase awareness of hazards and opportunities for mitigation actions.	
Action 1.A.1	Publicize and encourage the adoption of appropriate hazard mitigation actions.
Action 1.A.2	Provide information to the public on the City website.
Action 1.A.3	Heighten public awareness of hazards by working with Communications Officer & Communications Committee.
Action 1.A.4	Identify hazard specific issues and needs.
Action 1.A.5	Help create demand for hazard resistant construction and site planning.
Objective 1B: Promote partnerships between the state, counties, and local to identify, prioritize, and implement mitigation actions.	
Action 1.B.1	Continue to participate in regional hazard mitigation activities as a member of the San Diego County Unified Disaster Council.

Goal 1: Increase public understanding and support for effective hazard mitigation. (continued)	
Action 1.B.2	Development, implement and support an Open Space Management Plan (database).
Action 1.B.3	Continue to maintain good working relationships with the American Red Cross, the Salvation Army, local churches and other agencies that provide for public assistance and training.
Objective 1C: Promote hazard mitigation in the business community.	
Action 1.C.1	Increase awareness and knowledge of hazard mitigation principles and practices.
Action 1.C.2	Encourage businesses to develop and implement hazard mitigation actions.
Action 1.C.3	Identify hazard-specific issues and needs.
Objective 1D: Monitor and publicize the effectiveness of mitigation actions implemented citywide.	
Action 1.D.1	Use the City website to publicize mitigation actions.
Action 1.D.2	Develop mitigation communications materials.
Objective 1E: Provide education on hazardous conditions.	
Action 1.E.1	Support public and private sector symposiums.
Action 1.E.2	Coordinate production of brochures, informational packets and other handouts.
Action 1.E.3	Develop partnerships with the media on hazard mitigation.

Goal 2: Build and support local capacity and commitment to become less vulnerable to hazards.	
Objective 2.A: Increase awareness and knowledge of hazard mitigation principles and practice among local officials.	
Action 2.A.1	Work with Communications Officer to create public awareness and knowledge of hazard mitigation principles and practices.
Objective 2.B: Develop hazard mitigation plan and provide technical assistance to implement plan.	
Action 2.B.1	Coordinate with the development and implementation of a multi-jurisdictional plan.
Objective 2.C: Utilize GIS mapping to illustrate potential hazardous areas.	
Action 2.C.1	Update GIS mapping as required.

Goal 3: Reduce the possibility of damage and losses to existing assets, including people, critical facilities/infrastructure, and public facilities due to <u>dam failure</u>.	
Objective 3.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to dam failure.	
Action 3.A.1	Update inundation maps every 10 years.
Objective 3.B: Protect existing assets with the highest relative vulnerability to the effects of a dam failure.	
Action 3.B.1	Identify hazard-prone structures.
Action 3.B.2	Construct barriers around structures.
Action 3.B.3	Encourage structural retrofitting.
Objective 3.C: Coordinate with and support existing efforts to mitigate dam failure (e.g., US Army Corps of Engineers, US Bureau of Reclamation, California Department of Water Resources).	
Action 3.C.1	Incorporate and maintain valuable wetlands in open space preservation programs.
Action 3.C.2	Review and revise, if necessary, sediment and erosion control regulations.
Objective 3.D: Protect floodplains from inappropriate development.	
Action 3.D.1	Plan and zone for open space, recreational, agricultural, or other low-intensity uses within floodway fringes.

Goal 4: Reduce the possibility of damage and losses to existing assets, including people, critical facilities/infrastructure, and public facilities due to <u>earthquakes</u>.	
Objective 4.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to earthquakes.	
Action 4.A.1	Participate in community awareness meetings.
Action 4.A.2	Develop and distribute printed publications to the communities concerning hazards.
Action 4.A.3	Continue periodic updates of local building codes, public works construction codes, zoning and grading ordinances to reflect legislative changes.
Objective 4.B: Protect existing assets with the highest relative vulnerability to the effects of earthquakes.	
Action 4.B.1	Identify hazard-prone structures through GIS modeling.

Goal 4: Reduce the possibility of damage and losses to existing assets, including people, critical facilities/infrastructure, and public facilities due to earthquakes. (continued)	
Action 4.B.2	Build critical facilities that function after a major earthquake.
Action 4.B.3	Study ground motion, landslide, and liquefaction impacts on critical facilities.
Objective 4.C: Coordinate with and support existing efforts to mitigate earthquake hazard	
Action 4.C.1	Identify projects for pre-disaster mitigation funding.
Action 4.C.2	Collaborate with Federal, State and local agencies' mapping efforts
Objective 4.D: Community Outreach	
Action 4.D.1	Encourage the public to prepare and maintain a 3-day preparedness kit for home and work.

Goal 5: Reduce the possibility of damage and losses to existing assets, including people, critical facilities/infrastructure, and public facilities due to floods.	
Objective 5.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to floods.	
Action 5.A.1	Review and compare existing flood control standards, zoning and building requirements.
Action 5.A.2	Identify flood-prone areas by using GIS.
Action 5.A.3	Adopt policies that discourage growth in flood-prone areas.
Objective 5.B: Protect existing assets with the highest relative vulnerability to the effects of floods within the 100-year floodplain.	
Action 5.B.1	Develop contiguous mitigation plan for flood prone areas.
Action 5.B.2	Ensure adequate evacuation time in case of major hazard event.
Objective 5.C: Coordinate with and support existing efforts to mitigate floods (e.g., US Army Corps of Engineers, US Bureau of Reclamation, California Department of Water Resources).	
Action 5.C.1	Develop a flood control strategy that ensures coordination with Federal, State and local agencies.

Goal 5: Reduce the possibility of damage and losses to existing assets, including people, critical facilities/infrastructure, and public facilities due to <u>floods</u>. (continued)	
Objective 5.D: Address identified data limitations regarding the lack of information about the relative vulnerability of assets from flooding.	
Action 5.D.1	Encourage the public to prepare and maintain a 3-day preparedness kit for home and work.
Action 5.D.2	Increase participation and improve compliance with the National Flood Insurance Program (NFIP).
Action 5.D.3	Develop and implement hazard awareness program.

Goal 6: Reduce the possibility of damage and losses to existing assets, including people, critical facilities/infrastructure, and public facilities due to <u>structural fire/wildfire</u>.	
Objective 6.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to structural fire/wildfire.	
Action 6.A.1	Review and evaluate City Landscape Design Manual (remove fire suppression zone and move to the Fire Code).
Action 6.A.2	Utilize GIS and the Internet as information tools.
Action 6.A.3	Seek grant funding to support water-tending operations.
Action 6.A.4	Continue with Hosp Grove trimming and replanting efforts.
Action 6.A.5	Provide public education materials as requested or needed.
Objective 6.B: Coordinate with and support existing efforts to mitigate structural fire/wildfire.	
Action 6.B.1	Continue to maintain the City's weed abatement ordinance to facilitate the removal of annual weeds/vegetation or habitat, placing existing properties in a fire safe condition.
Action 6.B.2	Ensure the City's Open Space Management Plan incorporates current fire protection measures.
Objective 6.C: Utilize GIS mapping to best reflect potential vulnerability of assets from structural fire/wildfire.	
Action 6.C.1	Use GIS to map fire risk areas.

Goal 6: Reduce the possibility of damage and losses to existing assets, including people, critical facilities/infrastructure, and public facilities due to structural fire/wildfire. (continued)	
Objective 6.D: Maintain adequate emergency response capability.	
Action 6.D.1	Continue to evaluate service level impacts and needs as part of the review of major projects.

5.3.2.3 Prioritization and Implementation of Action Items

Once the comprehensive list of jurisdictional goals, objectives, and action items listed above was developed, the proposed mitigation actions were prioritized. This step resulted in a list of acceptable and realistic actions that address the hazards identified in each jurisdiction. This prioritized list of action items was formed by the LPG weighing STAPLEE criteria

The Disaster Mitigation Action of 2000 (at 44 CFR Parts 201 and 206) requires the development of an action plan that not only includes prioritized actions but one that includes information on how the prioritized actions will be implemented. Implementation consists of identifying who is responsible for which action, what kind of funding mechanisms and other resources are available or will be pursued, and when the action will be completed.

The top 10 prioritized mitigation actions as well as an implementation strategy for each are:

Action Item #1: Work with Communications Officer to create public awareness and knowledge of hazard mitigation principles and practices. Coordinate production of brochures, informational

Coordinating Individual/Organization: Communications

Potential Funding Source: General Fund

Implementation Timeline: On-going

Action Item #2: Continue with Hosp Grove trimming and replanting efforts.

Coordinating Individual/Organization: Public Works (General Services)

Potential Funding Source: Grant Funding and General Fund

Implementation Timeline: January 2004 – January 2008

Action Item #3: Review and evaluated City Landscape Design Manual (remove fire suppression zone and move to the Fire Code).

Coordinating Individual/Organization: Fire, Engineering, Planning, and Recreation (Parks Design)

Potential Funding Source: General Fund

Implementation Timeline: Fiscal Year 2004-2005

Action Item #4: Continue to maintain the City's weed abatement ordinance to facilitate the removal of annual weeds/vegetation or habitat, placing existing properties in a fire safe condition.

Coordinating Individual/Organization: Fire Prevention

Potential Funding Source: General Fund

Implementation Timeline: On-going

Action Item #5: Develop, implement, and support an Open Space Management Plan (database).

Coordinating Individual/Organization: Planning Department

Potential Funding Source: General Fund

Implementation Timeline: Development and Implementation - Fiscal Year 2004/2005; Maintenance – On going

Action Item #6: Incorporate GIS mapping and modeling into the EOC.

Coordinating Individual/Organization: GIS & CEMAT team

Potential Funding Source: General Fund; Enterprise Funds

Implementation Timeline: Fiscal Year 2004/2005

Action Item #7: Update inundation maps every 10 years.

Coordinating Individual/Organization: GIS

Potential Funding Source: General Fund

Implementation Timeline: July 2004 – June 2005 and every 10 years thereafter

Action Item #8: Coordinate with County Hazardous Materials Management Unit (HMMU)

Coordinating Individual/Organization: Fire Department

Potential Funding Source: General Fund

Implementation Timeline: This will be based on the County's timeline

Action Item #9: Maintain hazardous materials business plans in duty battalion chief vehicle.

Coordinating Individual/Organization: Fire Department

Potential Funding Source: General Fund

Implementation Timeline: Starting FY 04-05 and update as necessary

Action Item #10: Continue periodic updates of local building codes, public works construction codes, zoning and grading ordinances to reflect legislative changes.

Coordinating Individual/Organization: Fire Department, Building Department, Planning Department, and Public Works

Potential Funding Source: General Fund

Implementation Timeline: Starting FY 04-05 and update as necessary

5.4 CITY OF CHULA VISTA

The City of Chula Vista (Chula Vista) reviewed a set of jurisdictional-level hazard maps including detailed critical facility information and localized potential hazard exposure/loss estimates to help identify the top hazards threatening their jurisdiction. In addition, LPGs were supplied with exposure/loss estimates for Chula Vista summarized in Table 5.4-1. See Section 4.0 for additional details.

Table 5.4-1
Summary of Potential Hazard-Related Exposure/Loss in Chula Vista

		Residential		Commercial		Critical Facilities	
Hazard Type	Exposed Population	Number of Residential Buildings	Potential Exposure/ Loss for Residential Buildings (x $1,000)	Number of Commercial Buildings	Potential Exposure/ Loss for Commercial Buildings (x $1,000)	Number of Critical Facilities	Potential Exposure for Critical Facilities (x $1,000)
Coastal Storm / Erosion	0	0	0	0	0	0	0
Dam Failure	13,083	3,032	692,488	94	348,684	44	185,288
Earthquake (Annualized Loss) (Includes shaking, liquefaction and landslide components)	173,491	43,573	4,004	407	1,084	162* / 164**	6,533* / 46,344**
Floods (Loss)							
100 Year	6,112	1,535	28,966	44	19,312	26	92,168
500 Year	14,505	3,643	84,095	80	35,733	44	159,543
Rain-Induced Landslide							
High Risk	23,097	7,422	1,891,842	20	90,030	24	135,309
Moderate Risk	0	0	0	0	0	0	0
Tsunami	802	163	25,090	11	73,148	16	65,990
Wildfire/ Structure Fire							
Extreme	0	0	0	0	0	0	0
Very High	6	5	1,099	3	9,562	2	693
High	1,208	346	82,589	10	39,696	4	3,698
Moderate	164,451	40,595	10,558,507	385	1,533,360	198	883,623

* Represents 100-year earthquake value under three earthquake scenarios (shake only, shake and liquefaction, and shake and landslide).

** Represents 500-year earthquake value under three earthquake scenarios (shake only, shake and liquefaction, and shake and landslide).

After reviewing the localized hazard maps and exposure/loss table above, the following hazards were identified by the Chula Vista LPG as their top five hazards. A brief rational for including each of these is included.

- **Wildfire/Structure Fire**: Due to the proximity of wildlands and natural and naturalized open spaces within steep canyon areas in and near urbanized areas developed prior to the enactment of the City's Urban-Wildland interface Code in 2000, combined with the probability of a wildland fire occurring in a given year, wildland/structure fires present the greatest hazard to the City of Chula Vista.
- **Geologic (Earthquake, Landslide, Liquefaction)**: Due to its relative distance from the closest known active earthquake fault (Rose Canyon Fault), the City of Chula Vista is at low to moderate risk to damage from earthquakes, except in its northwestern most region. The landslide threat is focused in the older developed areas around steep canyon slopes of known slide potential. The threat of liquefaction is relatively low; however, the alluvial areas of the Sweetwater and Otay Rivers and the Telegraph Canyon Channel are subject to liquefaction in both developed and undeveloped areas.
- **Hazardous Materials Release/Rail Disaster Spills**: There are a number of hazardous materials in large quantities in a few stationary locations within the City of Chula Vista, as well as a mobile hazard sources. These hazardous materials although well contained, exist primarily west of Interstate 805 and have the potential to expose thousands of citizens to various degrees of hazard.
- **Floods/Dam Inundation**: Significant portions of the southerly, northerly, and westerly-developed areas of the City of Chula Vista are within FEMA-mapped 100-year floodplains. However, the threat of flood hazard is relatively low due to the City's emphasis on identifying and prioritizing for improvement a number of undersized and inadequate storm drains and drainage channels since the late 1960's, the low probability of the occurrence of flood-producing storms in any given year, and the requirement that new development includes flood-detention and flood control facilities. In addition, due to the fact that the City of Chula Vista is downstream of two major dams – the Savage (Lower Otay) Dam and the Sweetwater Dam – the possibility of dam inundation in and adjacent to the Sweetwater and Otay River Channels exists, although the likelihood of failure of these dams is considered relatively small due to their construction.
- **Other Manmade Hazards (Airplane Crashes)**: The City of Chula Vista is within the flight paths of Lindbergh Field, Brown Field, Tijuana Airport, Ream Field, and North Island Naval Station. The possibility of an airplane crash on take-off or approach from any of these facilities is relatively low, but the cumulative hazard from all of these facilities is significant.

5.4.1 Capabilities Assessment

The LPG identified current capabilities available for implementing hazard mitigation activities. The Capability Assessment (Assessment) portion of the jurisdictional mitigation plan identifies administrative, technical, legal and fiscal capabilities. This includes a summary of departments and their responsibilities associated to hazard mitigation planning as well as codes, ordinances, and plans already in place associated to hazard mitigation planning. The second part of the Assessment provides Chula Vista's fiscal capabilities that may be applicable to providing financial resources to implement identified mitigation action items.

5.4.1.1 Existing Institutions, Plans, Policies and Ordinances

The following is a summary of existing departments in Chula Vista and their responsibilities related to hazard mitigation planning and implementation, as well as existing planning documents and regulations related to mitigation efforts within the community. The administrative and technical capabilities of Chula Vista, as shown in Table 5.4-2, provides an identification of the staff, personnel, and department resources available to implement the actions identified in the mitigation section of the Plan. Specific resources reviewed include those involving technical personnel such as planners/engineers with knowledge of land development and land management practices, engineers trained in construction practices related to building and infrastructure, planners and engineers with an understanding of natural or manmade hazards, floodplain managers, surveyors, personnel with GIS skills and scientists familiar with hazards in the community.

- Chula Vista City Council/Redevelopment Agency
  - Provides vision and direction in building and nurturing a progressive and cohesive community, which values its diversity, respects its citizens, honors its legacy, and embraces the opportunities of the future.
  - Provides vision, adopts policies and regulations, and approves funding requests/budgets over all aspects of City government
- Chula Vista City Manager's Office
  - Provides the leadership and supervision that, in turn, implements the policies and decisions of the Chula Vista City Council, thereby ensuring the delivery of services to the community.
  - Manages City staff, implements City Council decisions and policies over all aspects of City government, and assures the delivery of a wide range of services to the community.
- Chula Vista Finance Department
  - Assists the City Council and City Manager in maintaining public confidence in the fiscal integrity of the City by accounting for, controlling and reporting on the City's resources in accordance with sound public financial management practices.
  - Assures all aspects of City financing, funding, and expenditures are within legal, prescribed guidelines and regulations. Tracks and audits expenditures.
- City of Chula Vista Planning and Building Department
  - Guides the physical development of the City through the implementation of the General Plan and Building Codes and is committed to enhancing the quality of life in the community by planning for sound infrastructure and public services, protecting of the environment, and promoting high quality social and economic growth.
  - Regulates land uses and land development in accordance with plans, policies, and regulations adopted by the City Council. Enforces local, State, and federal requirements for land development, building construction, and specific uses. Recommends additions and revisions to existing ordinances, plans, and policies when necessary.
- City of Chula Vista Community Development Department

  - Enhances the quality of life for the Chula Vista community by proactively planning and facilitating environmentally and socially sound economic development, revitalization and affordable housing opportunities.
  - Regulates land uses and land development in accordance with plans, policies, and regulations adopted by the City Council and Redevelopment Agency within redevelopment areas. Recommends additions and revisions to existing ordinances, plans, and policies with respect to redevelopment areas.

- City of Chula Vista Engineering Department
  - Provides a variety of engineering services including the review and inspection of privately constructed public facilities, infrastructure, and subdivisions; design and inspection of publicly funded infrastructure improvements; management and monitoring of existing and projected traffic conditions throughout the City; preparation of the City's long-term Capital Improvement Program and management of the City's sewer and storm drain systems. Engineering also provides fiscal management for the City's Open Space Maintenance Districts Assessments, Community Facility Districts, and Development Impact Fees.
  - Implements and enforces programs, plans, policies, and regulations over land development and redevelopment in order to assure adequate and maintainable infrastructure.
- City of Chula Vista Department of Public Works Operations
  - Maintains the basic infrastructure needed for the City to exist and thrive. These basic facilities include streets, curbs, gutters, sidewalks, wastewater systems, storm water systems, street trees, parks and open space areas, and street signage and striping. The department also maintains the City's vehicle fleet and all City communication equipment, particularly used by Police and Fire.
  - Implements a wide range of programs, plans, and policies necessary to assure delivery of basic services to the citizens of Chula Vista and maintains the City's infrastructure. The Department of Public Works Operations is a first responder in natural and manmade emergencies.
- City of Chula Vista Police Department
  - Protects the community through the enforcement of laws and the analysis/reduction/ elimination of risks and, in times of emergency, provides for the orderly and rapid implementation of emergency plans.
  - Implements and/or enforces programs, plans, ordinances, and policies of the City over a wide range of activities related to law enforcement. The Police Department is a first responder in natural and manmade emergencies.
- City of Chula Vista Fire Department
  - Serves and safeguards the community through a professional, efficient and effective system of services, which protect life, environment, and property.

- Implements programs, policies, and regulations over a wide range to reduce the loss of life, environment, and property. The Fire Department is a first responder in natural and manmade emergencies.

- City of Chula Vista Management & Information Services Department
  - Assists all departments with their technological needs and develops, implements, operates, and maintains hardware and software systems in order to support and improve the operational efficiency and effectiveness of City departments.
  - The department is comprised of four functional areas -- Operations & Telecommunications, Systems Administration & Security, Microcomputer and LAN Support, and GIS & Applications Support.
- City of Chula Vista CALBO Disaster Preparedness Committee
  - Mutual aid with certified building inspectors and engineers for damage assessment following a disaster

Table 5.4-2
City of Chula Vista: Administrative and Technical Capacity

Staff/Personnel Resources	Y/N	Department/Agency and Position
A. Planner(s) or engineer(s) with knowledge of land development and land management practices	Y	Planning & Building, Engineering, and Community Development Departments
B. Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Y	Planning & Building and Engineering Departments
C. Planners or Engineer(s) with an understanding of natural and/or manmade hazards	Y	Planning & Building and Engineering Departments
D. Floodplain manager	Y	City Engineer and Building Official
E. Surveyors	Y	Engineering Department
F. Staff with education or expertise to assess the community's vulnerability to hazards	Y	Planning & Building, Police, Fire, Management & Information Systems, and Engineering Departments.
G. Personnel skilled in GIS and/or HAZUS	Y	Management & Information Systems Department
H. Scientists familiar with the hazards of the community	N	City uses Consultant Scientists, as needed and as funding is available
I. Emergency manager	Y	Fire Department-Carlos Bejar, Emergency Services Manager
J. Grant writers	Y	All Departments.
K. Personnel skilled in identifying, accessing and bringing to bear, both public and private economic recovery-related resources	Y	Community Development, Finance and Legislative Staff

The legal and regulatory capabilities of Chula Vista are shown in Table 5.3-3, which presents the existing ordinances and codes that affect the physical or built environment of Chula Vista. Examples of legal and/or regulatory capabilities can include: the City's building codes, zoning ordinances, subdivision ordnances, special purpose ordinances, growth management ordinances, site plan review, general plans, capital improvement plans, economic development plans, emergency response plans, and real estate disclosure plans.

Table 5.4-3
City of Chula Vista: Legal and Regulatory Capability

Regulatory Tools (ordinances, codes, plans)		Local Authority (Y/N)	Does State Prohibit (Y/N)
A.	Building code	Y	N
B.	Zoning ordinance	Y	N
C.	Subdivision ordinance or regulations	Y	N
D.	Special purpose ordinances (floodplain management, storm water management, hillside or steep slope ordinances, wildfire ordinances, hazard setback requirements)	Y	N
E.	Growth management ordinances (also called "smart growth" or anti-sprawl programs)	Y	N
F.	Site plan review requirements	Y	N
G.	General or comprehensive plan	Y	N
H.	A capital improvements plan	Y	N
I.	An economic development plan	Y	N
J.	An emergency response plan	Y	N
K.	A post-disaster recovery plan	Y	N
L.	A post-disaster recovery ordinance	Y	N
M.	Real estate disclosure requirements	Y	N
N.	Shake Roof Retrofit Program	Y	N
O.	Water Conservation Ordinance	Y	N
P.	Clearing of Brush (Fuels) from City Property	Y	N
Q.	National Pollutant Discharge Elimination System (NPDES)	Y	N
R.	Land Development Ordinance	Y	N
S.	Chula Vista Ordinance 2872 – California Building Code 2000	Y	N
T.	Chula Vista Ordinance 2873 – California Reference Standards Code 2001	Y	N
U.	Chula Vista Ordinance 2874 – California Mechanical Code 2001	Y	N
V.	Chula Vista Ordinance 2874 – California Electrical Code 2001	Y	N

W.	Chula Vista Ordinance 2877 – California Plumbing Code 2001	Y	N
X.	Chula Vista Ordinance 2878 – California Fire Code 2001	Y	N
Y.	California Statutes 21000-21178: Public Resources Code, Division 13 – Environmental Quality	Y	N
Z.	Urban-Wildland Interface Code (CVMC Chapter 15.38)	Y	N
AA.	Floodplain Regulations (CVMC Chapter 18.54)	Y	N
BB.	Zoning and Specific Plans (CVMC, Title 19)	Y	N
CC.	Specific Plans	Y	N
DD.	Precise Plan	Y	N
EE.	Modified District	Y	N
FF.	Sectional Planning Area (SPA)	Y	N
GG.	SPA Amendment	Y	N
HH.	Supplemental SPA	Y	N
II.	Land Use Overlay	Y	N
JJ.	Modification of Urban-Wildland Interface Requirements	Y	N
KK.	Consolidated Annual Plan – CDBG and HOME Programs	Y	N
LL.	Redevelopment Plans – Bayfront, Town Centre I, Town Centre II, Otay Valley and Southwest	Y	N

5.4.1.2 Fiscal Resources

Table 5.4-4 shows specific financial and budgetary tools available to Chula Vista such as community development block grants; capital improvements project funding; authority to levy taxes for specific purposes; fees for water, sewer, gas, or electric services; impact fees for homebuyers or developers for new development; ability to incur debt through general obligations bonds; and withholding spending in hazard-prone areas.

Table 5.4-4
City of Chula Vista: Fiscal Capability

Financial Resources	Accessible or Eligible to Use (Yes/No)
A. Community Development Block Grants (CDBG)	Yes, as funding is available and to the extent the funds are used to benefit eligible census tracts
B. Capital improvements project funding	Yes, as funding is available
C. Authority to levy taxes for specific purposes	Yes, but requires Proposition 218 Voter Approval (2/3 of all voters, simple majority of property owners). Voter approval highly unlikely in most cases.
D. Fees for water, sewer, gas, or electric service	Yes, Sewer Fees only Y
E. Impact fees for homebuyers or developers for new developments/homes	Yes, as funding is available
F. Incur debt through general obligation bonds	Yes, as funding is available
G. Incur debt through special tax and revenue bonds	Yes, as funding is available
H. Incur debt through private activity bonds	Yes, Certificates of Participation only in redevelopment areas, but there are severe restrictions on usage and eligible projects.
I. Withhold spending in hazard-prone areas	Yes

5.4.2 Goals, Objectives and Actions

Listed below are Chula Vista's specific hazard mitigation goals, objectives and related potential actions. For each goal, one or more objectives have been identified that provide strategies to attain the goal. Where appropriate, the City has identified a range of specific actions to achieve the objective and goal.

The goals and objectives were developed by considering the risk assessment findings, localized hazard identification and loss/exposure estimates, and an analysis of the jurisdiction's current capabilities assessment. These preliminary goals, objectives and actions were developed to represent a vision of long-term hazard reduction or enhancement of capabilities. To help in further development of these goals and objectives, the LPG compiled and reviewed current jurisdictional sources including the City's planning documents, codes, and ordinances. In addition, City representatives met with consultant staff and/or OES to specifically discuss these hazard-related goals, objectives and actions as they related to the overall Plan. Representatives of numerous City departments involved in hazard mitigation planning, including Fire, Police, and Public Works participated in the Chula Vista LPG. These members include:

- Alex Alagha, Engineering
- Bill Ullrich, Public Works Ops.
- Bob McSeveney, Planning

- Carlos Bejar, Emergency Services
- Carolyn J. Harshman, Private Consultant
- Justin Gipson, Fire Prevention Bureau CVFD
- Kirk Ammerman, Engineering/ Public Works Ops.
- Mark Goldberg, Intel Analyst, CVPD
- Tom McDowell, CVMIS GIS
- Tom Nikzad, CV Planning Department

Once developed, City staff presented them to the City of Chula Vista City Council for their approval.

Public meetings were held throughout the County to present these preliminary goals, objectives and actions to citizens and to receive public input. At these meetings, specific consideration was given to hazard identification/profiles and the vulnerability assessment results. The following sections present the hazard-related goals, objectives and actions as prepared by Chula Vista's LPG in conjunction with the Hazard Mitigation Working Group, locally elected officials, and local citizens.

5.4.2.1 Goals

The City of Chula Vista has developed the following 10 Goals for their Hazard Mitigation Plan (See Attachment A for Goals 9 and 10).

Goal 1. Promote disaster-resistant existing and future development.

Goal 2. Increase public understanding, support and demand for effective hazard mitigation.

Goal 3. Build and support local capacity and commitment to continuously become less vulnerable to hazards.

Goal 4. Improve coordination and communication with federal, state and local governments.

"Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to":

Goal 5. Floods.

Goal 6. Wildfires/Structure Fires.

Goal 7. Dam Failure.

Goal 8. Geologic Hazards.

Goal 9. Unauthorized Hazardous Materials Release.

Goal 10. Other Manmade Hazards.

5.4.2.2 Objectives and Actions

The City of Chula Vista developed the following broad list of objectives and actions to assist in the implementation of each of their 10 identified goals. The City of Chula Vista developed objectives to assist in achieving their hazard mitigation goals. For each of these objectives, specific actions were developed that would assist in their implementation. A discussion of the prioritization and implementation of the action items is provided in Section 5.4.2.3

Goal 1: Promote disaster resistant existing and future development.	
Objective 1.A: Encourage and facilitate the development or updating of general plans and zoning ordinances to limit development in hazard areas.	
Action 1.A.1	Update the City's General Plan periodically and recommend improvements to the Safety Element, as funding is available.
Action 1.A.2	Identify new hazardous occupancies as they are permitted or created and establish database for same, as funding is available.
Action 1.A.3	Update the City's zoning ordinance periodically and address development in hazard areas and minimize zoning ambiguities, as funding is available.
Action 1.A.4	Revisit the City's hazard mitigation-related ordinances to identify areas where improvements could be made, as funding is available.
Action 1.A.5	Utilize hazard overlays to identify hazard-prone areas, as funding is available.
Action 1.A.6	Establish buffer zones for development near hazard-prone areas, as funding is available.
Action 1.A.7	Prohibit development in extreme hazard areas that cannot be adequately mitigated and set aside for open space, as funding is available.
Action 1.A.8	Identify land uses appropriate to specific hazard areas, as funding is available.
Objective 1.B: Encourage and facilitate the adoption of building codes that protect renovated existing assets and new development in hazard areas.	
Action 1.B.1	Adopt local building codes to address local building issues in hazard areas, as funding is available.
Action 1.B.2	Amend the Zoning and Subdivision Ordinances, as required, to implement the policies of the Safety Element of the General Plan (Safety Element Policy Statement 7, page 8-7), as funding is available.
Action 1.B.3	Actively participate in the State- and Nation-wide building code development groups to ensure that development issues in hazard areas are properly addressed, as funding is available.
Action 1.B.4	Amend the Fire Code and Building Code, as necessary, to be consistent with the policies of the General Plan and the Seismic Safety Element of the General plan (Safety Element Policy Statement 8), as funding is available.

Goal 1: Promote disaster resistant existing and future development. (continued)	
Action 1.B.5	Identify and improve buildings to mitigate hazards through elevation, retaining walls, dikes and flood diverting measures, relocating electrical outlets to higher elevations, increasing fire resistance, etc, as funding is available.
Action 1.B.6	Identify and provide fire mitigation measures in buildings with hazardous materials, add ventilation systems to minimize explosions, and add control areas, as funding is available.
Action 1.B.7	Develop hazard-specific code requirements for each type of hazard area, as funding is available.
Action 1.B.8	Develop standardized processes for evaluating proposed developments within hazard areas, as funding is available.
Action 1.B.9	Require site-specific studies to evaluate specific hazards in hazard-prone areas and identify alternative site design criteria to mitigate hazards to the maximum extent possible, as funding is available.
Action 1.B.10	Establish minimum structure setbacks adjacent to hazard areas, with respect to hazard specific code, as funding is available.
Action 1.B.11	Identify and relocate buildings in hazardous locations to proper locations, as funding is available.
Objective 1.C: Encourage consistent enforcement of general plans, zoning ordinances, and building codes.	
Action 1.C.1	Review General Plan, Zoning Ordinance, Fire Codes, Subdivision Ordinance, and Building Codes for consistency, as funding is available.
Action 1.C.2	Maintain ongoing training for development staff on development procedures and zoning and building code interpretation, as funding is available.
Action 1.C.3	Continue to provide a hazmit compliance review any time a permit is obtained for any improvement on existing hazardous buildings, as funding is available.
Action 1.C.4	Develop and implement specialized training for Development Services staff for each type of hazard area, as funding is available.
Action 1.C.5	Provide an inspection program, both public and private, and issue certificates of compliance to ensure maintenance of compliance to hazmit related codes, as funding is available.
Action 1.C.6	Follow development procedures to ensure development is consistent with the General Plan.
Action 1.C.7	Provide educational sessions for owners of hazardous businesses, and encourage a maintenance program, as funding is available.
Action 1.C.8	Develop standard processes for evaluating/approving proposed development in hazard areas, as funding is available.

Goal 1: Promote disaster resistant existing and future development. (continued)	
Objective 1.D: Discourage future development that exacerbates hazardous conditions.	
Action 1.D.1	Improve zoning ordinance to limit future development of hazardous areas, as funding is available.
Action 1.D.2	Apply for State/Federal grants/funds for the acquisition of developable land for open space development.
Action 1.D.3	Take a proactive approach to fire code/building code compliance inspections with respect to concentration of hazardous material in one area or location, as funding is available.
Action 1.D.4	Set aside or zone extreme hazard areas for open space uses, as funding is available.
Action 1.D.5	Evaluate the potential benefits of establishing buffer/transition zoning for each type of hazard area, as funding is available.
Action 1.D.6	Educate the public regarding hazardous locations, operations, buildings, etc., as funding is available.
Action 1.D.7	Where feasible, encourage the development of infrastructure to assist in the hardening of hazard exposure zones, as funding is available.
Objective 1.E: Address identified data limitations regarding the lack of information about new development and build-out potential in hazard areas.	
Action 1.E.1	Use hazard overlays to identify hazard-prone new development, as funding is available.
Action 1.E.2	Utilize staff consultant expertise in evaluating technical studies/data, as funding is available.
Action 1.E.3	Update databases/Geographic Information System (GIS), with particular attention to maintaining hazard overlay layers. Require electronic submittals of all reports and data in electronic form.
Action 1.E.4	Require engineering studies to evaluate specific hazards in hazard-prone areas and identify alternative site design criteria to mitigate hazards to the maximum extent possible, as funding is available.
Objective 1.F: Actively pursue grant funding for citywide hazard mitigation.	
Action 1.F.1	Notify City's Intergovernmental Affairs Coordinator to keep a look out for hazard mitigation funding, from state and nation-wide sources, and to inform the proper department head when grant funding is identified.
Action 1.F.2	Apply for hazard mitigation grant funding, as it becomes available.

Goal 1: Promote disaster resistant existing and future development. (continued)	
Action 1.F.3	Identify target hazard mitigation projects to minimize delay when grant funding is available.

Goal 2: Promote public understanding, support and demand for hazard mitigation.	
Objective 2.A: Educate the public to increase awareness of hazards and opportunities for mitigation actions.	
Action 2.A.1	Provide information pamphlets to be distributed to the public at information booths at street fairs, community meetings, etc., as funding is available.
Action 2.A.2	Provide Chula Vista citizens with Community Emergency Response Team training opportunities to increase public awareness of hazards and response to hazards, as funding is available.
Action 2.A.3	Provide a public information program on geologic and firestorm hazards and safety (General Plan Safety Element Policy 10), as funding is available.
Action 2.A.4	Provide training at Town Hall Meetings or other public gatherings, as funding is available.
Action 2.A.5	Provide discussion, on our home web page, the dangers and repercussions of human activity within and adjacent to hazard zones and what our citizens can do to minimize/mitigate these dangers, as funding is available.
Objective 2.B: Promote partnerships between the state, counties, and local governments to identify, prioritize, and implement mitigation actions.	
Action 2.B.1	Identify state and federal hazard mitigation funds/programs for public and private entities.
Action 2.B.2	Actively participate in the San Diego County Multi-Hazard Mitigation Plan process.
Action 2.B.3	Contact neighboring cities and counties to create shared programs and have periodic meetings to share information and open channels of communication, as funding is available.
Objective 2.C: Promote hazard mitigation in the business community.	
Action 2.C.1	Coordinate hazard mitigation education/ training with routine inspections of businesses utilizing code enforcement and fire prevention inspections, as funding is available.

Goal 2: Promote public understanding, support and demand for hazard mitigation. (continued)	
Objective 2.D: Monitor and publicize the effectiveness of mitigation actions implemented.	
Action 2.D.1	Create a program to report and monitor the mitigation implementation, as funding is available.
Action 2.D.2	Provide newsletters or site Internet to publicize the information gathered through the monitoring program, as funding is available.
Objective 2.E: Discourage activities that exacerbate hazardous conditions.	
Action 2.E.1	Require an increased level of security of facilities storing hazardous materials.
Action 2.E.2	Ensure non-conforming land uses are not permitted in the future, as funding is available.
Action 2.E.3	Ensure non-conforming land uses are brought into conformance upon title change or other method, as funding is available.
Action 2.E.4	In the event non-conforming land uses are damaged or destroyed in a disaster, ensure only conforming land uses are permitted on the site thereafter.
Action 2.E.5	Provide guidelines in the usage of hazardous material specifically in approved hazardous locations, as funding is available.

Goal 3: Build and support local capacity and commitment to continuously become less vulnerable to hazards.	
Objective 3.A: Increase awareness and knowledge of hazard mitigation principles and practice among state, and local officials.	
Action 3.A.1	Establish the means to share information and innovations in various areas of hazard mitigation through a technical "clearinghouse," as funding is available.
Action 3.A.2	Coordinate hazard mitigation activities with local utilities, water suppliers, and critical facilities within the City of Chula Vista, as funding is available.
Objective 3.B: Seek technical assistance from State and Federal agencies in refining and implementing hazard mitigation plans.	
Action 3.B.1	Seek State and Federal funding for implementation of the City's hazard mitigation plan.
Action 3.B.2	Request periodic FEMA review of the City's hazard mitigation plan for recommendations for plan refinements and for potential funding sources.

Goal 3: Build and support local capacity and commitment to continuously become less vulnerable to hazards. (continued)	
Objective 3.C: Assure adequate infrastructure is in-place for emergencies.	
Action 3.C.1	Promote the establishment and maintenance of: safe and effective evacuation routes; ample peak-load water supply; adequate road widths; and, safe clearances around buildings (General Plan, page 8-7), as funding is available.
Action 3.C.2	Explore non-traditional public and private mutual aid resources.
Action 3.C.3	Identify public and private resources available for various types of emergencies.
Action 3.C.4	Establish emergency purchasing authority with local businesses, suppliers, disposal sites, and material recyclers, as funding is available.

Goal 4: Improve hazard mitigation coordination and communication with federal, state and local governments.	
Objective 4.A: Establish and maintain closer working relationships with state agencies and other local governments.	
Action 4.A.1	Attend multi-agency hazard mitigation planning meetings that deal with other local governments the County, State and Federal entities, as funding is available.
Action 4.A.2	Promote mutual aid agreements and interagency dialogue related to hazard mitigation planning, as funding is available.
Objective 4.B: Encourage other organizations to incorporate hazard mitigation activities.	
Action 4.B.1	Encourage businesses and industrial operations in embracing hazard mitigation as a daily activity, as funding is available.
Action 4.B.2	Promote hazard mitigation as a viable way of doing business for governmental entities, industry, businesses and the general public, as funding is available.
Action 4.B.3	Where applicable, discuss hazard mitigation plan activities with fellow municipal government workers within professional membership groups at group activities, as funding is available.
Objective 4.C: Improve the State's capability and efficiency at administering pre- and post-disaster mitigation.	
Action 4.C.1	Establish standard GIS projects that contain all spatial data likely to be needed in an Emergency Operations Center and make these projects available to all local, regional and State governments, as funding is available. Safeguard the projects by making multiple copies available on CD's and stored in multiple locations. Promote the sharing of these projects and data on CD's with other agencies.
Action 4.C.2	Support regional planning efforts for hazard mitigation and disaster recovery planning.

Goal 5: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to floods.	
Objective 5.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to floods.	
Action 5.A.1	Encourage the establishment or maintenance of adequate open space adjacent to watercourses (General Plan Section 4.2, page 6-9), as funding is available.
Action 5.A.2	Prevent deposit of fill or construction within any floodway, as funding is available.
Action 5.A.3	Update Drainage Element of the General Plan based upon actual, developed conditions (General Plan, GMOC Section), as funding is available.
Action 5.A.4	Continue to review applications for new development within the City in compliance with the California Environmental Quality Act (CEQA) provisions set forth by the State of California, thereby requiring individualized studies for flood hazards on an as-needed basis and establishing mitigation measures for the development project before construction begins.
Action 5.A.5	Monitor and enforce compliance with CEQA-mandated mitigation measures during development and construction, as the development project requires.
Objective 5.B: Protect existing assets with the highest relative vulnerability to the effects of floods within the 100-year floodplain.	
Action 5.B.1	Continue to require structural flood control improvements of new development where flooding is already a problem (existing ordinances).
Action 5.B.2	Update Drainage Element of the General Plan based upon actual, developed conditions (General Plan, GMOC Section), as funding is available.
Action 5.B.3	Discourage the disruption of natural flowage patterns and encourage the maximum use of natural drainage ways in new development (General Plan, Section 5.3, Drainage and Flood Control Policies), as funding is available.
Objective 5.C: Minimize repetitive losses caused by flooding.	
Action 5.C.1	Maintain databases of property flooding and damage to further identify and define local hazard areas and to monitor floodplain management, as funding is available.
Action 5.C.2	Implement drainage improvements with an emphasis on improving downstream facilities before improving upstream facilities, unless upstream mitigation (such as detention or retention basins) is provided, as funding is available.
Action 5.C.3	Identify State and Federal funding sources available to either purchase or flood-proof existing structures/facilities in flood-prone areas.

Goal 5: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to floods. (continued)	
Objective 5.D: Request assistance from State and Federal governments, as necessary, to enable the City to maintain compliance with the National Flood insurance Program (NFIP) requirements.	
Action 5.D.1	Periodically review City compliance with NFIP requirements, as funding is available.
Action 5.D.2	Submit Letters of Map Revision (LOMRs)/ Letters of Map Amendment (LOMAs) to FEMA within a prescribed period of time upon completion of drainage improvements or flood-proofing.
Action 5.D.3	Update Flood layers in GIS upon FEMA approval of LOMRs/LOMAs.
Objective 5.E: Identify data limitations needy to provide information about relative vulnerability of assets from floods (e.g., Q3/digital floodplain maps)	
Action 5.E.1	Update Drainage Element of the General Plan using current data, based upon actual, developed conditions and proposed development conditions, as funding is available.
Action 5.E.2	Utilize empirical data to further define flood hazard models, as funding is available.

Goal 6: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and State-owned facilities, due to wildfires and structural fires.	
Objective 6.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to wildfires.	
Action 6.A.1	Ensure the open space around structures is sufficient to promote fire safety (General Plan, page 8-7), as funding is available.
Action 6.A.2	Ensure the space separating buildings is consistent with the standards of fire-safety practices (General Plan, page 8-7), as funding is available.
Action 6.A.3	Continue to review applications for new development within the City in compliance with the California Environmental Quality Act (CEQA) provisions set forth by the State of California, thereby requiring individualized studies for wildfire on an as-needed basis and establishing mitigation measures for the development project before construction begins.
Objective 6.B: Prevent the loss of life in wildland fires.	
Action 6.B.1	Develop and promote public education programs in wildland fire safety and survival for all residents adjacent to wildland areas, as funding is available.

Goal 6: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and State-owned facilities, due to <u>wildfires and structural fires</u>. (continued)	
Action 6.B.2	Add a Fire Educational Officer to the Fire department's budget to implement Action 6.B.1 and ensure that the position is filled and has adequate resources, as funding is available.
Action 6.B.3	Manage open space preserves in a manner that minimizes fuel loads, through actions such as hand clearing, as funding is available.
Objective 6.C: Prevent the ignition of structures by wildland fires.	
Action 6.C.1	Incorporate fire-resistant building materials and construction methods in new development adjacent to wildlands, as funding is available.
Action 6.C.2	Ensure a defensible fire-fighting space adjacent to wildlands in new developments, as funding is available.
Objective 6.D: Prevent wildland-caused structural conflagration.	
Action 6.D.1	Pursue State and Federal funding for the elimination of combustible roofs and siding on existing homes and structures.
Action 6.D.2	Adopt an ordinance requiring "Class A-rated" roofs and siding on all new and remodeled structures, as funding is available.
Action 6.D.3	Require non-combustible window assemblies and double-pane glass in all new and remodeled structures facing a wildland, as funding is available.
Objective 6.E: Prevent the encroachment of wildland fire upon the community.	
Action 6.E.1	Require a "greenbelt" or other defensible zone, as topography dictates, along the easterly edge of the easterly city limits, as funding is available.
Action 6.E.2	Improve and ensure adequate access to wildlands and adequate water supply for firefighters, as funding is available.
Action 6.E.3	Increase budget to the Public Works/Operations Open Space Maintenance Section for brush clearing, as funding is available.
Objective 6.F: Investigate the possibility of doing further Community Vegetation Management Analysis.	
Action 6.F.1	Investigate the possibility of preparing a *Community Vegetation Management Plan,* as funding is available.
Action 6.F.2	Investigate the possibility of adopting a final *Community Vegetation Management Plan* by Ordinance and ensure the enforcement thereof, as funding is available.

Goal 6: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and State-owned facilities, due to <u>wildfires and structural fires</u>. (continued)	
Objective 6.G: Identify data needed to provide information related to wildfires (e.g., a comprehensive database of California wildfires, a California wildfire risk model, and relative vulnerability of assets).	
Action 6 G.1	Develop GIS layer(s) showing history and frequency of major wildfire events, as funding is available.
Action 6 G.2	Work with regional and federal agencies to establish procedures that will enable the City to acquire near real-time data on wildfire extents to help improve EOC response to an emergency. Establish a GIS project model that readily incorporates such data to reduce the amount of time required to produce field maps, as funding is available.

Goal 7: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and State-owned facilities, due to <u>dam failure</u>.	
Objective 7.A: Develop a comprehensive approach for reducing the possibility of damage and losses due to dam failure.	
Action 7.A.1	Promote low intensity, non-residential land uses in dam inundation zones for future development.
Action 7.A.2	Continue to review applications for new development within the City in compliance with the California Environmental Quality Act (CEQA) provisions set forth by the State of California, thereby requiring individualized studies for flood hazards on an as-needed basis and establishing mitigation measures for the development project before construction begins.
Action 7.A.3	Monitor and enforce compliance with CEQA mandated mitigation measures during development and construction, as the development project requires.
Action 7.A.4	Review current dam failure information/data for clarity and accuracy, as funding is available.
Action 7.A.5	Review current evacuation plans for accuracy and practicality, as funding is available.
Objective 7.B: Protect existing assets with the highest relative vulnerability to the effects of dam failure.	

Goal 7: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and State-owned facilities, due to <u>dam failure</u>. (continued)	
Action 7.B.1	Identify and prioritize critical facilities within dam inundation zones.
Action 7.B.2	Identify vulnerable populations within dam inundation areas.
Action 7.B.3	Identify Federal and State funding to minimize/mitigate dam inundation hazards to critical facilities and vulnerable populations.
Objective 7.C: Identify data needed to provide information about the relative vulnerability of assets from dam failure.	
Action 7.C.1	Revise plans/data periodically to adequately represent existing conditions/vulnerable populations, as funding is available.
Action 7.C.2	Conduct survey of assets within dam inundation areas and assign attribute data to a GIS layer (daytime vs. nighttime population, ease of evacuation, proximity to safety zones, etc.); Assign vulnerability rankings to each asset; Create GIS project with dam inundation and asset layers available for query and display, all as funding is available.

Goal 8: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and State-owned facilities, due to <u>geological hazards</u>.	
Objective 8.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to geological hazards.	
Action 8.A.1	Ensure the space separating buildings is consistent with standards of fire-safety practices (General Plan, page 1-26), as funding is available.
Action 8.A.2	Ensure the structural characteristics of soil and requirements contained in building code determines the type of construction allowed (General Plan, page 1-26), as funding is available.
Action 8.A.3	Ensure areas of development do not include hazard areas such as ancient landslides, unstable soils, or active fault zones unless mitigated, as funding is available.
Action 8.A.4	Ensure no lands are subdivided, developed or filled in the absence of supportable, professional evidence that the proposed subdivision, development, or land fill would be geologically safe (General Plan Safety Element Policy Statement 5), as funding is available.

Goal 8: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and State-owned facilities, due to <u>geological hazards</u>. (continued)	
Action 8.A.5	Continue to review applications for new development within the City in compliance with the California Environmental Quality Act (CEQA) provisions set forth by the State of California, thereby requiring individualized studies for geological hazards on an as-needed basis and establishing mitigation measures for the development project before construction begins.
Action 8.A.6	Monitor and enforce compliance with CEQA mandated mitigation measures during development and construction, as the development project requires.
Objective 8.B: Protect existing assets with the highest relative vulnerability to the effects of geological hazards.	
Action 8.B.1	Wherever feasible, land uses and buildings which are determined to be unsafe from geologic hazards shall be discontinued, removed, or relocated (General Plan Safety Element Policy Statement 6), as funding is available.
Action 8.B.2	Establish a long-range, comprehensive plan for the elimination or mitigation of existing hazardous land use conditions and public facilities, as funding is available.
Action 8.B.3	Seek State and Federal funding to mitigate existing geologic hazards.
Objective 8.C: Coordinate with and support existing efforts to mitigate geological hazards (e.g., California Geological Survey, US Geological Survey).	
Action 8.C.1	Update GIS seismic data regularly to reflect new data from the California Geological Survey and the US Geological Survey, as funding is available.
Action 8.C.2	The City's seismic safety program shall be coordinated with the seismic safety programs of the San Diego Association of Governments (SANDAG), the County of San Diego, and other cities in the County (General Plan Safety Element Policy Statement 4), as funding is available.
Objective 8.D: Identify data needed to provide information about the relative vulnerability of assets from earthquakes (e.g., data on structure/building types, reinforcements, etc.).	
Action 8.D.1	Ensure the seismic safety program of the City of Chula Vista is based upon special land regulations and land management zones, such as "seismic hazards management zones" that require additional general and local geologic information and the synthesis of seismic safety matrices (General Plan Safety Element Policy Statement 12), as funding is available.
Action 8.D.2	Update existing geologic hazard information based upon up-to-date findings, such as Preliminary and Final As-Graded Soils Reports for Land Development, as funding is available.

Goal 8: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and State-owned facilities, due to geological hazards. (continued)	
Action 8.D.3	Survey buildings most susceptible to failure and identify daytime and nighttime populations and create GIS project to permit rapid data display and query, as funding is available.
Objective 8.E: Assure that emergency service facilities and public buildings are not constructed in hazard areas.	
Action 8.E.1	Since damages can often be prevented or mitigated by effective governmental and emergency services, ensure that emergency facilities, public buildings, and communication and transportation centers are not established in close proximity to fault traces (General Plan Safety Policy 9), as funding is available.
Action 8.E.2	Establish minimum criteria using all available hazard information in the selection of appropriate sites for emergency service facilities and public buildings, as funding is available.

5.4.2.3 Prioritization and Implementation of Action Items

Once the comprehensive list of jurisdictional goals, objectives, and action items listed above was developed, the proposed mitigation actions were prioritized. This step resulted in a list of acceptable and realistic actions that address the hazards identified in each jurisdiction. This prioritized list of action items was formed by the LPG weighing STAPLEE criteria

The Disaster Mitigation Action of 2000 (at 44 CFR Parts 201 and 206) requires the development of an action plan that not only includes prioritized actions but one that includes information on how the prioritized actions will be implemented. Implementation consists of identifying who is responsible for which action, what kind of funding mechanisms and other resources are available or will be pursued, and when the action will be completed.

The top 10 prioritized mitigation actions as well as an implementation strategy for each are:

Action Item #1: Update the City's General Plan periodically and recommend improvements to the Safety Element, as funding is available.

Coordinating Individual/Organization: Planning & Building Department

Potential Funding Source: Developer Impact Fees, CDBG, General Fund

Implementation Timeline: 1 Year

Action Item #2: Update Drainage Element of the General Plan based upon actual, developed conditions (General Plan, GMOC Section), as funding is available.

Coordinating Individual/Organization: Planning & Building Department, City Engineer

Potential Funding Source: Developer Impact Fees, CDBG, General Fund

Implementation Timeline: 1 Year

Action Item #3: Periodically review City compliance with NFIP requirements, as funding is available.

Coordinating Individual/Organization: City Engineer, City Building Official

Potential Funding Source: General Fund

Implementation Timeline: 1 Year

Action Item #4: Update Flood layers in GIS upon FEMA approval of LOMRs/LOMAs.

Coordinating Individual/Organization: GIS, Public Works Department

Potential Funding Source: General Fund

Implementation Timeline: 1 Year

Action Item #5: Use hazard overlays to identify hazard-prone new development, as funding is available.

Coordinating Individual/Organization: GIS, Planning & Building Department

Potential Funding Source: General Fund

Implementation Timeline: 1 Year

Action Item #6: Actively participate in the San Diego County Multi-Hazard Mitigation Plan process.

Coordinating Individual/Organization: Interdepartmental Responsibility

Potential Funding Source: General Fund, HMGP funding

Implementation Timeline: 1-5 Years

Action Item #7: Continue to review applications for new development within the City in compliance with the California Environmental Quality Act (CEQA) provisions set forth by the State of California, thereby requiring individualized studies for flood hazards on an as-needed basis and establishing mitigation measures for the development project before construction begins.

Coordinating Individual/Organization: Department of Planning & Building Environmental Section

Potential Funding Source: General Fund, Development Fees

Implementation Timeline: 1-5 Years

Action Item #8: Provide Chula Vista citizens with Community Emergency Response Team training opportunities to increase public awareness of hazards and response to hazards, as funding is available.

Coordinating Individual/Organization: Fire Department

Potential Funding Source: Citizen's Corps Grants

Implementation Timeline: 1-5 Years

Action Item #9: Continue to require structural flood control improvements of new development where flooding is already a problem (existing ordinances).

Coordinating Individual/Organization: City Engineer

Potential Funding Source: General Fund, Developer Fees

Implementation Timeline: 1-5 Years

Action Item #10: The Fire Department, via its Fire Prevention Bureau, will continue to cooperate with the County Department of Environmental Health in promoting the safe handling of hazardous chemicals in compliance with the Unified Fire Code and applicable Hazardous Materials Regulations.

Coordinating Individual/Organization: Fire Department

Potential Funding Source: General Fund

Implementation Timeline: 1-5 Years

5.5 CITY OF CORONADO

The City of Coronado (Coronado) reviewed a set of jurisdictional-level hazard maps including detailed critical facility information and localized potential hazard exposure/loss estimates to help identify the top hazards threatening their jurisdiction. In addition, LPGs were supplied with exposure/loss estimates for Coronado summarized in Table 5.5-1. See Section 4.0 for additional details.

Table 5.5-1
Summary of Potential Hazard-Related Exposure/Loss in Coronado

		Residential		Commercial		Critical Facilities	
Hazard Type	Exposed Population	Number of Residential Buildings	Potential Exposure/ Loss for Residential Buildings (x $1,000)	Number of Commercial Buildings	Potential Exposure/ Loss for Commercial Buildings (x $1,000)	Number of Critical Facilities	Potential Exposure for Critical Facilities (x $1,000)
Coastal Storm / Erosion	6	1	22,549	1	3,358	0	0
Dam Failure	89	27	2,200	0	0	2	1,332
Earthquake (Annualized Loss - Includes shaking, liquefaction and landslide components)	24,189	6,734	1,673	80	299	22* / 27**	6,499* / 36,541**
Floods (Loss)							
100 Year	1,469	409	29,080	4	2,186	4	4,777
500 Year	2,155	600	37,464	5	2,745	6	6,376
Rain-Induced Landslide							
High Risk	0	0	0	0	0	0	0
Moderate Risk	0	0	0	0	0	0	0
Tsunami	5,149	1,822	630,179	3	25,776	20	33,257
Wildfire/ Structure Fire							
Extreme	0	0	0	0	0	0	0
Very High	0	0	0	0	0	0	0
High	0	0	0	0	0	0	0
Moderate	20,337	5,645	2,548,634	77	270,068	52	386,427

* Represents 100-year earthquake value under three earthquake scenarios (shake only, shake and liquefaction, and shake and landslide).

** Represents 500-year earthquake value under three earthquake scenarios (shake only, shake and liquefaction, and shake and landslide).

After reviewing the localized hazard maps and exposure/loss table above, the following hazards were identified by the Coronado LPG as their top four. A brief rational for including each of these is included.

- **Earthquake**: The potential for loss of life, injuries, and damage to property, as well as disruption of services, is significant.
- **Coastal Storms/Flooding**: Jurisdiction is surrounded by water. Coastal storms and flooding have potential to cause losses.
- **Tsunami**: Jurisdiction is surrounded by water. There has been a history of tsunami effects felt in the region.
- **Manmade Hazards**: The community hosts several sites/assets within and surrounding the jurisdiction that may be at risk for potential manmade hazards.

5.5.1 Capabilities Assessment

The LPG identified current capabilities available for implementing hazard mitigation activities. The Capability Assessment (Assessment) portion of the jurisdictional mitigation plan identifies administrative, technical, legal and fiscal capabilities. This includes a summary of departments and their responsibilities associated to hazard mitigation planning as well as codes, ordinances, and plans already in place associated to hazard mitigation planning. The second part of the Assessment provides Coronado's fiscal capabilities that may be applicable to providing financial resources to implement identified mitigation action items.

5.5.1.1 Existing Institutions, Plans, Policies and Ordinances

The following is a summary of existing departments in Coronado and their responsibilities related to hazard mitigation planning and implementation, as well as existing planning documents and regulations related to mitigation efforts within the community. The administrative and technical capabilities of Coronado, as shown in Table 5.5-2, provides an identification of the staff, personnel, and department resources available to implement the actions identified in the mitigation section of the Plan. Specific resources reviewed include those involving technical personnel such as planners/engineers with knowledge of land development and land management practices, engineers trained in construction practices related to building and infrastructure, planners and engineers with an understanding of natural or manmade hazards, floodplain managers, surveyors, personnel with GIS skills and scientists familiar with hazards in the community.

Table 5.5-2
City of Coronado: Administrative and Technical Capacity

Staff/Personnel Resources	Y/N	Department/Agency and Position
A. Planner(s) or engineer(s) with knowledge of land development and land management practices	Y	Community Development/ Associate Planner
B. Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Y	Community Development/Senior Building Inspector
C. Planners or Engineer(s) with an understanding of natural and/or manmade hazards	N	
D. Floodplain manager	N	
E. Surveyors	N	
F. Staff with education or expertise to assess the community's vulnerability to hazards	Y	Fire/Division Chief; Community Development/Senior Planner; Engineering/Principal Engineer; Public Services/Services Supervisor
G. Personnel skilled in GIS and/or HAZUS	Y	Public Services, Technicians
H. Scientists familiar with the hazards of the community	N	
I. Emergency manager	Y	Police and Fire Chiefs
J. Grant writers	N	

The legal and regulatory capabilities of Coronado are shown in Table 5.5-3, which presents the existing ordinances and codes that affect the physical or built environment of Coronado. Examples of legal and/or regulatory capabilities can include: the City's building codes, zoning ordinances, subdivision ordnances, special purpose ordinances, growth management ordinances, site plan review, general plans, capital improvement plans, economic development plans, emergency response plans, and real estate disclosure plans.

Table 5.5-3
City of Coronado: Legal and Regulatory Capability

Regulatory Tools (ordinances, codes, plans)	Local Authority (Y/N)	Does State Prohibit? (Y/N)
A. Building code	Y	N
B. Zoning ordinance	Y	N
C. Subdivision ordinance or regulations	Y	N
D. Special purpose ordinances (floodplain management, storm water management, hillside or steep slope ordinances, wildfire ordinances, hazard setback requirements)	Y	N
E. Growth management ordinances (also called "smart growth" or anti-sprawl programs)	N	N
F. Site plan review requirements	Y	N
G. General or comprehensive plan	Y	N
H. A capital improvements plan	Y	N
I. An economic development plan	N	N
J. An emergency response plan	Y	N
K. A post-disaster recovery plan	Y	N
L. A post-disaster recovery ordinance	Y	N
M. Real estate disclosure requirements	Y	N

5.5.1.2 Fiscal Resources

Table 5.5-4 shows specific financial and budgetary tools available to Coronado such as community development block grants; capital improvements project funding; authority to levy taxes for specific purposes; fees for water, sewer, gas, or electric services; impact fees for homebuyers or developers for new development; ability to incur debt through general obligations bonds; and withholding spending in hazard-prone areas.

Table 5.5-4
City of Coronado: Fiscal Capability

Financial Resources	Accessible or Eligible to Use (Yes/No)
A. Community Development Block Grants (CDBG)	Yes - Eligible in certain circumstances
B. Capital improvements project funding	Yes - With Council approval
C. Authority to levy taxes for specific purposes	Yes - With 2/3 voter approval
D. Fees for water, sewer, gas, or electric service	Yes - For sewer only
E. Impact fees for homebuyers or developers for new developments/homes	No
F. Incur debt through general obligation bonds	Yes - With 2/3 voter approval
G. Incur debt through special tax and revenue bonds	Yes - With 2/3 voter approval
H. Incur debt through private activity bonds	No
I. Withhold spending in hazard-prone areas	Yes
J. Other – SANDAG Grant	No
K. Other – Other Grants	No

5.5.2 Goals, Objectives and Actions

Listed below are Coronado's specific hazard mitigation goals, objectives and related potential actions. For each goal, one or more objectives have been identified that provide strategies to attain the goal. Where appropriate, the City has identified a range of specific actions to achieve the objective and goal.

The goals and objectives were developed by considering the risk assessment findings, localized hazard identification and loss/exposure estimates, and an analysis of the jurisdiction's current capabilities assessment. These preliminary goals, objectives and actions were developed to represent a vision of long-term hazard reduction or enhancement of capabilities. To help in further development of these goals and objectives, the LPG compiled and reviewed current jurisdictional sources including the City's planning documents, codes, and ordinances. In addition, City representatives met with consultant staff and/or OES to specifically discuss these hazard-related goals, objectives and actions as they related to the overall Plan. Representatives of numerous City departments involved in hazard mitigation planning, including Fire, Police, and Public Works participated in the Coronado LPG. These members include:

- John Traylor, Director of Fire Services
- Dismas Abelman, Fire Division Chief
- Ed Kleeman, Community Development Senior Planner
- Charles Kamenides, Public Services Supervisor

Once developed, City staff presented them to the City of Coronado City Council for their approval.

Public meetings were held throughout the County to present these preliminary goals, objectives and actions to citizens and to receive public input. At these meetings, specific consideration was given to

hazard identification/profiles and the vulnerability assessment results. The following sections present the hazard-related goals, objectives and actions as prepared by Coronado's LPG in conjunction with the Hazard Mitigation Working Group, locally elected officials, and local citizens.

5.5.2.1 Goals

The City of Coronado has developed the following 11 Goals for their Hazard Mitigation Plan (See Attachment A for Goals 10 and 11).

Goal 1. Promote disaster-resistant future development.

Goal 2. Increase public understanding, support, and demand for effective hazard mitigation.

Goal 3. Build and support local capacity and commitment to continuously become less vulnerable to hazards.

Goal 4. Improve coordination and communication with federal, state, local and tribal governments.

"Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and State-owned facilities, due to":

Goal 5. Floods.

Goal 6. Urban Conflagrations.

Goal 7. Severe Weather.

Goal 8. Dam Failure.

Goal 9. Geological Hazards.

Goal 10. Extremely Hazardous Materials Releases.

Goal 11. Other Manmade Hazards.

5.5.2.2 Objectives and Actions

The City of Coronado developed the following broad list of objectives and actions to assist in the implementation of each of their 13 identified goals. The City of Coronado developed objectives to assist in achieving their hazard mitigation goals. For each of these objectives, specific actions were developed that would assist in their implementation. A discussion of the prioritization and implementation of the action items is provided in Section 5.5.2.3

Goal 1: Promote disaster resistant future development.	
Objective 1.A: Maintain and update the general plans and zoning ordinances to limit development in hazard areas.	
Action 1.A.1	Enforce existing general plan policies to limit development in hazard zones.
Objective 1.B: Maintain and update building codes that protect renovated existing assets and new development in hazard areas.	
Action 1.B.1	Adopt building codes on a regular basis
Objective 1.C: Encourage consistent enforcement of general plans, zoning ordinances, and building codes.	
Action 1.C.1	Educate people responsible for enforcing codes
Objective 1.D: Discourage future development that exacerbates hazardous conditions.	
Action 1.A.1	Educate the public on known hazards

Goal 2: Promote public understanding, support and demand for hazard mitigation.	
Objective 2.A: Educate the public to increase awareness of hazards and opportunities for mitigation actions.	
Action 2.A.1	Conduct Community Emergency Response Team Training
Action 2.A.2	Release pertinent information through an Emergency Preparedness newsletter
Action 2.A.3	Conduct Learn Not to Burn Classes in local schools
Action 2.A.4	Release public education information on local cable TV.
Objective 2.B: Promote partnerships between the state, county and local governments to identify, prioritize, and implement mitigation actions.	
Action 2.B.1	Participate in Hazard Mitigation programs
Action 2.B.2	Participate in the Unified Disaster Council
Objective 2.C: Promote hazard mitigation in the business community.	
Action 2.C.1	Conduct Fire Company Inspections
Action 2.C.2	Require fire sprinkler systems in all occupancies except R3s

Goal 2: Promote public understanding, support and demand for hazard mitigation. (continued)	
Action 2.C.3	Provide Community Emergency Response Team training to the business community
Objective 2.D: Monitor and publicize the effectiveness of mitigation actions implemented.	
Action 2.D.1	Publish an Emergency Preparedness Newsletter quarterly
Action 2.D.2	Release information to the public through the media
Action 2.D.3	Relay useful information through the Coronado Currents Newsletter
Objective 2.E: Discourage activities that exacerbate hazardous conditions.	
Action 2.E.1	Conduct community education through newsletters, media releases and community forums
Action 2.E.2	Enforcement of actions that are in violation of Federal, State or local laws or codes

Goal 3: Build and support local capacity and commitment to continuously become less vulnerable to hazards.	
Objective 3.A: Increase awareness and knowledge of hazard mitigation principles and practice among local officials.	
Action 3.A.1	Conduct EOC training and drills
Objective 3.B: Develop model hazard mitigation plan.	
Action 3.B.1	Participate in Hazard Mitigation Work Group
Objective 3.C: Provide web-based information regarding hazard mitigation on City web site.	
Action 3.C.1	Provide current information on emergency preparedness on City web-site

Goal 4: Improve hazard mitigation coordination and communication with federal, state, local and tribal governments.	
Objective 4.A: Establish and maintain closer working relationships with state agencies, local and tribal governments.	
Action 4.A.1	Work with the UDC at County OES

Goal 4: Improve hazard mitigation coordination and communication with federal, state, local and tribal governments. (continued)	
Objective 4.B: Improve the City's capability and efficiency at administering pre- and post-disaster mitigation.	
Action 4.B.1	Provide SEMS training for City personnel
Action 4.B.2	Conduct EOC drills

Goal 5: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to floods.	
Objective 5.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to floods.	
Action 5.A.1	Investigate methods to enhance survivability in low-lying areas
Action 5.A.2	Purchase/maintain equipment for water removal in area prone to flooding
Action 5.A.3	Maintain infrastructure in known flood areas
Objective 5.B: Coordinate with and support existing efforts to mitigate floods (e.g., US Army Corps of Engineers, US Bureau of Reclamation, San Diego County Department of Water Resources).	
Action 5.B.1	Make contacts and develop a network during EOC exercises

Goal 6: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to urban conflagrations.	
Objective 6.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to urban conflagrations.	
Action 6.A.1	Provide additional staffing and apparatus
Action 6.A.2	Coordinate mutual/automatic aid agreements
Action 6.A.3	Require a sprinkler ordinance
Objective 6.B: Protect existing assets with the highest relative vulnerability to the effects of urban conflagrations.	
Action 6.B.1	Require a sprinkler ordinance
Action 6.B.2	Coordinate mutual/automatic aid agreements
Action 6.B.3	Provide additional staffing and apparatus

Goal 7: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to <u>severe weather</u> (e.g., El Nino storms/, thunderstorms, lightening, tsunamis, and extreme temperatures).	
Objective 7.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to severe weather.	
Action 7.A.1	Provide public education through Community Emergency Response Team training
Objective 7.B: Protect existing assets with the highest relative vulnerability to the effects of weather.	
Action 7.B.1	Maintain the infrastructure responsible for moving water
Action 7.B.2	Maintain equipment for moving water during a storm
Objective 7.C: Coordinate with and support existing efforts to mitigate severe weather (e.g., National Weather Service).	
Action 7.C.1	Include the NWS and the NOAA in our EOC Drills
Objective 7.D: Address identified data limitations regarding the lack of information about the relative vulnerability of assets from severe weather (e.g., construction type, age, condition, compliance with current building codes, etc.)	

Goal 8: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and State-owned facilities, due to <u>dam failure</u>.	
Objective 8.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to dam failure.	
Action 8.A.1	This action items for Goal 7 also apply to these objectives.
Objective 8.B: Protect existing assets with the highest relative vulnerability to the effects of dam failure.	
Action 8.B.1	This action items for Goal 7 also apply to these objectives.
Objective 8.C: Address identified data limitations regarding the lack of information about the relative vulnerability of assets from dam failure.	

Goal 9: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to geological hazards.	
Objective 9.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to geological hazards.	
Action 9.A.1	Maintain construction in fault zones
Action 9.A.2	Ensure all development in fault zones avoids or withstands geological hazards
Objective 9.B: Protect existing assets with the highest relative vulnerability to the effects of geological hazards.	
Action 9.B.1	Confirm building standards for new and existing buildings for geological hazards
Objective 9.C: Address identified data limitations regarding the lack of information about the relative vulnerability of assets from earthquakes (e.g., data on structure/building types, reinforcements, etc.).	

5.5.2.3 Prioritization and Implementation of Action Items

Once the comprehensive list of jurisdictional goals, objectives, and action items listed above was developed, the proposed mitigation actions were prioritized. This step resulted in a list of acceptable and realistic actions that address the hazards identified in each jurisdiction. This prioritized list of action items was formed by the LPG weighing STAPLEE criteria

The Disaster Mitigation Action of 2000 (at 44 CFR Parts 201 and 206) requires the development of an action plan that not only includes prioritized actions but one that includes information on how the prioritized actions will be implemented. Implementation consists of identifying who is responsible for which action, what kind of funding mechanisms and other resources are available or will be pursued, and when the action will be completed.

The top 10 prioritized mitigation actions as well as an implementation strategy for each are:

Action Item # 1: Public education through the CERT program.

Coordinating Individual/Organization: Dismas Abelman / Fire Department;

Potential Funding Source: Coronado Fire Department Budget

Implementation Timeline: Completed through ongoing training

Action Item # 2: Inspections to verify accuracy of existing Hazard Materials databases

Coordinating Individual/Organization: Dismas Abelman / Fire Department

Potential Funding Source: Coronado Fire Department Budget

Implementation Timeline: Completed annually

Action Item # 3: Pre-incident plan to mitigate hazards and maximize response

Coordinating Individual/Organization: Dismas Abelman / Fire Department

Potential Funding Source: Coronado Fire Department Budget

Implementation Timeline: 2004-2005

Action Item # 4: Participate in the Multi-Jurisdiction Hazard Mitigation Plan planning process. Adopt and implement as much of the plan as practical

Coordinating Individual/Organization: Dismas Abelman / Fire Department

Potential Funding Source: Coronado Emergency Preparedness Department Budget

Implementation Timeline: Adoption by Coronado City Council by July 2004

Action Item # 5: Use an emergency preparedness newsletter to educate the public

Coordinating Individual/Organization: Dismas Abelman / Fire Department

Potential Funding Source: Coronado Fire Department Budget

Implementation Timeline: Presently implemented

Action Item # 6: Community forum to educate public on Hazard Materials and terrorism

Coordinating Individual/Organization: Dismas Abelman / Fire Department

Potential Funding Source: Funding sources not identified at this time

Implementation Timeline: Develop the program and present prior to Dec. 2005, present annually thereafter

Action Item # 7: SEMS training for city personnel

Coordinating Individual/Organization: Dismas Abelman / Fire Department

Potential Funding Source: Coronado Fire Department Budget

Implementation Timeline: 2004-2005

Action Item # 8: Conduct EOC Drills

Coordinating Individual/Organization: Dismas Abelman / Fire Department

Potential Funding Source: Funding source not identified at this time

Implementation Timeline: 2004-2005, annually thereafter

Action Item # 9: Update Emergency Preparedness information on the City of Coronado website

Coordinating Individual/Organization: Dismas Abelman / Fire Department

Potential Funding Source: Funding sources not identified at this time

Implementation Timeline: During 2004 and on a regular basis afterwards

Action Item # 10: Include other agencies in the EOC drills

Coordinating Individual/Organization: Dismas Abelman / Fire Department

Potential Funding Source: Funding sources not identified at this time

Implementation Timeline: 2004-2005, annually thereafter

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5.6 CITY OF DEL MAR

The City of Del Mar (Del Mar) reviewed a set of jurisdictional-level hazard maps including detailed critical facility information and localized potential hazard exposure/loss estimates to help identify the top hazards threatening their jurisdiction. In addition, LPGs were supplied with exposure/loss estimates for Del Mar summarized in Table 5.6-1. See Section 4.0 for additional details.

Table 5.6-1
Summary of Potential Hazard-Related Exposure/Loss in Del Mar

		Residential		Commercial		Critical Facilities	
Hazard Type	Exposed Population	Number of Residential Buildings	Potential Exposure/ Loss for Residential Buildings (x $1,000)	Number of Commercial Buildings	Potential Exposure/ Loss for Commercial Buildings (x $1,000)	Number of Critical Facilities	Potential Exposure for Critical Facilities (x $1,000)
Coastal Storm / Erosion	97	63	20,670	0	0	0	0
Dam Failure	1,814	894	260,224	8	41,008	34	71,512
Earthquake (Annualized Loss - Includes shaking, liquefaction and landslide components)	4,389	2,044	281	31	137	20* / 21**	490* / 5,281**
Floods (Loss)							
100 Year	1,032	481	4,216	5	23,705	9	19,170
500 Year	1,063	495	5,717	6	2,641	10	21,170
Rain-Induced Landslide							
High Risk	12	8	2,141	0	0	3	2,621
Moderate Risk	125	71	19,860	0	480	1	2,000
Tsunami	1,021	539	158,928	5	28,200	21	40,800
Wildfire/ Structure Fire							
Extreme	0	0	0	0	0	0	0
Very High	0	0	0	0	0	0	0
High	43	10	2,617	0	0	0	0
Moderate	3,996	1,883	551,739	30	140,984	34	62,111

* Represents 100-year earthquake value under three earthquake scenarios (shake only, shake and liquefaction, and shake and landslide).

** Represents 500-year earthquake value under three earthquake scenarios (shake only, shake and liquefaction, and shake and landslide).

After reviewing the localized hazard maps and exposure/loss table above, the following hazards were identified by the Del Mar LPG as their top five. A brief rational for including each of these is included.

- **Coastal Storm/Erosion** – Constant and historical.

- **Wildfire** – Periodic Santa Ana conditions and fuel loads.
- **Landslide** – Coupled with above and earthquake/tsunami.
- **Earthquake** – Proximity to local faults.
- **Tsunami** – Proximity to Pacific Ocean.

5.6.1 Capabilities Assessment

The LPG identified current capabilities available for implementing hazard mitigation activities. The Capability Assessment (Assessment) portion of the jurisdictional mitigation plan identifies administrative, technical, legal and fiscal capabilities. This includes a summary of departments and their responsibilities associated to hazard mitigation planning as well as codes, ordinances, and plans already in place associated to hazard mitigation planning. The second part of the Assessment provides Del Mar's fiscal capabilities that may be applicable to providing financial resources to implement identified mitigation action items.

5.6.1.1 Existing Institutions, Plans, Policies and Ordinances

The following is a summary of existing departments in Del Mar and their responsibilities related to hazard mitigation planning and implementation, as well as existing planning documents and regulations related to mitigation efforts within the community. The administrative and technical capabilities of Del Mar, as shown in Table 5.6-2, provides an identification of the staff, personnel, and department resources available to implement the actions identified in the mitigation section of the Plan. Specific resources reviewed include those involving technical personnel such as planners/engineers with knowledge of land development and land management practices, engineers trained in construction practices related to building and infrastructure, planners and engineers with an understanding of natural or manmade hazards, floodplain managers, surveyors, personnel with GIS skills and scientists familiar with hazards in the community.

Table 5.6-2
City of Del Mar: Administrative and Technical Capacity

Staff/Personnel Resources	Y/N	Department/Agency and Position
A. Planner(s) or engineer(s) with knowledge of land development and land management practices	Y	Planning – Director of Community Development
B. Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Y	Engineering – City Engineer
C. Planners or Engineer(s) with an understanding of natural and/or manmade hazards	Y	Planning & Engineering - Director of Community Development - City/Engineer
D. Floodplain manager	Y	Engineering – City Engineer
E. Surveyors	N	Engineering – City Engineer
F. Staff with education or expertise to assess the community's vulnerability to hazards	Y	Fire Department – Director of Public Safety
G. Personnel skilled in GIS and/or HAZUS	Y	SANDAG
H. Scientists familiar with the hazards of the community	Y	Consultants
I. Emergency manager	Y	Fire Department – Director of Public Safety
J. Grant writers	N	

The legal and regulatory capabilities of Del Mar are shown in Table 5.6-3, which presents the existing ordinances and codes that affect the physical or built environment of Del Mar. Examples of legal and/or regulatory capabilities can include: the City's building codes, zoning ordinances, subdivision ordnances, special purpose ordinances, growth management ordinances, site plan review, general plans, capital improvement plans, economic development plans, emergency response plans, and real estate disclosure plans.

Table 5.6-3
City of Del Mar: Legal and Regulatory Capability

Regulatory Tools (ordinances, codes, plans)	Local Authority (Y/N)	Does State Prohibit (Y/N)
A. Building code	Y[1]	N
B. Zoning ordinance	Y	N
C. Subdivision ordinance or regulations	Y	N
D. Special purpose ordinances (floodplain management, storm water management, hillside or steep slope ordinances, wildfire ordinances, hazard setback requirements)	Y[2]	N
E. Growth management ordinances (also called "smart growth" or anti-sprawl programs)	Y	N
F. Site plan review requirements	Y	N
G. General or comprehensive plan	Y	N
H. A capital improvements plan	Y[3]	N
I. An economic development plan	Y[4]	N
J. An emergency response plan	Y	N
K. A post-disaster recovery plan	N	N
L. A post-disaster recovery ordinance	N	N
M. Real estate disclosure requirements	Y	N

* (e.g. county, parish, or regional political entity), [1]Building Code, [2]25% slopes, flood plain, smart-growth, [3]Storm Drains, [4]General Plan.

5.6.1.2 Fiscal Resources

Table 5.6-4 shows specific financial and budgetary tools available to Del Mar such as community development block grants; capital improvements project funding; authority to levy taxes for specific purposes; fees for water, sewer, gas, or electric services; impact fees for homebuyers or developers for new development; ability to incur debt through general obligations bonds; and withholding spending in hazard-prone areas.

Table 5.6-4
City of Del Mar: Fiscal Capability

Financial Resources	Accessible or Eligible to Use (Yes/No)
A. Community Development Block Grants (CDBG)	Y
B. Capital improvements project funding	Y
C. Authority to levy taxes for specific purposes	Y – Vote required
D. Fees for water, sewer, gas, or electric service	Y
E. Impact fees for homebuyers or developers for new developments/homes	N
F. Incur debt through general obligation bonds	Y
G. Incur debt through special tax and revenue bonds	Y – Vote required
H. Incur debt through private activity bonds	N
I. Withhold spending in hazard-prone areas	N
J. Other – SANDAG Grant	N
K. Other – Other Grants	N

5.6.2 Goals, Objectives and Actions

Listed below are Del Mar's specific hazard mitigation goals, objectives and related potential actions. For each goal, one or more objectives have been identified that provide strategies to attain the goal. Where appropriate, the City has identified a range of specific actions to achieve the objective and goal.

The goals and objectives were developed by considering the risk assessment findings, localized hazard identification and loss/exposure estimates, and an analysis of the jurisdiction's current capabilities assessment. These preliminary goals, objectives and actions were developed to represent a vision of long-term hazard reduction or enhancement of capabilities. To help in further development of these goals and objectives, the LPG compiled and reviewed current jurisdictional sources including the City's planning documents, codes, and ordinances. In addition, City representatives met with consultant staff and/or OES to specifically discuss these hazard-related goals, objectives and actions as they related to the overall Plan. Representatives of numerous City departments involved in hazard mitigation planning, including Fire, Police, and Public Works participated in the Del Mar LPG. These members include:

- Joe Hoefgen, Assistant City Manager
- David Ott, Fire Chief
- David Holmerud, Deputy Fire Chief
- Linda Niles, Planning and Community Development Director
- David Scherer, Public Works Director
- Adam Birnbaum, Principal Planner

Once developed, City staff presented them to the City of Del Mar City Council for their approval.

Public meetings were held throughout the County to present these preliminary goals, objectives and actions to citizens and to receive public input. At these meetings, specific consideration was given to hazard identification/profiles and the vulnerability assessment results. The following sections present the hazard-related goals, objectives and actions as prepared by Del Mar's LPG in conjunction with the Hazard Mitigation Working Group, locally elected officials, and local citizens.

5.6.2.1 Goals

The City of Del Mar has developed the following 6 Goals for their Hazard Mitigation Plan (See Attachment A for Goal 6).

Goal 1. Promote public understanding, support and demand for hazard mitigation.

Goal 2. Improve hazard mitigation coordination and communication with federal, state, local and tribal governments.

Goal 3. Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to floods.

Goal 4. Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to wildfires.

Goal 5. Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to costal erosion and geological hazards.

5.6.2.2 Objectives and Actions

The City of Del Mar developed the following broad list of objectives and actions to assist in the implementation of each of their 6 identified goals. The City of Del Mar developed objectives to assist in achieving their hazard mitigation goals. For each of these objectives, specific actions were developed that would assist in their implementation. A discussion of the prioritization and implementation of the action items is provided in Section 5.6.2.3.

Goal 1: Promote public understanding, support and demand for hazard mitigation.	
Objective 1.A: Educate the public to increase awareness of hazards and opportunities for mitigation actions.	
Action 1.A.1	Institutionalize hazard mitigation into City's planning efforts
Action 1.A.2	Public workshops to discuss particular hazards and related mitigation measures

Goal 1: Promote public understanding, support and demand for hazard mitigation. (continued)	
Objective 1.B: Promote partnerships between the state, counties, local and tribal governments to identify, prioritize, and implement mitigation actions.	
Action 1.B.1	Coordinate with regional efforts to share resources and knowledge
Action 1.B.2	Streamline policies to eliminate conflicts and duplication of effort
Objective 1.C: Promote hazard mitigation in the business community.	
Action 1.C.1	Use business liaison and village merchants as conduits for information
Action 1.C.2	Explore opportunities to work with public/private partnerships
Objective 1.D: Monitor and publicize the effectiveness of mitigation actions implemented locally.	
Action 1.D.1	Utilize City web page, press releases and public meetings
Action 1.D.2	Train and review with staff implemented programs as part of regular training
Objective 1.E: Discourage activities that exacerbate hazardous conditions.	
Action 1.E.1	Make hazard mitigation part of the planning and approval process
Action 1.E.2	Continued Code Enforcement activities targeting these conditions

Goal 2: Improve hazard mitigation coordination and communication with federal, state, local and tribal governments.	
Objective 2.A: Establish and maintain closer working relationships with state agencies, local and tribal governments.	
Action 2.A.1	Maintain partnerships in mitigation and disaster planning
Action 2.A.2	Explore opportunities for additional funding through cooperative efforts
Objective 2.B: Encourage other organizations to incorporate hazard mitigation activities.	
Action 2.B.1	Work with business and environmental community to understand importance of hazard mitigation planning.
Objective 2.C: Improve the City's capability and efficiency at administering pre- and post-disaster mitigation.	
Action 2.C.1	Find additional training opportunities for staff
Action 2.C.2	Establish training schedule for tabletop exercises
Action 2.B.3	Make this institutional for the staff

Goal 3: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to floods.	
Objective 3.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to floods.	
Action 3.A.1	Clear identification of potential flood prone areas
Action 3.A.2	Promote monitoring and maintenance of flood control channels
Action 3.A.3	Develop pre-incident action plans for affected areas
Objective 3.B: Coordinate with and support existing efforts to mitigate floods (e.g., US Army Corps of Engineers, US Bureau of Reclamation, San Diego County Department of Water Resources).	
Action 3.B.1	Streamline policies to eliminate conflicts and duplication of effort
Action 3.B.2	Enforce regulatory measures related to development within 100-year flood plain
Objective 3.C: Minimize repetitive losses caused by flooding	
Action 3.C.1	Restrict ability to re-build unless mitigation measures to avoid repeats are taken
Objective 3.D: Address identified data limitations regarding the lack of information about relative vulnerability of assets from floods	
Action 3.D.1	Work with regional agencies, (OES, UDC, SanGis) to accurately map affected areas
Action 3.D.2	Share and train with acquired information with all city department's and personnel
Action 3.D.3	Coordinate with City of Solana Beach joint training opportunities between staffs

Goal 4: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to wildfires.	
Objective 4.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to wildfires.	
Action 4.A.1	Annually review and update wildland pre-plans for firefighting forces
Action 4.A.2	Maximize utilization of outside firefighting equipment and staff resources
Action 4.A.3	Implement Fire Code enhancements for wildland-urban interface
Objective 4.B: Coordinate with and support existing efforts to mitigate wildfire hazards (e.g., County or San Diego & State of California).	
Action 4.B.1	Develop mitigation measures to enhance protection of homes along Crest Canyon
Action 4.B.2	Work in conjunction and cooperation with City of San Diego to achieve mitigation efforts
Action 4.B.3	Coordinate with other agencies to ensure consistency among standards

Goal 5: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to coastal erosion and geological hazards.	
Objective 5.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to geological hazards.	
Action 5.A.1	Continue to explore strategies and opportunities for sand replenishment
Action 5.A.2	Finish development local coastal plan
Objective 5.B: Protect existing assets with the highest relative vulnerability to the effects of geological hazards.	
Action 5.B.1	Continue administration of local coastal plan to address bluff protection measures
Action 5.B.2	Monitor existing protective measures taken to assure their continued effectiveness

5.6.2.3 Prioritization and Implementation of Action Items

Once the comprehensive list of jurisdictional goals, objectives, and action items listed above was developed, the proposed mitigation actions were prioritized. This step resulted in a list of acceptable and realistic actions that address the hazards identified in each jurisdiction. This prioritized list of action items was formed by the LPG weighing STAPLEE criteria

The Disaster Mitigation Action of 2000 (at 44 CFR Parts 201 and 206) requires the development of an action plan that not only includes prioritized actions but one that includes information on how the prioritized actions will be implemented. Implementation consists of identifying who is responsible for which action, what kind of funding mechanisms and other resources are available or will be pursued, and when the action will be completed.

The top 10 prioritized mitigation actions as well as an implementation strategy for each are:

Priority Action #1: Develop a comprehensive approach to reducing the possibility of damage and losses due to geological hazards. Explore strategies to develop an early warning/public emergency notification system. Finish development of a comprehensive evacuation plan.

Coordinating Individual/Organization: Planning & Community Development, Fire Department, and Assistant City Manager/Director of Public Safety

Potential Funding Source: General Fund and Grants

Implementation Timeline: February 2004 to June 2006

Priority Action #2: Protect existing assets with the highest relative vulnerability to the effects of geological hazards. Continue efforts to relocate the train tracks off the costal bluff region Develop plans to retrofit the coast highway bridge to existing earthquake standards Monitor existing protective measures to assure continued

improvement and effectiveness in addressing the effects of geological hazards local land mass and infrastructure.

Coordinating Individual/Organization: Planning & Community Development

Potential Funding Source: General Fund, Grants and Private Funding

Implementation Timeline: On-going

Priority Action #3: Coordinate with and support existing efforts to mitigate wildfire hazards (e.g., County or San Diego & State of California). Develop mitigation measures to enhance protection of homes along and in the Crest Canyon area. Work in conjunction and cooperation with the applicable regulatory governmental agencies. Coordinate with other agencies to ensure consistency among standards.

Coordinating Individual/Organization: Fire Department and Planning & Community Development

Potential Funding Source: General Fund and Grants

Implementation Timeline: February 2004 to June 2006

Priority Action #4: Develop a comprehensive approach to reducing the possibility of damage and losses due to wildfires. Annually review and update wildland pre-plans for firefighting forces. Maximize utilization of outside firefighting equipment and staff resources. Implement Fire Code enhancements for wildland-urban interface.

Coordinating Individual/Organization: Fire Department

Potential Funding Source: General Fund

Implementation Timeline: March 2004 to June 2006

Priority Action #5: Develop a comprehensive approach to reducing the possibility of damage and losses due to other manmade hazards. Coordinate with other agencies on training and planning for terrorist related activities. Maintain communications links with regards to threat assessments and dissemination of information.

Coordinating Individual/Organization: Fire Department

Potential Funding Source: General Fund and Grants

Implementation Timeline: On-going

Priority Action #6: Address identified data limitations regarding the lack of information about relative vulnerability of assets from floods. Work with regional agencies, (ODP, SanGis) to accurately map affected areas. Share and train with acquired information with all city department's and personnel. Coordinate with City of Solana Beach joint training opportunities between staffs.

Coordinating Individual/Organization: Public Works, Planning & Community Development, and Fire and Lifeguard Departments

Potential Funding Source: General Fund

Implementation Timeline: On-going

Priority Action #7: Protect existing assets with the highest relative vulnerability to the effects of other manmade hazards. Evaluate access levels to public facilities restrict access where necessary. Evaluate infrastructure and facilities for additional security measures as required.

Coordinating Individual/Organization: Assistant City Manager/Director of Public Safety

Potential Funding Source: General Fund and Grants

Implementation Timeline: July 2004 to June 2006

Priority Action #8: Monitor and publicize the effectiveness of mitigation actions implemented locally. Utilize City newsletter, press releases and public meetings. Train and review with staff implemented programs as part of regular training.

Coordinating Individual/Organization: Assistant City Manager/Director of public Safety

Potential Funding Source: General Fund

Implementation Timeline: July 2004 to June 2006

Priority Action #9: Discourage activities that exacerbate hazardous conditions. Make hazard mitigation part of the planning and approval process. Stepped up Code Enforcement activities targeting these conditions.

Coordinating Individual/Organization: Planning & Community Development & Code Enforcement

Potential Funding Source: General Fund

Implementation Timeline: July 2003 to June 2006

Priority Action #10: Improve the City's capability and efficiency at administering pre-and post-disaster mitigation. Find additional training opportunities for staff. Establish training schedule for tabletop exercises. Make this institutional for the staff.

Coordinating Individual/Organization: Fire Department

Potential Funding Source: General Fund and Grants

Implementation Timeline: July 2004 to June 2006

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5.7 CITY OF EL CAJON

The City of El Cajon (El Cajon) reviewed a set of jurisdictional-level hazard maps including detailed critical facility information and localized potential hazard exposure/loss estimates to help identify the top hazards threatening their jurisdiction. In addition, LPGs were supplied with exposure/loss estimates for El Cajon summarized in Table 5.7-1. See Section 4.0 for additional details.

Table 5.7-1
Summary of Potential Hazard-Related Exposure/Loss in El Cajon

		Residential		Commercial		Critical Facilities	
Hazard Type	**Exposed Population**	**Number of Residential Buildings**	**Potential Exposure/ Loss for Residential Buildings (x $1,000)**	**Number of Commercial Buildings**	**Potential Exposure/ Loss for Commercial Buildings (x $1,000)**	**Number of Critical Facilities**	**Potential Exposure for Critical Facilities (x $1,000)**
Coastal Storm / Erosion	0	0	0	0	0	0	0
Dam Failure	0	0	0	0	0	0	0
Earthquake (Annualized Loss - Includes shaking, liquefaction and landslide components)	94,531	18,124	2,058	299	944	116* / 119**	18,873* / 71,278**
Floods (Loss)							
100 Year	3,562	683	89,232	26	46,466	4	5,083
500 Year	4,096	786	101,929	30	53,145	31	176,196
Landslide							
High Risk Rain-Induced	6,346	2,276	549,540	1	20,072	11	109,858
Moderate Risk Rain-Induced	4,494	1,305	285,104	1	6,826	3	5,000
Tsunami	0	0	0	0	0	0	0
Wildfire/ Structure Fire							
Extreme	0	0	0	0	0	0	0
Very High	89	28	7,009	0	0	0	0
High	41	13	3,877	0	0	1	2,000
Moderate	94,216	18,034	5,795,780	299	1,255,948	143	1,470,268

* Represents 100-year earthquake value under three earthquake scenarios (shake only, shake and liquefaction, and shake and landslide).

** Represents 500-year earthquake value under three earthquake scenarios (shake only, shake and liquefaction, and shake and landslide).

After reviewing the localized hazard maps and exposure/loss table above, the following hazards were identified by the El Cajon LPG as their top six. A brief rational for including each of these is included.

- Hazardous Materials: A major transportation corridor exists which includes two major freeways. The City also houses several facilities that utilize significant amounts of hazardous materials.
- Wildland Fire: A wildland/urban interface exists in significant amounts in canyon rims with high value residential sites.
- Earthquake: Numerous high density, high rise facilities exist with potential loss of life, injuries and damage to property, as well as disruption of services which affects the City as well as surrounding jurisdictions.
- Landslide: Known previous landslide areas due to soil composition.
- Flooding: Some minor flood prone areas in the City.
- Terrorism or Other Manmade Events: Current and future projections for terrorism cause concerns regarding the population, community assets and city infrastructure.

5.7.1 Capabilities Assessment

The LPG identified current capabilities available for implementing hazard mitigation activities. The Capability Assessment (Assessment) portion of the jurisdictional mitigation plan identifies administrative, technical, legal and fiscal capabilities. This includes a summary of departments and their responsibilities associated to hazard mitigation planning as well as codes, ordinances, and plans already in place associated to hazard mitigation planning. The second part of the Assessment provides El Cajon's fiscal capabilities that may be applicable to providing financial resources to implement identified mitigation action items.

5.7.1.1 Existing Institutions, Plans, Policies and Ordinances

The following is a summary of existing departments in El Cajon and their responsibilities related to hazard mitigation planning and implementation, as well as existing planning documents and regulations related to mitigation efforts within the community. The administrative and technical capabilities of El Cajon, as shown in Table 5.7-2, provides an identification of the staff, personnel, and department resources available to implement the actions identified in the mitigation section of the Plan. Specific resources reviewed include those involving technical personnel such as planners/engineers with knowledge of land development and land management practices, engineers trained in construction practices related to building and infrastructure, planners and engineers with an understanding of natural or manmade hazards, floodplain managers, surveyors, personnel with GIS skills and scientists familiar with hazards in the community.

- City of El Cajon Department of Community Development
  - Building Division-Building Code: Plan checks and building inspections.
  - Planning Division-Zoning Ordinance: Limitations on the locations of certain land uses and the need for public hearings.
  - Planning Division-Subdivision Ordinance: Regulations may be considered an impediment timely mitigation.

- Planning Division-Site Plan Review (Site Development Plan – SDP): The SDP process avoids unnecessary delays and involves no public hearings, so it can expedite projects that.
- Planning Division-General Plan (GP): The GP would become a factor in a mitigation plan if it were deemed necessary to permanently change land uses.
- Planning Division-Capital Improvement Plans (CIP): The CIP must be reviewed by the Planning Commission and found to be in conformance with the General Plan

- City of El Cajon Public Works Department
  - Subdivision Ordinance: Subdivision regulations are primarily state mandated, but locally implemented.
  - Capital Improvement Plans (CIP): Some capital improvement projects will also mitigate related hazards.
- City of El Cajon Finance Department
  - Capital Improvement Plans (CIP): Some capital improvement projects will also mitigate related hazards.
- Redevelopment Agency (RA)
  - Economic Development Plans (EDP)
- City of El Cajon Fire Department
  - Emergency Response Plans

Table 5.7-2
City of El Cajon: Administrative and Technical Capacity

Staff/Personnel Resources	Y/N	Department/Agency and Position
A. Planner(s) or engineer(s) with knowledge of land development and land management practices	Y	Public Works and Community Development
B. Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Y	Public Works and Community Development
C. Planners or Engineer(s) with an understanding of natural and/or manmade hazards	Y	Engineers and Planning
D. Floodplain manager		Don't Know
E. Surveyors	Y	Public Works and Engineering
F. Staff with education or expertise to assess the community's vulnerability to hazards	Y	Fire. Police
G. Personnel skilled in GIS and/or HAZUS	Y	Public Works
H. Scientists familiar with the hazards of the community	N	
I. Emergency manager	Y	Fire Department
Grant writers	Y	Fire, Police, Community Development

The legal and regulatory capabilities of El Cajon are shown in Table 5.7-3, which presents the existing ordinances and codes that affect the physical or built environment of El Cajon. Examples of legal and/or regulatory capabilities can include: the City's building codes, zoning ordinances, subdivision ordnances,

special purpose ordinances, growth management ordinances, site plan review, general plans, capital improvement plans, economic development plans, emergency response plans, and real estate disclosure plans.

Table 5.7-3
City of El Cajon: Legal and Regulatory Capability

Regulatory Tools (ordinances, codes, plans)	Local Authority (Y/N)	Does State Prohibit? (Y/N)
A. Building code	Y	N
B. Zoning ordinance	Y	N
C. Subdivision ordinance or regulations	Y	N
D. Special purpose ordinances (floodplain management, storm water management, hillside or steep slope ordinances, wildfire ordinances, hazard setback requirements)	Y	N
E. Growth management ordinances (also called "smart growth" or anti-sprawl programs)	Y	N
F. Site plan review requirements	Y	N
G. General or comprehensive plan	Y	N
H. A capital improvements plan	Y	N
I. An economic development plan	Y	N
J. An emergency response plan	Y	N
K. A post-disaster recovery plan	N	N
L. A post-disaster recovery ordinance	N	N
M. Real estate disclosure requirements	N	N

5.7.1.2 Fiscal Resources

Table 5.7-4 shows specific financial and budgetary tools available to El Cajon such as community development block grants; capital improvements project funding; authority to levy taxes for specific purposes; fees for water, sewer, gas, or electric services; impact fees for homebuyers or developers for new development; ability to incur debt through general obligations bonds; and withholding spending in hazard-prone areas.

Table 5.7-4
City of El Cajon: Fiscal Capability

Financial Resources	Accessible or Eligible to Use (Yes/No)
A. Community Development Block Grants (CDBG)	Qualified – Income Requirements
B. Capital improvements project funding	Yes
C. Authority to levy taxes for specific purposes	Limited
D. Fees for water, sewer, gas, or electric service	Yes
E. Impact fees for homebuyers or developers for new developments/homes	Yes
F. Incur debt through general obligation bonds	Yes
G. Incur debt through special tax and revenue bonds	Yes
H. Incur debt through private activity bonds	UK
I. Withhold spending in hazard-prone areas	Yes
J. Other – SANDAG Grant	Yes
K. Other – Other Grants	Yes

5.7.2 Goals, Objectives and Actions

Listed below are El Cajon's specific hazard mitigation goals, objectives and related potential actions. For each goal, one or more objectives have been identified that provide strategies to attain the goal. Where appropriate, the City has identified a range of specific actions to achieve the objective and goal.

The goals and objectives were developed by considering the risk assessment findings, localized hazard identification and loss/exposure estimates, and an analysis of the jurisdiction's current capabilities assessment. These preliminary goals, objectives and actions were developed to represent a vision of long-term hazard reduction or enhancement of capabilities. To help in further development of these goals and objectives, the LPG compiled and reviewed current jurisdictional sources including the City's planning documents, codes, and ordinances. In addition, City representatives met with consultant staff and/or OES to specifically discuss these hazard-related goals, objectives and actions as they related to the overall Plan. Representatives of numerous City departments involved in hazard mitigation planning, including Fire, Police, and Public Works provided input to the El Cajon LPG. The El Cajon LPG members were:

- Gary Buchholz, Division Chief
- Ted Kakuris, Fire Captain
- Al Cablay, Public Works Superintendent
- Dewayne Guyer, Asst. Director of Planning
- Mike Shelton, Director of Finance
- Tom Gay, Police Lieutenant

Once developed, City staff presented them to the City of El Cajon City Council for their approval.

Public meetings were held throughout the County to present these preliminary goals, objectives and actions to citizens and to receive public input. At these meetings, specific consideration was given to hazard identification/profiles and the vulnerability assessment results. The following sections present the hazard-related goals, objectives and actions as prepared by El Cajon's LPG in conjunction with the Hazard Mitigation Working Group, locally elected officials, and local citizens.

5.7.2.1 Goals

The City of El Cajon has developed the following 10 Goals for their Hazard Mitigation Plan (See Attachment A for Goals 9 and 10).

Goal 1. Promote disaster-resistant future development.

Goal 2. Increase public understanding, support and demand for effective hazard mitigation.

Goal 3. Build and support local capacity and commitment to continuously become less vulnerable to hazards.

Goal 4. Improve hazard mitigation coordination and communication with federal, state, local and tribal governments.

"Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to":

Goal 5. Floods.

Goal 6. Wildfires.

Goal 7. Severe Weather (e.g., El Nino Storms, thunderstorms, lightening, tsunamis, and extreme temperatures).

Goal 8. Geological Hazards.

Goal 9. Hazardous Materials.

Goal 10. Other Manmade Hazards.

5.7.2.2 Objectives and Actions

The City of El Cajon developed the following broad list of objectives and actions to assist in the implementation of each of their 10 identified goals. The City of El Cajon developed objectives to assist in achieving their hazard mitigation goals. For each of these objectives, specific actions were developed that would assist in their implementation. A discussion of the prioritization and implementation of the action items is provided in Section 5.7.2.3.

Goal 1: Promote disaster resistant future development.	
Objective 1.A: Encourage and facilitate the development or updating of general plans and zoning ordinances to limit development in hazard areas.	
Action 1.A.1	Recommend update system for the safety element of the General Plan.
Objective 1.B: Encourage and facilitate the adoption of building codes that protect renovated existing assets and new development in hazard areas.	
Action 1.B.1	Adopt and continue to update various uniform codes that pertain to safety issues.
Objective 1.C: Discourage future development that exacerbates hazardous conditions.	
Action 1.C.1	Maintain a mapping system.
Action 1.C.2	Require an Environmental Impact Report to identify degree of risk.
Action 1.C.3	Recommend mitigation to eliminate risks.

Goal 2: Promote public understanding, support and demand for hazard mitigation.	
Objective 2.A: Educate the public to increase awareness of hazards and opportunities for mitigation actions.	
Action 2.A.1	Use established media including web page, newsletter and City correspondence.
Action 2.A.2	Include in public education activities.
Action 2.A.3	Inform the public regarding hazard mitigation.
Objective 2.B: Promote partnerships between the state, counties, local and tribal governments to identify, prioritize, and implement mitigation actions.	
Action 2.B.1	Continue Unified Disaster Council membership.
Action 2.B.2	Promote regional planning with surrounding jurisdictions.
Objective 2.C: Promote hazard mitigation in the business community.	
Action 2.C.1	Provide public education to area service groups.
Action 2.C.2	Explore including hazard mitigation in business license renewal documents.

Goal 3: Build and support local capacity and commitment to continuously become less vulnerable to hazards.	
Objective 3.A: Increase awareness and knowledge of hazard mitigation principles and practices among City employees.	
Action 3.A.1	Train employees in potential hazards.
Objective 3.B: Explore developing a web-based Hazard Mitigation Planning System and provide technical assistance.	
Action 3.B.1	Include on the City website with methods for hazard reporting.

Goal 4: Improve hazard mitigation coordination and communication with federal, state, local and tribal governments.	
Objective 4.A: Establish and maintain closer working relationships with state agencies, local and tribal governments.	
Action 4.A.1	Operate the City's Emergency Operation Center following the Standardized Emergency System (SEMS) and Incident Command System (ICS).
Objective 4.B: Improve the City's capability and efficiency at administering pre- and post-disaster mitigation.	
Action 4.B.1	Participate in the development and execution of Emergency Operations Center (EOC) and table top and functional disaster exercises.

Goal 5: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to floods.	
Objective 5.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to floods.	
Action 5.A.1	Continue to ensure finish floor elevations of new development are at least above the 100 year flood plain.
Action 5.A.2	Continue to require drainage studies for major projects to ensure adequate measures are incorporated and that they do not adversely affect downstream or other surrounding properties.
Action 5.A.3	Continue to periodically evaluate drainage fees to ensure new development pays their fair share of offsite improvements.
Action 5.A.4	Continue to limit uses in floodways to those tolerant of occasional flooding.

Goal 5: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to floods. (continued)	
Action 5.A.5	Continue to design new critical facilities to minimize potential flood damage. Such facilities include those that provide emergency response like hospitals, fire stations, police stations, civil defense headquarters, utility lifelines, and ambulance services. Such facilities also include those that do not provide emergency response but attract large numbers of people, such as schools, theaters, and other public assembly facilities with capacities greater than 100 people.
Objective 5.B: Protect existing assets with the highest relative vulnerability to the effects of floods within the 100-year floodplain.	
Action 5.B.1	Continue to maintain flood control channels and storm drains, in accordance with habitat preservation policies, through periodic dredging, repair, de-silting, and clearing to prevent any loss in their effective use.
Action 5.B.2	Continue to identify and prioritize flood control projects.
Action 5.B.3	Continue to pursue available grant funds for flood control projects.
Action 5.B.4	Continue to participate in the National Flood Insurance Program and requirement to review applications for conformance with NFIP standards.
Objective 5.C: Minimize repetitive losses caused by flooding.	
Action 5.C.1	Continue preventative maintenance and inspection of floodway structures, storm drains, etc. consistent with applicable standards.
Action 5.C.2	Continue to improve drainage courses in an environmentally sensitive manner to eliminate repetitive events.

Goal 6: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to wildfires.	
Objective 6.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to wildfires.	
Action 6.A.1	Continue to require the application of California Fire Code Article 86, pertaining to Fire Protection Plans (FPP). The FPP will provide for 100' of vegetation management (per CA Government Code 51182 and the MOU between the U.S. Fish and Wildlife Service, Calif. Department of Fish and Game, CDF, and the San Diego County Fire Chiefs Association) around all new structures or require equivalent construction methods as determined by a technical fire analysis.

Goal 6: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to <u>wildfires</u>. (continued)	
Action 6.A.2	Continue to ensure that street widths, paving, and grades can accommodate emergency vehicles. Also continue to require 30' of vegetation management on all street segments without improved lots.
Action 6.A.3	Continue to require fire resistant construction materials in all areas.
Objective 6.B: Protect existing assets with the highest relative vulnerability to the effects of wildfires.	
Action 6.B.1	Continue to maintain the City's weed abatement ordinance.
Objective 6.C: Coordinate with and support existing efforts to mitigate wildfire hazards (e.g., US Forest Service, Bureau of Land Management).	
Action 6.C.1	Continue to participate in the California Fire Master Mutual Aid Agreement, the San Diego County Fire Master Mutual Aid Agreement, and the Heartland Zone Automatic Aid Agreement.
Objective 6.D: Maintain adequate emergency response capabilities.	
Action 6.C.1	Continue to evaluate service level impacts and needs as part of the review of major projects.

Goal 7: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to <u>severe weather</u> (e.g., El Nino storms/, thunderstorms, lightening, tsunamis, and extreme temperatures).	
Objective 7.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to severe weather.	
Action 7.A.1	Continue to perform preventative maintenance and inspection of buildings/structures that utilize roof drain inlets, piping and substructures.
Action 7.A.2	Continue to ensure that existing and new storm drain and street capacities are adequate to manage a 100 year flood event.
Action 7.A.3	Continue to ensure that new construction projects include surface drainage management that will preserve the integrity of the facility and public infrastructure.

Goal 7: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to <u>severe weather</u> (e.g., El Nino storms/, thunderstorms, lightening, tsunamis, and extreme temperatures). (continued)	
Objective 7.B: Protect existing assets with the highest relative vulnerability to the effects of weather.	
Action 7.B.1	Continue to provide barricades to identify flooded areas.
Objective 7.C: Address identified data limitations regarding the lack of information about the relative vulnerability of assets from severe weather (e.g., construction type, age, condition, compliance with current building codes, etc.)	

Goal 8: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to <u>geological hazards</u>.	
Objective 8.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to geological hazards.	
Action 8.A.1	Continue to require soil reports and implement its recommendations for projects in identified areas where liquefaction or other soil issues exist.
Action 8.A.2	Continue to review all new construction to ensure conformance with seismic requirements specified in the California Building Code.
Action 8.A.3	Continue to require a preliminary soil report and a report of satisfactory placement of fill prepared by a licensed civil engineer for all buildings and structures supported on fill.
Action 8.A.4	Continue to require a preliminary soil report for a buildings and structures supported on natural ground unless the foundations have been designed in accordance with Table No. 18-1-A of the Building Code.
Action 8.A.5	Evaluate City facilities for seismic stability.
Objective 8.B: Protect existing assets with the highest relative vulnerability to the effects of dam failure.	
Action 8.B.1	Continue to require seismic retrofits for major renovations in accordance with Historic and Building Code provisions.
Action 8.B.2	Continue to utilize the Uniform Building Code for Building Conservation for non-historic buildings.

5.7.2.3 Prioritization and Implementation of Action Items

Once the comprehensive list of jurisdictional goals, objectives, and action items listed above was developed, the proposed mitigation actions were prioritized. This step resulted in a list of acceptable and realistic actions that address the hazards identified in each jurisdiction. This prioritized list of action items was formed by the LPG weighing STAPLEE criteria

The Disaster Mitigation Action of 2000 (at 44 CFR Parts 201 and 206) requires the development of an action plan that not only includes prioritized actions but one that includes information on how the prioritized actions will be implemented. Implementation consists of identifying who is responsible for which action, what kind of funding mechanisms and other resources are available or will be pursued, and when the action will be completed.

The top 11 prioritized mitigation actions as well as an implementation strategy for each are:

Action Item #1: Evaluate security for City-owned facilities and provide plans for protecting assets.

Coordinating Individual/Organization: All City Departments

Potential Funding Source: General Fund, grant money as available

Implementation Timeline: Current and ongoing

Action Item #2: Train employees in potential hazards.

Coordinating Individual/Organization: Fire Department

Potential Funding Source: Fire Department Budget, other sources as needs dictate

Implementation Timeline: 4th Quarter 2004

Action Item #3: Provide public education to area service groups.

Coordinating Individual/Organization: Fire Department

Potential Funding Source: Fire Department Budget, other sources as needs dictate

Implementation Timeline: Ongoing, beginning 4th quarter 2004

Action Item #4: Include hazard mitigation information in business license documents.

Coordinating Individual/Organization: Fire Department, Administrative Services Department

Potential Funding Source: City General Fund, other sources as needs dictate.

Implementation Timeline: Calendar Year January 2005

Action Item #5: Include hazard mitigation information in public education activities

Coordinating Individual/Organization: Fire Department

Potential Funding Source: Fire Department or available grant funds

Implementation Timeline: Ongoing beginning 2nd quarter 2004

Action Item #6: Use established media including web page, newsletter, and City correspondence

Coordinating Individual/Organization: Fire Department, Administrative Services Department.

Potential Funding Source: Fire Department, General Fund, or available grant funds

Implementation Timeline: Current, with expansion planned for future.

Action Item #7: Inform public regarding hazard mitigation activities.

Coordinating Individual/Organization: Fire Department

Potential Funding Source: Fire Department

Implementation Timeline: Current, with expansion planned for future.

Action Item #8: Include on City website methods for hazard reporting.

Coordinating Individual/Organization: Fire Department, Administrative Services Department

Potential Funding Source: General Fund, grant money as available

Implementation Timeline: Fiscal year 2005/2006

Action Item #9: Establish a GIS component in the City's EOC including specific site information.

Coordinating Individual/Organization: Fire Department, Community Development, Administrative Services Department, Police Department

Potential Funding Source: General Fund, grant money as available

Implementation Timeline: Fiscal year 2005/2006

Action Item #10: Improve the City's capability and efficiency at administering pre- and post- disaster mitigation.

Coordinating Individual/Organization: Fire Department, Planning Department, City Manager

Potential Funding Source: None

Implementation Timeline: Complete

Action Item #11: Evaluate all City owned facilities for seismic stability and recommend for mitigation if so dictated.

Coordinating Individual/Organization: City Manager, Building Department

Potential Funding Source: Grant funds as they become available

Implementation Timeline: Five years

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5.8 CITY OF ENCINITAS

The City of Encinitas (Encinitas) reviewed a set of jurisdictional-level hazard maps including detailed critical facility information and localized potential hazard exposure/loss estimates to help identify the top hazards threatening their jurisdiction. In addition, LPGs were supplied with exposure/loss estimates for Encinitas summarized in Table 5.8-1. See Section 4.0 for additional details.

Table 5.8-1
Summary of Potential Hazard-Related Exposure/Loss in Encinitas

		Residential		Commercial		Critical Facilities	
Hazard Type	**Exposed Population**	**Number of Residential Buildings**	**Potential Exposure/ Loss for Residential Buildings (x $1,000)**	**Number of Commercial Buildings**	**Potential Exposure/ Loss for Commercial Buildings (x $1,000)**	**Number of Critical Facilities**	**Potential Exposure for Critical Facilities (x $1,000)**
Coastal Storm / Erosion	699	335	85,674	2	5,958	0	0
Dam Failure	1,016	476	133,785	16	57,618	29	55,486
Earthquake (Annualized Loss - Includes shaking, liquefaction and landslide components)	58,015	21,678	2,498	207	868	93* / 94**	12,842* / 54,905**
Floods (Loss)							
100 Year	1,398	523	17,726	10	8,015	13	23,043
500 Year	1,427	534	18,097	11	8,218	13	23,043
Rain-Induced Landslide							
High Risk	7,982	3,286	870,205	11	61,640	20	123,492
Moderate Risk	417	167	46,539	0	0	1	2,000
Tsunami	704	320	85,060	2	7,172	14	120,558
Wildfire/ Structure Fire							
Extreme	0	0	0	0	0	0	0
Very High	2,268	890	245,656	1	4,054	1	2000
High	1,068	500	139,546	6	25,326	5	2672
Moderate	50,130	18,725	4,852,512	188	930,172	128	932,878

After reviewing the localized hazard maps and exposure/loss table above, the following hazards were identified by the Encinitas LPG as their top five. A brief rational for including each of these is included.

- **Earthquake**: Geographic extent of this hazard is citywide. A greater percentage of the city's population is potentially exposed to this hazard relative to other hazards, and potential losses

from an earthquake would be comparatively larger in most cases. The Rose Canyon Fault lies offshore (2.5 miles west of the city at its closest point) and is capable of generating a magnitude 6.2 to 7.2 earthquake that could potentially damage dwellings and infrastructure throughout the city. A magnitude 6.9 earthquake on the Rose Canyon Fault could potentially result in a peak ground acceleration of .40 within downtown Encinitas and the Coast Highway 101 corridor. These areas of the city are more likely to suffer heavier damage and greater human losses than other parts of the city because of the presence of older buildings (including some unreinforced masonry buildings and apartments constructed prior to 1973) and higher population density.

- **Wildfire**: A significant number of Encinitas residents live within the wildland-urban interface. The geographic extent of this hazard includes the following areas of the city, for the most part: 1) Saxony Canyon; 2) South El Camino Real/Crest Drive; and 3) Olivenhain. Properties in these and other smaller areas are susceptible to wildfire because they are situated near open space and canyons containing heavy fuel loads. Reoccurring periods of low precipitation have increased the risk of wildfires in the region. A greater percentage of the population is potentially exposed to wildfires and potential losses from this hazard are comparatively larger than those associated with a dam failure, flooding, coastal bluff failures or hazardous materials incidents. Recent wildfire events in Encinitas include the Harmony Grove Fire in 1996, which resulted in the loss of three homes and evacuation and sheltering of hundreds of residents.
- **Dam Failure**: The geographic extent of this hazard is limited to the persons and properties within the inundation path surrounding Escondido Creek and San Elijo Lagoon. The dam inundation path is larger than the Escondido Creek 100-year floodway and a greater number of persons and properties are exposed to this hazard compared to coastal bluff failures and flooding. Major arterials within the inundation path include El Camino Del Norte, Rancho Santa Fe Road, Manchester Avenue and Coast Highway 101. The failure of Wohlford Dam (1924) and Dixon Reservoir Dam (1970) could possibly threaten city facilities and infrastructure (San Elijo Water Reclamation Facility, Cardiff and Olivenhain sewer pump stations, San Dieguito Water District 36“ high pressure supply line) and educational facilities (Mira Costa College) located in and adjacent to the inundation path. Although exposure to loss of property is significant, the potential for loss of life is limited because of the length of time before flood wave arrival (approximately 1 ½ hours) allowing for aggressive warning and evacuation measures to be initiated by the city.
- **Coastal Bluff Failures**: Geographic extent of the hazard is limited primarily to the Encinitas coastal sandstone bluffs. Various degrees of coastal bluff erosion occur annually and coastal bluff failures have resulted in limited loss of life. As a result, negotiations with the California Coastal Commission are underway to develop a comprehensive coastal bluff policy towards coastal bluff top development. A smaller percentage of the population is exposed to this hazard relative to earthquakes, wildfires and dam failures and the potential for losses is comparatively less.
- **Flooding**: The geographic extent of this hazard is limited to 1) Encinitas coastline, particularly “Restaurant Row” in Cardiff (south of San Elijo State Beach Campgrounds); 2) Escondido, Encinitas and Cottonwood Creeks; and 3) low-lying areas of Leucadia and Old Encinitas. The city has experienced some property-related losses resulting from localized flooding in Leucadia and coastal flooding in Cardiff, but not loss of life.

5.8.1 Capabilities Assessment

The LPG identified current capabilities available for implementing hazard mitigation activities. The Capability Assessment (Assessment) portion of the jurisdictional mitigation plan identifies administrative, technical, legal and fiscal capabilities. This includes a summary of departments and their responsibilities associated to hazard mitigation planning as well as codes, ordinances, and plans already in place associated to hazard mitigation planning. The second part of the Assessment provides Encinitas' fiscal capabilities that may be applicable to providing financial resources to implement identified mitigation action items.

5.8.1.1 Existing Institutions, Plans, Policies and Ordinances

The following is a summary of existing departments in Encinitas and their responsibilities related to hazard mitigation planning and implementation, as well as existing planning documents and regulations related to mitigation efforts within the community. The administrative and technical capabilities of Encinitas, as shown in Table 5.8-2, provides an identification of the staff, personnel, and department resources available to implement the actions identified in the mitigation section of the Plan. Specific resources reviewed include those involving technical personnel such as planners/engineers with knowledge of land development and land management practices, engineers trained in construction practices related to building and infrastructure, planners and engineers with an understanding of natural or manmade hazards, floodplain managers, surveyors, personnel with GIS skills and scientists familiar with hazards in the community.

Table 5.8-2
City of Encinitas: Administrative and Technical Capacity

Staff/Personnel Resources	Y/N	Department/Agency and Position
A. Planner(s) or engineer(s) with knowledge of land development and land management practices	Y	Planning & Building, Engineering
B. Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Y	Planning & Building, Engineering
C. Planners or Engineer(s) with an understanding of natural and/or manmade hazards	Y	Planning & Building, Engineering
D. Floodplain manager	N	
E. Surveyors	N	
F. Staff with education or expertise to assess the community's vulnerability to hazards	Y	Fire Department, Engineering
G. Personnel skilled in GIS and/or HAZUS	Y	GIS Division, Planning & Building
H. Scientists familiar with the hazards of the community	N	
I. Emergency manager	Y	Fire Department
J. Grant writers	Y	All City Departments

The legal and regulatory capabilities of Encinitas are shown in Table 5.8-3, which presents the existing ordinances and codes that affect the physical or built environment of Encinitas. Examples of legal and/or regulatory capabilities can include: the City's building codes, zoning ordinances, subdivision ordnances, special purpose ordinances, growth management ordinances, site plan review, general plans, capital improvement plans, economic development plans, emergency response plans, and real estate disclosure plans.

Table 5.8-3
City of Encinitas: Legal and Regulatory Capability

Regulatory Tools (ordinances, codes, plans)	Local Authority (Y/N)	Does State Prohibit? (Y/N)
A. Building code	Y	N
B. Zoning ordinance	Y	N
C. Subdivision ordinance or regulations	Y	N
D. Special purpose ordinances (floodplain management, storm water management, hillside or steep slope ordinances, wildfire ordinances, hazard setback requirements)	Y	N
E. Growth management ordinances (also called "smart growth" or anti-sprawl programs)	Y	N
F. Site plan review requirements	Y	N
G. General or comprehensive plan	Y	N
H. A capital improvements plan	Y	N
I. An economic development plan	Y	N
J. An emergency response plan	Y	N
K. A post-disaster recovery plan	N	N
L. A post-disaster recovery ordinance	N	N
M. Real estate disclosure requirements	N	N

5.8.1.2 Fiscal Resources

Table 5.8-4 shows specific financial and budgetary tools available to Encinitas such as community development block grants; capital improvements project funding; authority to levy taxes for specific purposes; fees for water, sewer, gas, or electric services; impact fees for homebuyers or developers for new development; ability to incur debt through general obligations bonds; and withholding spending in hazard-prone areas.

Table 5.8-4
City of Encinitas: Fiscal Capability

Financial Resources	Accessible or Eligible to Use (Yes/No)
A. Community Development Block Grants (CDBG)	Yes
B. Capital improvements project funding	Yes
C. Authority to levy taxes for specific purposes	Yes - Vote Required
D. Fees for water, sewer, gas, or electric service	Yes
E. Impact fees for homebuyers or developers for new developments/homes	Yes
F. Incur debt through general obligation bonds	Yes
G. Incur debt through special tax and revenue bonds	Yes - Vote Required
H. Incur debt through private activity bonds	No
I. Withhold spending in hazard-prone areas	Yes

5.8.2 Goals, Objectives and Actions

Listed below are Encinitas' specific hazard mitigation goals, objectives and related potential actions. For each goal, one or more objectives have been identified that provide strategies to attain the goal. Where appropriate, the City has identified a range of specific actions to achieve the objective and goal.

The goals and objectives were developed by considering the risk assessment findings, localized hazard identification and loss/exposure estimates, and an analysis of the jurisdiction's current capabilities assessment. These preliminary goals, objectives and actions were developed to represent a vision of long-term hazard reduction or enhancement of capabilities. To help in further development of these goals and objectives, the LPG compiled and reviewed current jurisdictional sources including the City's planning documents, codes, and ordinances. In addition, City representatives met with consultant staff and/or OES to specifically discuss these hazard-related goals, objectives and actions as they related to the overall Plan. Representatives of numerous City departments involved in hazard mitigation planning, including Fire, Police, and Public Works provided input to the Encinitas LPG. The Encinitas LPG members were:

- Tom Gallup, Management Analyst II
- J. Alfredo Dichoso, AICP, Associate Planner
- Bryce Wilson, Public Works Management Services Coordinator
- Blair Knoll, Assistant Civil Engineer
- Tom Tufts, Fire Division Chief
- Jennifer Smith, Assistant to the City Manager
- Corina Jimenez, Fire Prevention Tech

Once developed, City staff presented them to the City of Encinitas City Council for their approval.

Public meetings were held throughout the County to present these preliminary goals, objectives and actions to citizens and to receive public input. At these meetings, specific consideration was given to hazard identification/profiles and the vulnerability assessment results. The following sections present the hazard-related goals, objectives and actions as prepared by Encinitas' LPG in conjunction with the Hazard Mitigation Working Group, locally elected officials, and local citizens.

5.8.2.1 Goals

The City of Encinitas has developed the following 9 Goals for their Hazard Mitigation Plan (See Attachment A for Goals 8 and 9).

Goal 1. Promote disaster-resistant future development.

Goal 2. Minimize losses by providing for the prompt resumption of city operations and restoration of city services after a disaster (post-disaster mitigation).

"Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to":

Goal 3. Earthquakes.

Goal 4. Wildfires/Structural Fires.

Goal 5. Dam Failure.

Goal 6. Coastal Bluff Failures.

Goal 7. Floods, Severe Weather and Tsunamis.

Goal 8. Hazardous Materials Releases.

Goal 9. Other Manmade Hazards.

5.8.2.2 Objectives and Actions

The City of Encinitas developed the following broad list of objectives and actions to assist in the implementation of each of their 9 identified goals. The City of Encinitas developed objectives to assist in achieving their hazard mitigation goals. For each of these objectives, specific actions were developed that would assist in their implementation. A discussion of the prioritization and implementation of the action items is provided in Section 5.8.2.3.

Goal 1: Promote disaster resistant future development.	
Objective 1.A: Encourage and facilitate the continuous review and updating of general plans and zoning ordinances to limit development in hazard areas.	
Action 1.A.1	Continue to rely on the Coastal Bluff and Hillside/Inland Bluff Overlay Zones to prevent future development or redevelopment that will represent a hazard to its owners or occupants, and which may require structural measures to prevent destruction erosion or collapse.
Action 1.A.2	Continue to establish and implement standards based on the 50- and 100-year storm, for flood control drainage improvements and the maintenance of such improvements, designed to assure adequate public safety.
Action 1.A.3	Continue to evaluate the effectiveness of the goals that have been developed in the City's Public Safety Element that minimize the risks associated with natural and man-made hazards.
Action 1.A.4	Except as provided in Public Safety Policy 1.1, no development or filling shall be permitted within any 100-year floodplain.
Action 1.A.5	Setbacks, easements, and accesses, necessary to assure that emergency services can function with available equipment, shall be required and maintained.
Action 1.A.6	In areas identified as susceptible to brush or wildfire hazard, the City shall provide for construction standards to reduce structural susceptibility and increase protection.
Objective 1.B: Encourage and facilitate the adoption of building codes and construction requirements that protect renovated existing assets and new development in hazard areas.	
Action 1.B.1	Observe and apply measures to reduce earthquake structural risk through building and construction codes.
Action 1.B.2	New residential and commercial construction shall provide for smoke detector and automatic fire sprinkler systems to reduce the impact of development on service levels.
Action 1.B.3	The roof covering any structure regulated by the municipal code shall be a roof classification no less than a Class A Roof-Covering.
Action 1.B.4	Exterior wall surfacing materials shall be of non-combustible materials.
Objective 1.C: Encourage consistent enforcement of general plans, zoning ordinances, and building codes.	
Action 1.C.1	The City will enforce the Public Safety Element of the City's General Plan which identifies the hazards faced by the City and the appropriate actions and responses needed to be taken by City departments and staff.
Action 1.C.2	Authorize city officials to issue citations where compliance cannot be gained through traditional means, such as written notification.

Goal 1: Promote disaster resistant future development. (continued)	
Action 1.C.3	Authorize city officials to place liens on properties that do not comply with City's weed abatement ordinance.
Objective 1.D: Discourage future development that exacerbates hazardous conditions.	
Action 1.D.1	Development and grading or filling in drainage courses, floodways and floodplains shall be prohibited except as provided by Land Use Element Policy 8.2. An exception may be made upon the finding that strict application of this policy would preclude any reasonable use of property. Exceptions may also be made for development of circulation element roads; necessary water supply projects; flood control projects where no other method for protecting existing structures in the floodplain is feasible and where such protection is necessary for public safety or to protect existing development; developments where the primary function is the improvement of fish and wildlife habitat; and other vital public facilities, but only to the extent that no other feasible alternatives exist, and minimum disruption to the natural floodplain, floodway or drainage course is made. When flood/drainage improvements are warranted, require developers to mitigate flood hazards in those areas identified as being subject to periodic flooding prior to actual development.
Action 1.D.2	Continue to rely on the Coastal Bluff and Hillside/Inland Bluff Overlay Zones to prevent future development or redevelopment that will represent a hazard to its owners or occupants, and which may require structural measures to prevent destruction erosion or collapse.
Objective 1.E: Address identified data limitations regarding the lack of information about new development and build-out potential in hazard areas.	
Action 1.E.1	The City will cooperate with and support in every way possible current Federal, State, and County agencies responsible for the enforcement of health, safety, and environmental laws to obtain Geographic Information System (GIS) data.
Action 1.E.2	Cooperate with the enforcement of disclosure laws requiring all users, producers, and transporters of hazardous materials and wastes to clearly identify such materials at the site and to notify the appropriate local County, State and/or Federal agencies in the event of a violation.

Goal 2: Minimize losses by providing for the prompt resumption of city operations and restoration of city services after a disaster (post-disaster mitigation)
Objective 2.A: Prepare plans and identify resources that facilitate recovery from disasters

Goal 2: Minimize losses by providing for the prompt resumption of city operations and restoration of city services after a disaster (post-disaster mitigation) (continued)	
Action 2.A.1	Evaluate City's policy and procedures (Municipal Code 2.50) concerning the continuity of local government and update, if necessary.
Action 2.A.2	Develop business resumption plan for city operations.
Action 2.A.3	Develop standard operating procedures and checklists for recovery operations for use by the city's emergency management team with the Emergency Operations Center (EOC).
Objective 2.B: Provide training for city officials on managing disaster recovery operations	
Action 2.B.1	Conduct annual disaster exercise.

Goal 3: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure and City-owned facilities, due to earthquakes.	
Objective 3.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to earthquakes.	
Action 3.A.1	As funding becomes available, provide monetary and/or non-monetary incentives for property owners who voluntarily upgrade buildings to provide acceptable performance during an earthquake and adopt cost-effective mitigation techniques for both structural and non-structural elements.
Action 3.A.2	Conduct a seismic safety survey/assessment of city facilities to ensure that heavy furniture and equipment are properly secured.
Action 3.A.3	Establish a task force comprised of business owners, Downtown Encinitas Mainstreet Association (DEMA) representatives and city officials to educate owners about potential safety risks of unreinforced masonry buildings and identify existing low cost options to retrofit unreinforced masonry buildings, such as tax credits and tax preference incentives available for the rehabilitation of historic buildings.
Action 3.A.4	Contingent on funding from San Diego Gas and Electric, continue to underground overhead electrical lines.
Objective 3.B: Protect existing assets with the highest relative vulnerability to the effects of earthquakes.	

Goal 3: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure and City-owned facilities, due to earthquakes. (continued)	
Action 3.B.1	Seismically upgrade Fire Stations #1 and #2 (originally constructed in 1957 and 1960, respectively) to meet existing building codes.
Action 3.B.2	Conduct a seismic survey and seismically upgrade Moonlight Beach Lifeguard Tower, if necessary, to meet existing building codes.
Action 3.B.3	As funding becomes available, evaluate whether mitigation measures are necessary to protect sewer pump stations and San Elijo JPA Water Reclamation facility from seismic events and implement reasonable mitigation measures, if necessary.
Action 3.B.4	As identified in the San Dieguito Water District Master Plan (June 2000), construct a parallel 54-inch joint transmission main to provide water should the existing 54-inch transmission main fail during a seismic event.
Objective 3.C: Coordinate with and support existing efforts to mitigate earthquakes (e.g., California Geological Survey, U.S. Geological Survey).	
Action 3.C.1	Working with Caltrans, determine whether mitigation efforts have been undertaken to ensure Interstate 5 over- and under-crossings are capable of withstanding seismic events in Encinitas and, if necessary, support retrofitting projects.
Action 3.C.2	Working with the North County Transit District, determine whether mitigation efforts have been undertaken to ensure the Encinitas Blvd. rail bridge and San Elijo Lagoon rail trestle bridge are capable of withstanding seismic events and, if necessary, encourage North County Transit District to implement structural improvements and related mitigation measures, such as systems that provide early warning of bridge failures.
Action 3.C.3	Working with Scripps Memorial Hospital, determine whether mitigation efforts have been undertaken to ensure that Scripps Memorial Hospital is capable of withstanding seismic events and, if necessary, encourage Scripps to implement structural improvements related mitigation measures, such as systems that provide early warning of bridge failures.
Action 3.C.4	Encourage federal and state government to provide economic incentives for Encinitas property owners to retrofit unreinforced masonry buildings.
Objective 3.D: Address identified data limitation regarding data limitations and lack of information about the relative vulnerability of assets from earthquakes (e.g., data on structure/building types, reinforcements, etc.).	
Action 3.D.1	Obtain information necessary to evaluate the seismic risk to Civic Center and other government buildings.

Goal 3: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure and City-owned facilities, due to earthquakes. (continued)	
Action 3.D.2	Obtain data on multi-unit buildings whose construction could potentially result in poor seismic performance. These may include apartments constructed with stucco and gypsum board shear walls and truck under parking.
Objective 3.E: Educate citizens about seismic risks, the potential impacts of earthquakes and opportunities for mitigation actions.	
Action 3.E.1	Hold a workshop for Encinitas business owners to educate them about the benefit of retrofitting buildings for improved seismic performance, as well as the possibility of reduced insurance premiums and provide them with loss prevention strategies.
Action 3.E.2	Develop and provide managers of mobile home parks and owners of multi-unit buildings with an earthquake mitigation and safety guide, with information on how to improve the seismic performance of mobile homes and buildings.
Action 3.E.3	Develop a Community Emergency Response Team (CERT) curriculum for training volunteers to provide search and rescue activities. Improved and effective emergency responses will lead to preservation of lives and property.
Action 3.E.4	Increase awareness among at-risk populations of emerging earthquake mitigation technologies.
Objective 3.F: Establish and maintain closer working relationships with federal, state agencies, local governments and special districts.	
Action 3.F.1	Work with the federal and state government to identify potential funding sources for economic and non-economic incentives for property owners to implement mitigation strategies, including but not limited to incentives for the rehabilitation of historic landmarks.
Objective 3.G: Encourage other organizations to incorporate hazard mitigation activities.	
Action 3.G.1	Encourage the Encinitas Union School District, Cardiff Elementary School District and San Dieguito Union High School District to evaluate the seismic risk to schools within Encinitas and implement mitigation measures, if necessary.
Action 3.G.2	Encourage utility companies to evaluate the seismic risk to their high-pressure transmission pipelines and encourage the development of a risk reduction strategy and the implementation of mitigation measures, such as automatic shut off valves, if necessary.

Goal 4: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure and City-owned facilities, due to wildfires/structural fires.	
Objective 4.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to wildfires/structural fires.	
Action 4.A.1	Evaluate the need for an alerting and warning system in the wildland-urban interface and implement a system, if needed and as funding becomes available.
Action 4.A.2	Institute a wildfire hazard reduction pilot project that reduces fuels in high-risk areas.
Action 4.A.3	Continue to enforce the City's weed abatement policy.
Action 4.A.4	Continue to conduct fire safety inspections to reduce the risk of wildfire/structural fire.
Action 4.A.5	As funding becomes available, provide monetary and/or non-monetary incentives for existing property owners who voluntarily install fire suppression ("sprinkler") systems that provide acceptable performance during a structural fire or replace existing shake shingle roofs with Class A roof covering.
Action 4.A.6	Evaluate existing emergency resources (i.e. brush trucks, water tenders) and, if necessary and funding is available, purchase additional resources.
Objective 4.B: Protect existing assets with the highest relative vulnerability to the effects of wildfires/structural fires.	
Action 4.B.1	Evaluate whether mitigation measures are necessary to protect Olivenhain and Cardiff Pump Stations and San Elijo JPA Water Reclamation facility and implement measures, if needed and as funding becomes available.
Action 4.B.2	Evaluate whether mitigation measures are necessary to protect Badger Filtration Plant and implement measures, if needed and as funding becomes available.
Objective 4.C: Coordinate with and support existing efforts to mitigate wildfire hazards (e.g., US Forest Service, Bureau of Land Management).	
Action 4.C.1	Working with other fire agencies, determine whether the purchase and installation of a Remote Automated Weather Station (RAWS) that could facilitate a faster response by providing first responders with fire weather information as quickly as possible.
Action 4.C.2	Working with other fire agencies, support efforts to locate firefighting aircraft within San Diego County.
Objective 4.D: Address identified data limitations regarding the lack of information related to wildfires (e.g., a comprehensive database of California wildfires, a California wildfire risk model, and relative vulnerability of assets).	

Goal 4: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure and City-owned facilities, due to wildfires/structural fires. (continued)	
Action 4.D.1	Utilize FARSITE fire behavior modeling to determine potential impact and institute mitigation measures such as fire breaks to minimize potential losses.
Objective 4.E: Educate citizens about wildfire/structural fire risks, the potential impacts of wildfires/structural fires, their consequences and opportunities for mitigation actions	
Action 4.E.1	Conduct a series of workshops that educate residents about wildfire defensible space actions and make them aware of possible reductions in insurance premiums for implementing mitigate strategies.
Action 4.E.2	Hold a workshop for Encinitas business owners to educate them about the benefit of installing fire suppression systems and provide them with loss prevention strategies.
Action 4.E.3	Develop a Community Emergency Response Team (CERT) curriculum for training volunteers to assist evacuation efforts in their neighborhoods. Improved and effective emergency responses will lead to preservation of lives and property. Develop a Community Emergency Response Team (CERT) curriculum for training volunteers to assist evacuation efforts in their neighborhoods. Improved and effective emergency responses will lead to preservation of lives and property.
Action 4.E.4	Establish a partnership with local nurseries, Quail Botanical Gardens and the region's Fire Safe Council to promote fire resistant landscaping as a mitigation tool for wildfires. As funding becomes available, possibly offer incentives, such as rebates or reduced prices, on fire resistant groundcover, shrubs and trees.
Objective 4.F: Establish and maintain closer working relationships with federal, state agencies, local governments and special districts.	
Action 4.F.1	Work with the federal and state government to identify potential funding sources for economic and non-economic incentives for property owners to implement mitigation strategies.

Goal 5: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to dam failure.	
Objective 5.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to dam failure.	
Action 5.A.1	As funding becomes available, possibly implement an alerting and warning system for residents within the dam inundation path.

Goal 5: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to dam failure. (continued)	
Action 5.A.2	Conduct a functional disaster exercise involving city staff and participants from Mira Costa Community College and San Elijo JPA.
Objective 5.B: Protect existing assets with the highest relative vulnerability to the effects of dam failure.	
Action 5.B.1	Evaluate whether mitigation measures are necessary to protect Olivenhain and Cardiff Pump Stations and San Elijo JPA Water Reclamation facility and implement measures, if needed and as funding becomes available.
Action 5.B.2	Evaluate whether mitigation measures are necessary to protect the San Dieguito Water District's 36" high pressure supply line and implement measures, if needed and as funding becomes available.
Objective 5.C: Coordinate with and support existing efforts to mitigate dam failures (e.g., US Army Corps of Engineers, US Bureau of Reclamation, San Diego County Department of Water Resources).	
Action 5.C.1	Continue to participate in Wohlford Dam failure tabletop disaster exercises with City of Escondido.
Objective 5.D: Address identified data limitations regarding the lack of information about the relative vulnerability of assets from dam failure.	
Action 5.D.1	Ensure that City has adequate information so that areas subject to inundation can be identified.
Action 5.D.2	Working with Kinder Morgan Energy Partners, obtain information necessary to evaluate the risk to the 16" petroleum pipeline from a dam failure and encourage the development a risk reduction strategy, if necessary.
Objective 5.E: Educate citizens about dam failure risk, the potential impacts of a dam failure and opportunities for mitigation actions.	
Action 5.E.1	Develop a mitigation and safety brochure for distribution to properties within the dam inundation path.
Objective 5.F: Establish and maintain closer working relationships with federal, state agencies, local governments and special districts	
Action 5.F.1	Work with County Flood Control District to ensure that the City has access to and receives flood gauge information for Escondido Creek in a timely manner.
Objective 5.G: Encourage other organizations to incorporate hazard mitigation activities.	

Goal 5: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to dam failure. (continued)	
Action 5.G.1	Encourage City of Escondido to assess vulnerability of Wohlford Dam and implement mitigation strategies, if necessary.
Action 5.G.2	Encourage Mira Costa College to implement mitigation activities for dam failure, if necessary.

Goal 6: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to coastal bluff failures.	
Objective 6.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to coastal bluff failures.	
Action 6.A.1	Continue to develop and adopt a comprehensive plan, based on the Beach Bluff Erosion Technical Report, to address the coastal bluff recession and shoreline erosion problems in the City.
Action 6.A.2	Continue to support and encourage sand replenishment on Encinitas shoreline.
Objective 6.B: Protect existing assets with the highest relative vulnerability to the effects of coastal bluff failures.	
Action 6.B.1	Protect beach by encouraging property owners to implement mitigation measures (such as "de-watering operations) that protect coastal bluffs.
Objective 6.C: Coordinate with and support existing efforts to mitigate coastal bluff failures (e.g., California Geological Survey, US Geological Survey).	
Action 6.C.1	Coordinate with Army Corp of Engineers to further develop a shoreline preservation strategy.
Objective 6.D: Address identified data limitations regarding the lack of information about the relative vulnerability of assets from coastal bluff failures (e.g., data on structure/building types, reinforcements, etc.).	
Action 6.D.1	Support a groundwater study of the Encinitas coast.
Objective 6.E: Educate citizens about coastal bluff failure risk, the potential impacts of a coastal bluff failure and opportunities for mitigation actions.	
Action 6.E.1	Provide information on coastal bluff failures and mitigation strategies on the city's web site.

Goal 7: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to floods, severe weather and tsunamis.	
Objective 7A: Develop a comprehensive approach to reducing the possibility of damage and losses due to floods, severe weather and tsunamis.	
Action 7A.1	Establish and implement standards based on the 50- and 100-year storm, for flood control drainage improvements, and the maintenance of such improvement, designed to assure adequate public safety.
Action 7A.2	Develop a master plan for drainage and flood control.
Action 7A.3	Evaluate the feasibility of realigning Coast Highway 101 to minimize repetitive losses due to coastal flooding.
Action 7A.4	Complete Leucadia Drainage Project.
Action 7A.5	Discuss evacuation procedures for San Elijo State Beach campground with State of California Department of Parks and Recreation and Sheriff's Department.
Action 7A.6	Implement an alert and warning system for a tsunami, as funding becomes available.
Action 7A.7	Participate in the National Weather Service Storm Ready Program.
Action 7A.8	Develop an emergency response plan for flooding (i.e. sandbagging operations, use of vaccon).
Objective 7B: Protect existing assets with the highest relative vulnerability to the effects of floods, severe weather and tsunamis.	
Action 7.B.1	Evaluate whether mitigation measures are necessary to protect Olivenhain and Cardiff Pump Stations and implement mitigation measures, if needed and as funding becomes available.
Action 7.B.2	Create a plan that provides for back up generator power for sewer pump stations.
Action 7.B.3	Evaluate whether mitigation measures are necessary to protect the Moonlight Beach Lifeguard Headquarters and implement mitigation measures, if needed and as funding becomes available.
Action 7.B.4	Provide city facilities with NOAA Weather Radios with specific area message encoding that provides flood, severe weather and tsunami watches/warnings.
Action 7.B.5	Add storm protection rip-rap on South Coast Highway 101 in Cardiff–by-the-Sea to protect the road.
Objective 7C: Coordinate with and support existing efforts to mitigate floods, severe weather and tsunamis (e.g., US Army Corps of Engineers, US Bureau of Reclamation, San Diego County Department of Water Resources, National Weather Service).	

Goal 7: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to <u>floods, severe weather and tsunamis</u>. (continued)	
Action 7.C.1	Working with U.S. Army Corps of Engineers, support the opening of the San Elijo Lagoon mouth as a means of mitigating floods.
Action 7.C.2	Working with the National Weather Service, recruit local storm spotters.
Action 7.C.3	Working with Army Corp of Engineers, reevaluate the need for developing a drainage maintenance program.
Objective 7D: Address identified data limitations regarding the lack of information about relative vulnerability of assets from floods (e.g., Q3/digital floodplain maps for missing counties), severe weather (e.g., construction type, age, condition, compliance with current building codes, etc.), and tsunamis.	
Action 7.D.1	Ensure that City has adequate information so that areas subject to flood and tsunami run-up can be identified.
Objective 7E: Educate citizens about flood, severe weather and tsunami risk, the potential impacts of floods, severe weather and tsunamis and opportunities for mitigation actions.	
Action 7.E.1	Continue to participate in the National Weather Service's Storm Ready Program and provide residents with mitigation strategies during annual winter weather workshops.
Action 7.E.2	Develop a tsunami preparedness brochure for distribution to properties within tsunami run-up areas.
Objective 7F: Establish and maintain <u>closer working relationships</u> with federal, state agencies, local governments and special districts	
Action 7.F.1	Work with County Flood Control District to ensure that the City has access to and receives flood gauge/alert information in a timely manner.

5.8.2.3 Prioritization and Implementation of Action Items

Once the comprehensive list of jurisdictional goals, objectives, and action items listed above was developed, the proposed mitigation actions were prioritized. This step resulted in a list of acceptable and realistic actions that address the hazards identified in each jurisdiction. This prioritized list of action items was formed by the LPG weighing STAPLEE criteria

The Disaster Mitigation Action of 2000 (at 44 CFR Parts 201 and 206) requires the development of an action plan that not only includes prioritized actions but one that includes information on how the prioritized actions will be implemented. Implementation consists of identifying who is responsible for

which action, what kind of funding mechanisms and other resources are available or will be pursued, and when the action will be completed.

The top 10 prioritized mitigation actions as well as an implementation strategy for each are:

Priority Action #1: Seismically upgrade Fire Stations #1 and #2 (originally constructed in 1957 and 1960, respectively) to meet existing building codes.

Coordinating Individual/Organization: Fire Department

Potential Funding Source: General Fund

Implementation Timeline: July 2004 – May 2009

Priority Action #2: As identified in the San Dieguito Water District Master Plan (June 2000), construct a parallel 54-inch joint transmission main to provide water should the existing 54-inch transmission main fail during a seismic event.

Coordinating Individual/Organization: San Dieguito Water District

Potential Funding Source: District Fund

Implementation Timeline: July 2004 – May 2009

Priority Action #3: Institute a wildfire hazard reduction pilot project that reduces fuels in high-risk areas.

Coordinating Individual/Organization: Fire Department

Potential Funding Source: General Fund and Hazard Mitigation Grant Program (HMGP) funding

Implementation Timeline: July 2004 – May 2009

Priority Action #4: Conduct a series of workshops that educate residents about wildfire defensible space actions and make them aware of possible reductions in insurance premiums for implementing mitigate strategies.

Coordinating Individual/Organization: Fire Department

Potential Funding Source: General Fund

Implementation Timeline: July 2004 – May 2009

Priority Action #5: Develop and provide managers of mobile home parks and owners of multi-unit buildings with an earthquake mitigation and safety guide, with information on how to improve the seismic performance of mobile homes and buildings.

Coordinating Individual/Organization: Fire Department

Potential Funding Source: General Fund

Implementation Timeline: July 2004 – May 2009

Priority Action #6: Establish a task force comprised of business owners, Downtown Encinitas Mainstreet Association (DEMA) representatives and city officials to educate owners about potential safety risks of unreinforced masonry buildings and identify existing low cost options to retrofit unreinforced masonry buildings, such as tax credits and tax preference incentives available for the rehabilitation of historic buildings.

Coordinating Individual/Organization: Fire Department

Potential Funding Source: General Fund and Hazard Mitigation Grant Program (HMGP) funding

Implementation Timeline: July 2004 – May 2009

Priority Action #7: Develop a Community Emergency Response Team (CERT) curriculum for training volunteers to assist evacuation efforts in their neighborhoods. Improved and effective emergency responses will lead to preservation of lives and property

Coordinating Individual/Organization: Fire Department

Potential Funding Source: General Fund

Implementation Timeline: July 2004 – May 2009

Priority Action #8: As funding becomes available, conduct a study to determine the types and amounts of materials transported by rail through the City.

Coordinating Individual/Organization: Fire Department

Potential Funding Source: General Fund and Hazardous Materials Emergency Preparedness (HMEP) grant funding

Implementation Timeline: July 2004 – May 2009

Priority Action #9: Develop business resumption plan for city operations.

Coordinating Individual/Organization: Information Technology Division/City Clerk/Fire Department

Potential Funding Source: General Fund

Implementation Timeline: July 2004 – May 2009

Priority Action #10: Develop standard operating procedures and checklists for recovery operations for use by the city's emergency management team with the Emergency Operations Center (EOC).

Coordinating Individual/Organization: Fire Department

Potential Funding Source: General Fund

Implementation Timeline: July 2004 – May 2009

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5.9 CITY OF ESCONDIDO

The City of Escondido (Escondido) reviewed a set of jurisdictional-level hazard maps including detailed critical facility information and localized potential hazard exposure/loss estimates to help identify the top hazards threatening their jurisdiction. In addition, LPGs were supplied with exposure/loss estimates for Escondido summarized in Table 5.9-1. See Section 4.0 for additional details.

Table 5.9-1
Summary of Potential Hazard-Related Exposure/Loss in Escondido

		Residential		Commercial		Critical Facilities	
Hazard Type	**Exposed Population**	**Number of Residential Buildings**	**Potential Exposure/ Loss for Residential Buildings (x $1,000)**	**Number of Commercial Buildings**	**Potential Exposure/ Loss for Commercial Buildings (x $1,000)**	**Number of Critical Facilities**	**Potential Exposure for Critical Facilities (x $1,000)**
Coastal Storm / Erosion	0	0	0	0	0	0	0
Dam Failure	86,360	12,393	3,834,476	424	1,561,872	141	391,069
Earthquake (Annualized Loss - Includes shaking, liquefaction and landslide components)	133,666	31,374	3,142	409	1,488	156/ 156	2,849/ 15,693
Floods (Loss)							
100 Year	11,304	2,654	53,299	61	20,072	14	11,889
500 Year	28,792	6,758	166,712	115	48,338	48	47,627
Rain-Induced Landslide							
High Risk	0	0	0	0	0	0	0
Moderate Risk	15,158	5,880	1,406,240	40	421,612	23	55,549
Tsunami	0	0	0	0	0	0	0
Wildfire/ Structure Fire							
Extreme	0	0	0	0	0	0	0
Very High	988	485	107,309	1	7,190	8	14,781
High	2,332	925	175,972	4	30,008	7	19,966
Moderate	127,927	29,056	7,815,012	401	1,842,766		

* Represents 100-year earthquake value under three earthquake scenarios (shake only, shake and liquefaction, and shake and landslide).

** Represents 500-year earthquake value under three earthquake scenarios (shake only, shake and liquefaction, and shake and landslide).

After reviewing the localized hazard maps and exposure/loss table above, the following hazards were identified by the Escondido LPG as their top five. A brief rational for including each of these is included.

- **Wildland Fire**: A significant amount of the community fringe area is wildland/urban interface and fires have been experienced in the past.

- **Earthquake**: The potential for loss of life, injuries and damage to property, as well as disruption of services, is significant.
- **Hazardous Materials**: Two major freeways pass through the community. The community also hosts several fixed facilities that utilize hazardous material.
- **Flooding or Dam Failure**: The community lies in a natural river valley with a substantial portion existing within the floodplain. There are two large dammed reservoirs located above the community.
- **Terrorism or Other Manmade Events**: Current and expected geopolitical realities create concern for the vulnerability of community assets and infrastructure.

5.9.1 Capability Assessment

The LPG identified current capabilities available for implementing hazard mitigation activities. The Capability Assessment (Assessment) portion of the jurisdictional mitigation plan identifies administrative, technical, legal and fiscal capabilities. This includes a summary of departments and their responsibilities associated to hazard mitigation planning as well as codes, ordinances, and plans already in place associated to hazard mitigation planning. The second part of the Assessment provides Escondido's fiscal capabilities that may be applicable to providing financial resources to implement identified mitigation action items.

5.9.1.1 Existing Institutions, Plans, Policies and Ordinances

The following is a summary of existing departments in Escondido and their responsibilities related to hazard mitigation planning and implementation, as well as existing planning documents and regulations related to mitigation efforts within the community. The administrative and technical capabilities of Escondido, as shown in Table 5.9-2, provides an identification of the staff, personnel, and department resources available to implement the actions identified in the mitigation section of the Plan. Specific resources reviewed include those involving technical personnel such as planners/engineers with knowledge of land development and land management practices, engineers trained in construction practices related to building and infrastructure, planners and engineers with an understanding of natural or manmade hazards, floodplain managers, surveyors, personnel with GIS skills and scientists familiar with hazards in the community.

- City of Escondido Fire Department
  - Administration*:* Develop, implement and monitor policies, procedures, budgets, fees, automatic aid agreements, mutual aid agreements, and liaison with other city departments and outside agencies.
  - Fire Prevention Bureau: Coordinate adoption of codes and ordinances, review site and building plans for fire code compliance, develop and present public education programs and manage the city's weed abatement program.
  - Emergency Medical Services: Manage the department's paramedic and EMT programs, respond to medical emergencies and other calls for service, provide training and oversight for

the City's Public Access Defibrillation (PAD) program and participate with other community and regional health care providers to reduce public illness and injury.

- Suppression Division: Maintain the department's personnel, apparatus, equipment and fire stations in a state of readiness to respond to the community's needs, develop and implement standard operating procedures for various types of emergency responses, respond to all types of emergencies, and train and interact with neighboring jurisdictions and regional agencies.
- Emergency Management: Coordinate the City's Disaster Preparedness Program, liaison with all City departments and divisions, as well as other public and private organizations, develop, coordinate and implement hazard-specific response plans, and maintain the operational readiness of the City's Emergency Management Team, the E.O.C. and other key elements.

- City of Escondido Building Department
  - Coordinate adoption of building, plumbing, electrical, and mechanical codes. Develop building ordinances.
  - Review site and building plans for compliance with building codes and ordinances.
  - Damage assessment of structures from multiple causes to facilitate repair and future occupancy.
- City of Escondido Planning Department
  - Develop and maintain city general plan, zoning ordinances and development standards.
  - Oversight of city development process assuring compliance with zoning and general plan, and including environmental impact reports, design review, historic preservation, landscape review, habitat conservation, floodway prohibitions and floodplain development standards.
- City of Escondido Public Works Department
  - Maintains city infrastructure (assets) ranging from streets to parks to buildings and vehicle fleet.
  - Responds to city emergencies, includes EOC response in disasters and assisting police and fire departments with hazardous materials clean up, traffic and perimeter control efforts, traffic accident clean up and evacuation routing.
  - Operates, maintains and enhances both the water distribution and sewer collection systems within the City of Escondido. Also has oversight of solid waste management.
  - Responsible for planning and implementation associated with the following city plans:

    1.1.1 Wohlford Dam Emergency Action Plan

    1.1.2 Water Quality Emergency Notification Plan

    1.1.3 Water Operations Emergency Response Guide

    1.1.4 Water Division Emergency Response Plan

    1.1.5 HARRF Chemical Spill Response Plan

    1.1.6 HARRF Hazmat Business Plan

    1.1.7 Sewer Overflow Response Plan

1.1.8 Sewer Overflow Prevention Plan

1.1.9 WTP Hazmat Business Plan

1.1.10 WTP Operations Plan

- City of Escondido Engineering Department
  - Reviews engineering on private and public grading, floodways, retention basins, transportation infrastructure and structures to assure compliance with Federal, State and local ordinances on seismic and structural stability.
  - Develops engineering ordinances and policies that help protect and preserve city infrastructure.
  - Evaluates all circulation elements for projected traffic impacts.
  - Determines needed infrastructure improvements, water system and water/sewer treatment capabilities.
  - Provides response personnel for evaluation of damaged infrastructure and rescue situations.
  - Responds as part of the City's EOC Team.
  - Coordinates other response agencies assisting with damage assessment.
- City of Escondido Police Department
  - Responds to safety concerns involving threats and/or damage to life or property. Acts as the enforcement entity for violations of State and local laws and ordinances.
  - Primary emergency responders to acts of civil disobedience and public disorders and terrorism. Support personnel for emergency rescue and management.
  - Investigative services for criminal acts that result in personal injury/death and the destruction of property.
  - Develops and implements emergency response plans and policies, focusing on evacuation procedures and traffic control.
  - Primary responders to acts of terrorism, focusing on suspect intervention and facility and staff protection.

Table 5.9-2
City of Escondido: Administrative and Technical Capacity

Staff/Personnel	Y/N	Department/Agency and Position
A. Planner(s) or engineer(s) with knowledge of land development and land management practices	Y	Planning, Community Development, Public Works
B. Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Y	Engineering, Community Development
C. Planners or Engineer(s) with an understanding of natural and/or manmade hazards	Y	Engineering, Planning
D. Floodplain manager	Y	Engineering, Public Works
E. Surveyors	Y	Engineering, Public Works
F. Staff with education or expertise to assess the community's vulnerability to hazards	Y	Engineering, Planning, Fire, Public Works
G. Personnel skilled in GIS and/or HAZUS	Y	G.I.S.
H. Scientists familiar with the hazards of the community	Y - limited	
I. Emergency manager	Y – limited	Fire
J. Grant writers	N	

The legal and regulatory capabilities of Escondido are shown in Table 5.9-3, which presents the existing ordinances and codes that affect the physical or built environment of Escondido. Examples of legal and/or regulatory capabilities can include: the City's building codes, zoning ordinances, subdivision ordnances, special purpose ordinances, growth management ordinances, site plan review, general plans, capital improvement plans, economic development plans, emergency response plans, and real estate disclosure plans.

Table 5.9-3
City of Escondido: Legal and Regulatory Capability

Regulatory Tools (ordinances, codes, plans)	Local Authority (Y/N)	Does State Prohibit (Y/N)
A. Building code	Y	N
B. Zoning ordinance	Y	N
C. Subdivision ordinance or regulations	Y	N
D. Special purpose ordinances (floodplain management, storm water management, hillside or steep slope ordinances, wildfire ordinances, hazard setback requirements)	Y	N
E. Growth management ordinances (also called "smart growth" or anti-sprawl programs)	Y	N
F. Site plan review requirements	Y	N
G. General or comprehensive plan	Y	N
H. A capital improvements plan	Y	N
I. An economic development plan	Y	N
J. An emergency response plan	Y	N
K. A post-disaster recovery plan	N	N
L. A post-disaster recovery ordinance	?	?
M. Real estate disclosure requirements	Y	N
N. Other – Habitat Planning	Y	N
O. Other – Emergency Action Plan for Wohlford Dam	Y	N
P. Other – Hazardous Material Site Plans	Y	N
Q. Other – Drainage Master Plan	Y	N

5.9.1.2 Fiscal Resources

Table 5.9-4 shows specific financial and budgetary tools available to Escondido such as community development block grants; capital improvements project funding; authority to levy taxes for specific purposes; fees for water, sewer, gas, or electric services; impact fees for homebuyers or developers for new development; ability to incur debt through general obligations bonds; and withholding spending in hazard-prone areas.

Table 5.9-4
City of Escondido: Fiscal Capability

Financial Resources	Accessible or Eligible to Use (Yes/No)
A. Community Development Block Grants (CDBG)	Qualified – Income Requirements
B. Capital improvements project funding	Yes
C. Authority to levy taxes for specific purposes	Limited
D. Fees for water, sewer, gas, or electric service	Yes
E. Impact fees for homebuyers or developers for new developments/homes	Yes
F. Incur debt through general obligation bonds	Yes
G. Incur debt through special tax and revenue bonds	Yes
H. Incur debt through private activity bonds	UK
I. Withhold spending in hazard-prone areas	Yes
J. Other – SANDAG Grant	Yes
K. Other – Other Grants	Yes

5.9.2 Goals, Objectives and Actions

Listed below are Escondido's specific hazard mitigation goals, objectives and related potential actions. For each goal, one or more objectives have been identified that provide strategies to attain the goal. Where appropriate, the City has identified a range of specific actions to achieve the objective and goal.

The goals and objectives were developed by considering the risk assessment findings, localized hazard identification and loss/exposure estimates, and an analysis of the jurisdiction's current capabilities assessment. These preliminary goals, objectives and actions were developed to represent a vision of long-term hazard reduction or enhancement of capabilities. To help in further development of these goals and objectives, the LPG compiled and reviewed current jurisdictional sources including the City's planning documents, codes, and ordinances. In addition, City representatives met with consultant staff and/or OES to specifically discuss these hazard-related goals, objectives and actions as they related to the overall Plan. Representatives of numerous City departments involved in hazard mitigation planning, including Fire, Police, and Public Works provided input to the Escondido LPG. The Escondido LPG members were:

- Vic Reed, Fire Chief
- Neil Hobbs, Deputy Fire Chief
- Chuck Milks, Police Lt.
- John Brindle, Asst. Planning Dir.
- Joe Russo, Building Official
- Mike Emberton, Deputy Dir. Of Public Works

- Steve Hughes, Environmental Program Mgr.
- Dan Hildebrand, GIS Analyst
- Angela Froelich, Principal Engineer
- Richard Walker, Water Treatment Plant Mgr.
- Carol Rea, Public Ed. Officer

Once developed, City staff presented them to the City of Escondido City Council for their approval.

Public meetings were held throughout the County to present these preliminary goals, objectives and actions to citizens and to receive public input. At these meetings, specific consideration was given to hazard identification/profiles and the vulnerability assessment results. The following sections present the hazard-related goals, objectives and actions as prepared by Escondido's LPG in conjunction with the Hazard Mitigation Working Group, locally elected officials, and local citizens.

5.9.2.1 Goals

The City of Escondido has developed the following 10 Goals for their Hazard Mitigation Plan (See Attachment A for Goals 9 and 10).

Goal 1. Promote disaster-resistant future development.

Goal 2. Increase public understanding, support and demand for effective hazard mitigation.

Goal 3. Build and support local capacity and commitment to continuously become less vulnerable to hazards.

Goal 4. Improve hazard mitigation coordination and communication with federal, state, local and tribal governments.

"Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to":

Goal 5. Floods and Severe Weather.

Goal 6. Wildfires.

Goal 7. Dam Failure.

Goal 8. Geological Hazards.

Goal 9. Extremely Hazardous Materials Releases.

Goal 10. Other Manmade Hazards.

5.9.2.2 Objectives and Actions

The City of Escondido developed the following broad list of objectives and actions to assist in the implementation of each of their 11 identified goals. The City of Escondido developed objectives to assist in achieving their hazard mitigation goals. For each of these objectives, specific actions were developed that would assist in their implementation. A discussion of the prioritization and implementation of the action items is provided in Section 5.9.2.3.

Goal 1: Promote disaster resistant future development.	
Objective 1.A: Implement zoning ordinances that limit development in hazard areas.	
Action 1.A.1	Continue to apply slope variable density requirements and restrict development on slopes in excess of 35% and in floodways.
Action 1.A.2	Continue to limit the number of units in areas beyond adopted emergency response times.
Objective 1.B: Encourage and facilitate the adoption of building codes that protect renovated existing assets and new development in hazard areas.	
Action 1.B.1	Continue to require that building pad elevations be increased for new construction and substantial modifications in Dam Failure inundation areas. (Ex. E. Valley Pkwy at Rose)
Action 1.B.2	Continue to require the application of present day building codes that address earthquake design requirements. (Ex. Chapter 16 CBC, Seismic Zone, proximity to and the type of fault.)
Action 1.B.3	Continue to obtain U.S. Army Corps of Engineers approval of construction in flood sensitive areas. (Ex. Brookside Dev)
Action 1.B.4	Continue to update the Grading Ordinance as necessary to comply with new technologies, regulations, and practices.
Action 1.B.5	Continue to utilize current Standard Specifications for Public Works Construction and the Regional Amendments which encourage materials and practices that resist failure.
Objective 1.C: Encourage consistent enforcement of general plans, zoning ordinances, and building codes.	
Action 1.C.1	Continue aggressive enforcement to insure all projects are properly permitted and inspected to document compliance with all city standards.
Objective 1.D: Discourage future development that exacerbates hazardous conditions.	
Action 1.D.1	Continue to require minimum brush clearance requirements around new construction.

Goal 2: Increase public understanding, support, and demand for hazard mitigation. (continued)	
Objective 2.A: Educate the public to increase awareness of hazards and opportunities for mitigation actions.	
Action 2.A.1	Continue to utilize Emergency Preparedness Month (April) to issue a City Council Proclamation and issue press releases to local media regarding hazard mitigation methods.
Action 2.A.2	Continue to assist local mobile home parks with their community preparedness plans, including regular presentations at meetings of park residents.
Action 2.A.3	Continue to offer hazard awareness and mitigation displays at bi-annual Community Street Fairs, fire station open houses, in library display cases, at health fairs, and other venues.
Action 2.A.4	Continue to support local Rotary Club efforts to develop and maintain "Safety Town" as a venue for teaching all ages about a spectrum of fire and life safety issues.
Action 2.A.5	Continue to use the Fire Department website as a resource for public use to include mitigation methods for a variety of hazards.
Objective 2.B: Promote partnerships between the state, county, and local governments to identify, prioritize, and implement mitigation actions.	
Action 2.B.1	Continue to assist in the development, support, and promotion of a statewide juvenile fire setter coalition that will work with the State Fire Marshal's Office to reduce the incidence of juvenile-set fires.
Action 2.B.2	Continue to use and expand the number of links on Fire Department website to state, county, and federal website hazard mitigation resources.
Action 2.B.3	Continue to maintain communications with County OES in order to address potential hazard situations from a public education perspective.
Objective 2.C: Promote hazard mitigation in the business community.	
Action 2.C.1	Continue to utilize the fire department's fire prevention inspection program to educate business owners and managers regarding hazard mitigation.
Action 2.C.2	Continue to offer Fire Safety in the Workplace/Fire Extinguisher Training to businesses.
Objective 2.D: Monitor and publicize the effectiveness of mitigation actions implemented citywide.	
Action 2.D.1	Continue to issue media releases regarding the City's successful hazard mitigation efforts.
Objective 2.E: Discourage activities that exacerbate hazardous conditions.	

Goal 2: Increase public understanding, support, and demand for hazard mitigation. (continued)	
Action 2.E.1	Continue the current Juvenile Fire setter Intervention Program to provide intervention for juveniles determined to have demonstrated an interest in playing with and/or setting fires.
Action 2.E.2	Continue to create and show Public Service Announcements on local government cable channel that demonstrate and encourage hazard correction.

Goal 3: Build and support local capacity and commitment to continuously become less vulnerable to hazards.	
Objective 3.A: Increase awareness and knowledge of hazard mitigation principles and practices among state and local officials.	
Action 3.A.1	Continue periodic updates of local building codes, public works construction codes, zoning and grading ordinances to reflect legislative changes.
Action 3.A.2	Continue to assess and mitigate potentially significant hazards as part of the required environmental review process.
Action 3.A.3	Continue to conduct EOC training annually.

Goal 4: Improve hazard mitigation coordination and communication with federal, state, local and tribal governments.	
Objective 4.A: Establish and maintain close working relationships with state agencies, local and tribal governments.	
Action 4.A.1	Continue to participate in regional hazard mitigation activities as a member of the San Diego County Unified Disaster Council.
Action 4.A.2	Continue to maintain good working relationships with the San Diego County Water Authority and neighboring water agencies.
Action 4.A.3	Continue to maintain good working relationships with the American Red Cross, the Salvation Army, local churches and other agencies that provide for public assistance and training.
Objective 4.B: Encourage other organizations to incorporate hazard mitigation activities.	
Action 4.B.1	Continue to assist local entities, such as the Escondido Union Elementary School District, the Escondido Union High School District, Palomar Medical Center and others, in developing plans for hazard mitigation and disaster preparedness.

Goal 5: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure and City-owned facilities, due to <u>floods and severe weather</u>.	
Objective 5.A: Ensure new development is properly located and conditioned to avoid flooding.	
Actions 5.A.1	Continue to ensure finish floor elevations of new development are at least one foot above the 100-year flood plain.
Actions 5.A.2	Continue to require drainage studies for major projects to ensure adequate measures are incorporated and that they do not adversely affect downstream or other surrounding properties.
Actions 5.A.3	Continue to periodically evaluate drainage fees to ensure new development pays their fair share for offsite improvements.
Actions 5.A.4	Continue to limit uses in floodways to those tolerant of occasional flooding, including but not limited to agriculture, outdoor recreation and natural resource areas.
Actions 5.A.5	Continue to design new critical facilities to minimize potential flood damage. Such facilities include those that provide emergency response like hospitals, fire stations, police stations, civil defense headquarters, utility lifelines, ambulance services, and sewer treatment plants. Such facilities also include those that do not provide emergency response but attract large numbers of people, such as schools, theatres, and other public assembly facilities with capacities greater than 100 persons.
Objective 5.B: Protect existing assets with the highest relative vulnerability to the effects of floods within the 100-year floodplain and severe weather.	
Action 5.B.1	Continue to require Development Agreements for new projects within the North Broadway critical infrastructure deficiency areas to secure necessary flood control measures.
Action 5.B.2	Continue to maintain flood control channels and storm drains, in accordance with habitat preservation policies, through periodic dredging, repair, de-silting, and clearing to prevent any loss in their effective use.
Action 5.B.3	Continue to identify and prioritize flood control projects in the CIP.
Action 5.B.4	Continue to pursue available grant funds for flood control projects.
Action 5.B.5	Continue to participate in the National Flood Insurance Program and requirement to review applications for conformance with NFIP standards.
Action 5.B.6	Continue to provide public support by maintaining supplies of sand and sandbags to mitigate flooding.

Goal 5: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure and City-owned facilities, due to floods and severe weather. (continued)	
Action 5.B.7	Continue to provide barricades to identify flooded areas.
Objective 5.C: Minimize repetitive losses caused by flooding and severe weather.	
Action 5.C.1	Continue preventative maintenance and inspection of floodway structures, storm drains, etc. consistent with applicable regulations.
Action 5.C.2	Continue to improve drainage courses in an environmentally sensitive manner to eliminate repetitive events (e.g. Reidy Creek at El Norte).
Action 5.C.3	Continue to work with Regional Storm Water Control Board to develop best management practices from a regional perspective.
Action 5.C.4	Continue to improve road flooding problems by constructing permanent drainage structures as approved and funded in the City's Capital Improvement (CIP) Budget.
Objective 5.D: Develop a comprehensive approach to reducing the possibility of damage and losses due to floods and severe weather.	
Action 5.D.1	Review the Probable Maximum Flood analyses completed for Wohlford Dam and Dixon Dam.
Action 5.D.2	Continue to perform preventative maintenance and inspection of buildings/structures that utilize roof drain inlets, piping and sub-structures.
Action 5.D.3	Continue to ensure that existing and new storm drain and street capacities are adequate to manage a 100-year flood event.
Action 5.D.4	Continue to ensure that new construction projects include surface drainage management that will preserve the integrity of the facility and public infrastructure.
Objective 5.E: Coordinate with and support existing efforts to mitigate severe weather (e.g., National Weather Service).	
Action 5.E.1	Continue to participate in regional annual weather briefings.

Goal 6: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to wildfires.	
Objective 6.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to wildfires in new development.	
Action 6 A.1	Continue to require the application of California Fire Code Article 86, pertaining to Fire Protection Plans (FPP) in all Urban Wildland Interface (UWI) areas. The FPP will provide for 100' of vegetation management (per CA Government Code 51182 and the MOU between the U.S. Fish and Wildlife Service, Calif. Department of Fish and Game, CDF, and the San Diego County Fire Chiefs Association) around all new structures or require equivalent construction methods as determined by a technical fire analysis.
Action 6 A.2	Continue to require secondary, emergency access and egress when streets exceed specified lengths or present other issues as identified during the project review process.
Action 6 A.3	Continue to ensure that street widths, paving, and grades can accommodate emergency vehicles. Also continue to require 30' of vegetation management on all street segments without improved lots.
Action 6 A.4	Continue to require fire resistant construction materials in all UWI areas.
Action 6 A.5	Continue to require residential fire sprinklers for units outside of adopted distance and Quality of Life standard response times.
Objective 6.B: Protect existing assets with the highest relative vulnerability to the effects of wildfires.	
Action 6.B.1	Continue to maintain the City's weed abatement ordinance to facilitate the removal of annual weeds/vegetation or habitat, placing existing properties in a fire safe condition.
Action 6.B.2	Continue to ensure that all construction materials used during remodeling of structures in UWI areas are compliant with new building and fire codes for fire resistant construction.
Action 6.B.3	Continue to maintain and update existing wildland pre-fire plans for neighborhoods adjacent to UWI areas.
Action 6.B.4	Ensure the City's Multiple Habitat Conservation Plan (MHCP) Sub-area Plan maintains current allowances for the removal of habitat as may be necessary to protect existing structures.
Objective 6.C: Coordinate with and support existing efforts to mitigate wildfire hazards (e.g., US Forest Service, Bureau of Land Management).	

Goal 6: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to wildfires. (continued)	
Action 6.C.1	Ensure the City's MHCP Sub-area Plan incorporates current fire protection measures and implement fire protection measures in Daley Ranch, consistent with the existing Conservation Agreement and the Daley Ranch Master Plan.
Action 6.C.2	Coordinate prescriptive burns in conjunction with the California Department of Forestry and Fire Protection in accordance with the City's MH
Action 6.C.3	Continue to participate in the California Fire Master Mutual Aid Agreement, the San Diego County Fire Master Mutual Aid Agreement, and the North Zone Automatic Aid Agreement.
Objective 6.D: Address identified data limitations regarding the lack of information related to wildfires (e.g., a comprehensive database of California wildfires, a California wildfire risk model, and relative vulnerability of assets).	
Objective 6.E: Maintain adequate emergency response capability.	
Action 6.E.1	Continue to evaluate service level impacts and needs as part of the review of major projects.

Goal 7: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to dam failure.	
Objective 7.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to dam failure.	
Action 7.A.1	Continue to design new critical facilities to minimize potential damage due to dam failure. Such facilities include those that provide emergency response like hospitals, fire stations, police stations, civil defense headquarters, utility lifelines, ambulance services, and sewer treatment plants. Such facilities also include those that do not provide emergency response but attract large numbers of people, such as schools, theatres, and other public assembly facilities with capacities greater than 100 persons.
Action 7.A.2	Annual inspections of Wohlford Dam are conducted by the Federal Energy Regulatory Commission (FERC).
Action 7.A.3	Continue to gather weekly well readings at Wohlford Dam and piezometer readings at Dixon Dam. Continue to send annual reports of these readings to the State of California Division of Safety of Dams.

Goal 7: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to <u>dam failure</u>. (continued)	
Action 7.A.4	The Probable Maximum Flood analyses have been completed for Wohlford Dam and Dixon Dam.
Action 7.A.5	Continue to maintain an updated Wohlford Dam Emergency Action Plan.
Action 7.A.6	Conducted vulnerability assessment of Wohlford Dam.
Objective 7.B: Protect existing assets with the highest relative vulnerability to the effects of dam failure.	
Action 7.B.1	A dam and reservoir inspection protocol tied to Homeland Security alerts (over and above normal maintenance inspections) has been developed.
Action 7.B.2	On a five-year schedule (per FERC), continue to conduct a table top drill and a functional exercise of the Wohlford Dam Emergency Action Plan.
Action 7.B.3	Continue to annually exercise the Wohlford Dam Emergency Action Plan telephone tree.
Objective 7.C: Minimize the risk of hazards associated with dam failure.	
Action 7.C.1	Develop timeframes and funding mechanism for the ultimate replacement or renovation of the Dixon and Wohlford dams.
Action 7.C.2	Continue to ensure that critical facilities and structures including emergency communication facilities are above the dam failure inundation zone.
Action 7.C.3	Continue to inspect the 100-year flood channel on a weekly basis to ensure integrity and unobstructed flow.

Goal 8: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to <u>geological hazards</u>.	
Objective 8.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to geological hazards.	
Action 8.A.1	Continue to require soil reports and implement its recommendations for projects in identified areas where liquefaction or other soil issues exist.
Action 8.A.2	Continue to review all new construction to ensure conformance with seismic requirements specified in the California Building Code.
Action 8.A.3	Continue to prohibit development in areas with slopes over 35%.

Goal 8: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to geological hazards. (continued)	
Action 8.A.4	Continue to require a preliminary soil report and a report of satisfactory placement of fill prepared by a licensed civil engineer for all buildings and structures supported on fill.
Action 8.A.5	Continue to require a preliminary soil report prepared by a civil engineer licensed in the State of California whenever expansive soil is present.
Action 8.A.6	Continue to require a preliminary soil report for all buildings and structures supported on natural ground unless the foundations have been designed in accordance with Table No. 18-I-A of the Building Code.
Action 8.A.7	Continue to require that when the foundation design is based on Table No. 18-I-A, the foundation plan must indicate the allowable soil bearing value and soil classification and must be signed by a civil engineer or architect licensed by the State of California. One and two-story buildings of Type V construction designed for an allowable soil bearing value not to exceed 1,000 pounds per square foot (psf) are exempt from this requirement. When the allowable foundation pressure exceeds the values of Table No. 18-I-A, a preliminary soil report must be submitted with the plans.
Objective 8.B: Protect existing assets with the highest relative vulnerability to the effects of geological hazards.	
Action 8.B.1	Continue to maintain an updated inventory of un-reinforced masonry buildings.
Action 8.B.2	Continue to require seismic retrofits for major renovations in accordance with Historic and Building Code provisions.
Action 8.B.3	Continue to utilize the Uniform Code for Building Conservation for non-historic buildings.

5.9.2.3 Prioritization and Implementation of Action Items

Once the comprehensive list of jurisdictional goals, objectives, and action items listed above was developed, the proposed mitigation actions were prioritized. This step resulted in a list of acceptable and realistic actions that address the hazards identified in each jurisdiction. This prioritized list of action items was formed by the LPG weighing STAPLEE criteria

The Disaster Mitigation Action of 2000 (at 44 CFR Parts 201 and 206) requires the development of an action plan that not only includes prioritized actions but one that includes information on how the prioritized actions will be implemented. Implementation consists of identifying who is responsible for which action, what kind of funding mechanisms and other resources are available or will be pursued, and when the action will be completed.

The top 9 prioritized mitigation actions as well as an implementation strategy for each are:

Action Item #1: Ensure the City's Multiple Habitat Conservation Plan (MHCP) Sub-area Plan maintains current allowances for the removal of habitat as may be necessary to protect existing structures.

Coordinating Individual/Organization: Fire Department

Potential Funding Source: None needed

Implementation Timeline: One to three years

Action Item #2: Ensure the City's MHCP Sub-area Plan incorporates current fire protection measures and implement fire measure in Daley Ranch, consistent with the existing Conservation Agreement and the Daley Ranch Master Plan

Coordinating Individual/Organization: Fire Department

Potential Funding Source: As available from local, state or federal resources

Implementation Timeline: One to three years

Action Item #3: Coordinate prescriptive burns in conjunction with the California Department Forestry and Fire Protection (CDF) in accordance with the City's MHCP, Daley Ranch Conservation Agreement with the Daley Ranch Master Plan.

Coordinating Individual/Organization: Fire Department

Potential Funding Source: As available from local, state or federal resources

Implementation Timeline: One to three years

Action Item #4: Develop timeframes and funding mechanism for the ultimate replacement or renovation of the Dixon and Wohlford Dams.

Coordinating Individual/Organization: Public Works

Potential Funding Source: As available from local, state or federal resources

Implementation Timeline: 5 - 10 years

Action Item #5: Encourage the use of alternate technologies.

Coordinating Individual/Organization: Planning Department

Potential Funding Source: As available from local, state or federal resources

Implementation Timeline: Three to five years

Action Item #6: Require the timely disposal of "spent" materials.

Coordinating Individual/Organization: Planning Department

Potential Funding Source: As available from local, state or federal resources

Implementation Timeline: Three to five years

Action Item #7: Limit transportation to hours of less traffic congestion as determined necessary through the environmental and developmental review process.

Coordinating Individual/Organization: Planning Department

Potential Funding Source: As available from local, state or federal resources

Implementation Timeline: Three to five years

Action Item #8: Inspect all transports for compliance with any measures identified by the environmental or developmental review processes to mitigate a potentially significant effect.

Coordinating Individual/Organization: Planning Department

Potential Funding Source: As available from local, state or federal resources

Implementation Timeline: 5 - 10 years

Action Item #9: Perform annual "table top" exercise.

Coordinating Individual/Organization: Planning Department

Potential Funding Source: As available from local, state or federal resources

Implementation Timeline: Three to five years

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5.10 CITY OF IMPERIAL BEACH

The City of Imperial Beach (Imperial Beach) reviewed a set of jurisdictional-level hazard maps including detailed critical facility information and localized potential hazard exposure/loss estimates to help identify the top hazards threatening their jurisdiction. In addition, LPGs were supplied with exposure/loss estimates for Imperial Beach summarized in Table 5.10-1. See Section 4.0 for additional details.

Table 5.10-1
Summary of Potential Hazard-Related Exposure/Loss in Imperial Beach

		Residential		Commercial		Critical Facilities	
Hazard Type	Exposed Population	Number of Residential Buildings	Potential Exposure/ Loss for Residential Buildings (x $1,000)	Number of Commercial Buildings	Potential Exposure/ Loss for Commercial Buildings (x $1,000)	Number of Critical Facilities	Potential Exposure for Critical Facilities (x $1,000)
Coastal Storm / Erosion	453	95	41124	0	0	0	0
Dam Failure	4,897	879	345,660	1	9,092	4	203,662
Earthquake (Annualized Loss - Includes shaking, liquefaction and landslide components)	26,849	5,185	923	36	129	15* / 16**	3991* / 18047**
Floods (Loss)							
100 Year	1,347	261	9,342	1	474	0	0
500 Year	2,638	510	10,528	2	535	0	0
Rain-Induced Landslide							
High Risk	0	0	0	0	0	0	0
Moderate Risk	0	0	0	0	0	0	0
Tsunami	72	13	3,172	0	0	0	0
Wildfire/ Structure Fire							
Extreme	0	0	0	0	0	0	0
Very High	0	0	0	0	0	0	0
High	0	0	0	0	0	0	0
Moderate	25,731	5,034	1,494,983	33	118,082	20	230,442

* Represents 100-year earthquake value under three earthquake scenarios (shake only, shake and liquefaction, and shake and landslide).

** Represents 500-year earthquake value under three earthquake scenarios (shake only, shake and liquefaction, and shake and landslide).

After reviewing the localized hazard maps and exposure/loss table above, the following hazards were identified by the Imperial Beach LPG as their top five. A brief rational for including each of these is included.

- **Earthquake**: Most significant as it affects the entire community and region.

- **Costal Storms/Erosion/Tsunami**: More frequent, but historically quite localized.
- **Dam Failure**: Possible, but low potential.
- **Structure Fire/Wildfire**: No significant history.
- **Other Human Caused Hazards**: No significant targets.

5.10.1 Capabilities Assessment

The LPG identified current capabilities available for implementing hazard mitigation activities. The Capability Assessment (Assessment) portion of the jurisdictional mitigation plan identifies administrative, technical, legal and fiscal capabilities. This includes a summary of departments and their responsibilities associated to hazard mitigation planning as well as codes, ordinances, and plans already in place associated to hazard mitigation planning. The second part of the Assessment provides Imperial Beach's fiscal capabilities that may be applicable to providing financial resources to implement identified mitigation action items.

5.10.1.1 Existing Institutions, Plans, Policies and Ordinances

The following is a summary of existing departments in Imperial Beach and their responsibilities related to hazard mitigation planning and implementation, as well as existing planning documents and regulations related to mitigation efforts within the community. The administrative and technical capabilities of Imperial Beach, as shown in Table 5.10-2, provides an identification of the staff, personnel, and department resources available to implement the actions identified in the mitigation section of the Plan. Specific resources reviewed include those involving technical personnel such as planners/engineers with knowledge of land development and land management practices, engineers trained in construction practices related to building and infrastructure, planners and engineers with an understanding of natural or manmade hazards, floodplain managers, surveyors, personnel with GIS skills and scientists familiar with hazards in the community.

- City of Imperial Beach Fire Department
  - Emergency Plan: Describes a comprehensive emergency management system which provides for a planned response to disaster situations associated with natural disasters, terrorism, and nuclear-related incidents.
  - Emergency Operations Manual: Identifies and outlines emergency operational procedures. Promotes uniformity of thinking, action and safety on emergency scenes.
- City of Imperial Beach Building Department
  - Coordinates adoption of building, plumbing, electrical and mechanical codes. Also develops building ordinances.
  - Reviews site and building plans for compliance with building codes and ordinances.
  - Performs damage assessment of structures from multiple causes to facilitate repair and determine potential occupancy.
  - Develops and maintains city general plan, zoning ordinances and development standards.

- City of Imperial Beach Planning Department
  - Oversight of the City development process assuring compliance with zoning and the general plan.
  - Responsible for the environmental impact reports, design review and habitat preservation.
- City of Imperial Beach Public Works Department
  - Maintains City infrastructure and assets. Also responsible for construction of City projects.
  - Responds in support of City emergencies.
  - Operates, maintains and enhances the City sewer system and storm water conveyance system.
  - Responsible for administering the Jurisdictional Urban Runoff Management Plan (JURMP).
  - Business Plan: provides policy and procedures for hazardous material maintenance and disposal.
  - Sewer overflow response plan
- City of Imperial Beach Sheriff's Department
  - Responds to safety concerns involving threats and/or damage to life or property. Enforces State and local laws and ordinances.
  - Primary emergency responders to acts of civil disobedience, public disorders and acts of terrorism. Provide support personnel for emergency rescue and management.
  - San Diego County Sheriff Emergency Operations Manuel: identifies and outlines emergency operational procedures. Promotes uniformity of thinking, action and safety on emergency scenes.

Table 5.10-2
City of Imperial Beach: Administrative and Technical Capacity

Staff/Personnel Resources	Y/N	Department/Agency and Position
A. Planner(s) or engineer(s) with knowledge of land development and land management practices	Y	Planning, Planning Director
B. Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Y	Building, Building Official
C. Planners or Engineer(s) with an understanding of natural and/or manmade hazards	Y	Planning, Planning Director
D. Floodplain manager	N	USDA
E. Surveyors	N	County, Land Use
F. Staff with education or expertise to assess the community's vulnerability to hazards	Y	Public Safety, Public Safety Director
G. Personnel skilled in GIS and/or HAZUS	N	County, OES Director
H. Scientists familiar with the hazards of the community	N	UCSD, SDSU, USD
I. Emergency manager	Y	Public Safety, Public Safety Director
J. Grant writers	N	

The legal and regulatory capabilities of Imperial Beach are shown in Table 5.10-3, which presents the existing ordinances and codes that affect the physical or built environment of Imperial Beach. Examples of legal and/or regulatory capabilities can include: the City's building codes, zoning ordinances, subdivision ordnances, special purpose ordinances, growth management ordinances, site plan review, general plans, capital improvement plans, economic development plans, emergency response plans, and real estate disclosure plans.

Table 5.10-3
City of Imperial Beach: Legal and Regulatory Capability

Regulatory Tools (ordinances, codes, plans)	Local Authority (Y/N)	Does State Prohibit (Y/N)
A. Building code	Y	N
B. Zoning ordinance	Y	N
C. Subdivision ordinance or regulations	Y	N
D. Special purpose ordinances (floodplain management, storm water management, hillside or steep slope ordinances, wildfire ordinances, hazard setback requirements)	Y	N
E. Growth management ordinances (also called "smart growth" or anti-sprawl programs)	Y	N
F. Site plan review requirements	Y	N
G. General or comprehensive plan	Y	N
H. A capital improvements plan	Y	N
I. An economic development plan	Y	N
J. An emergency response plan	Y	N
K. A post-disaster recovery plan	N	N
L. A post-disaster recovery ordinance	N	N
M. Real estate disclosure requirements	N	N

5.10.1.2 Fiscal Resources

Table 5.10-4 shows specific financial and budgetary tools available to Imperial Beach such as community development block grants; capital improvements project funding; authority to levy taxes for specific purposes; fees for water, sewer, gas, or electric services; impact fees for homebuyers or developers for new development; ability to incur debt through general obligations bonds; and withholding spending in hazard-prone areas.

Table 5.10-4
City of Imperial Beach: Fiscal Capability

Financial Resources	Accessible or Eligible to Use (Yes/No)
A. Community Development Block Grants (CDBG)	Y
B. Capital improvements project funding	Y
C. Authority to levy taxes for specific purposes	Y
D. Fees for water, sewer, gas, or electric service	Y
E. Impact fees for homebuyers or developers for new developments/homes	Y-Built into building fees
F. Incur debt through general obligation bonds	Y
G. Incur debt through special tax and revenue bonds	Y
H. Incur debt through private activity bonds	N
I. Withhold spending in hazard-prone areas	Y

5.10.2 Goals, Objectives and Actions

Listed below are Imperial Beach's specific hazard mitigation goals, objectives and related potential actions. For each goal, one or more objectives have been identified that provide strategies to attain the goal. Where appropriate, the City has identified a range of specific actions to achieve the objective and goal.

The goals and objectives were developed by considering the risk assessment findings, localized hazard identification and loss/exposure estimates, and an analysis of the jurisdiction's current capabilities assessment. These preliminary goals, objectives and actions were developed to represent a vision of long-term hazard reduction or enhancement of capabilities. To help in further development of these goals and objectives, the LPG compiled and reviewed current jurisdictional sources including the City's planning documents, codes, and ordinances. In addition, City representatives met with consultant staff and/or OES to specifically discuss these hazard-related goals, objectives and actions as they related to the overall Plan. Representatives of numerous City departments involved in hazard mitigation planning, including Fire, Police, and Public Works provided input to the Imperial Beach LPG. The Imperial Beach LPG members were:

- Deputy Chief Paul Smith
- Environmental Program Specialist Steve Kerr
- Deputy Sheriff Ron DeBoo.

Once developed, City staff presented them to the City of Imperial Beach City Council for their approval.

Public meetings were held throughout the County to present these preliminary goals, objectives and actions to citizens and to receive public input. At these meetings, specific consideration was given to hazard identification/profiles and the vulnerability assessment results. The following sections present the

hazard-related goals, objectives and actions as prepared by Imperial Beach's LPG in conjunction with the Hazard Mitigation Working Group, locally elected officials, and local citizens. The following sections present the hazard-related goals, objectives and actions as prepared by Imperial Beach's LPG in conjunction with the Hazard Mitigation Working Group, locally elected officials, and local citizens.

5.10.2.1 Goals

The City of Imperial Beach has developed the following 9 Goals for their Hazard Mitigation Plan and actions for their city (See Attachment A for Goal 9).

Goal 1. Promote disaster-resistant future development.

Goal 2. Increase public understanding and support for effective hazard mitigation.

Goal 3. Build and support local capacity and commitment to become less vulnerable to hazards.

Goal 4. Enhance hazard mitigation coordination and communication with Federal, State and County governments.

"Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to":

Goal 5. Dam Failure.

Goal 6. Earthquakes.

Goal 7. Coastal Storm/Erosion/Tsunami.

Goal 8. Floods.

Goal 9. Manmade Hazards.

5.10.2.2 Objectives and Actions

The City of Imperial Beach developed the following broad list of objectives and actions to assist in the implementation of each of their 9 identified goals. The City of Imperial Beach developed objectives to assist in achieving their hazard mitigation goals. For each of these objectives, specific actions were developed that would assist in their implementation. A discussion of the prioritization and implementation of the action items is provided in Section 5.10.2.3.

Goal 1: Promote disaster resistant future development.
Objective 1.A: Facilitate the development or updating of general plans and zoning ordinances to limit development in hazard areas.

Goal 1: Promote disaster resistant future development. (continued)	
Action 1.A.1	Update General Plan every 10 years.
Action 1.A.2	Attract and retain qualified, professional and experienced staff.
Action 1.A.3	Identify high hazard areas.
Action 1.A.4	Include hazard area maps.
Objective1.B: Facilitate the adoption of building codes that protect existing assets and restrict new development in hazard areas.	
Action 1.B.1	Review Codes every 3 years.
Action 1.B.2	Establish emergency review procedures for codes.
Objective 1.C: Facilitate consistent enforcement of general plans, zoning ordinances, and building codes.	
Action 1.C.1	Staff enforcement personnel to a level to ensure compliance.
Action 1.C.2	Develop, coordinate and standardize permits for all departments.
Objective 1.D: Limit future development in hazardous areas.	
Action 1.D.1	Development should be in harmony with existing topography.
Action 1.D.2	Development patterns should respect environmental characteristics.
Action 1.D.3	Clustering should be encouraged.
Action 1.D.4	Development should be limited in areas of known geologic hazards.
Objective 1.E: Address identified data limitations regarding the lack of information about new development and build-out potential in hazard areas.	
Action 1.E.1	Coordinate existing Geographic Information Systems (GIS) capabilities to identify hazards.
Action 1.E.2	Develop the data sets that are necessary to test hazard scenarios and mitigation tools.
Action 1.E.3	Utilize the Internet as a communication tool, as well as an educational tool.
Objective 1.F: Increase public understanding, support and demand for hazard mitigation for new developments.	
Action 1.F.1	Gain public acceptance for avoidance policies in high hazard areas.
Action 1.F.2	Publicize and adopt the appropriate hazard mitigation measures.
Action 1.F.3	Help create demand for hazard resistant construction and site planning.

Goal 2: Increase public understanding and support for effective hazard mitigations	
Objective 2.A: Educate the public to increase awareness of hazards and opportunities for mitigation actions.	
Action 2.A.1	Publicize and encourage the adoption of appropriate hazard mitigation actions.
Action 2.A.2	Provide information to the public on the City website, Newsletter, Citywide mail outs, Prevention Program and in conjunction with Special Events.
Action 2.A.3	Heighten public awareness of hazards by using the City Publicist.
Action 2.A.4	Gain public acceptance for avoidance policies in high hazard areas.
Action 2.A.5	Identify hazard specific issues and needs.
Action 2.A.6	Help create demand for hazard resistant construction and site planning.
Action 2.A.7	Gain public acceptance for policy changes by including citizens in the planning process.
	Action 2.A.7.1 Develop planning workshops.
Action 2.A.8	Establish and maintain CERT program for the City.
Objective 2.B: Promote partnerships between the state, counties, local and tribal governments to identify, prioritize, and implement mitigation actions.	
Action 2.B.1	Develop, maintain and improve lasting partnerships.
	Action 2.B.1.1 Develop auto aid agreement with Navy Ream Field.
Action 2.B.2	Support the County Fire Safe Council.
Action 2.B.3	Promote cooperative vegetation Management Programs that incorporate hazard mitigation.
Objective 2.C: Promote hazard mitigation in the business community.	
Action 2.C.1	Increase awareness and knowledge of hazard mitigation principles and practices.
Action 2.C.2	Encourage businesses to develop and implement hazard mitigation actions.
Action 2.C.3	Identify hazard-specific issues and needs.
Objective 2.D: Monitor and publicize the effectiveness of mitigation actions implemented citywide.	
Action 2.D.1	Use the City Website, Newsletter, etc. to publicize mitigation actions.
Action 2.D.2	Create marketing campaign.
	Action 2.D.2.1 Use City Publicist to develop campaign and language.

Goal 2: Increase public understanding and support for effective hazard mitigations. (continued)	
Action 2.D.3	Determine mitigation messages to convey.
Action 2.D.4	Establish budget and identify funding sources for mitigation outreach.
Objective 2.E: Provide education on hazardous conditions.	
Action 2.E.1	Support public and private sector symposiums.
Action 2.E.2	Coordinate production of brochures, informational packets and other handouts.
Action 2.E.3	Develop partnerships with the media on hazard mitigation.

Goal 3: Build and support local capacity and commitment to become less vulnerable to hazards.	
Objective 3.A: Increase awareness and knowledge of hazard mitigation principles and practice among local officials and staff.	
Action 3.A.1	Use Media, City Publicist and Public Safety demonstrations to increase the number of news releases.
Action 3.A.2	Conduct meetings with key elected officials to determine local issues and concerns.
Action 3.A.3	Continuously demonstrate the importance of pre-disaster mitigation planning to the City Council and other public officials.
Action 3.A.4	Use staff orientation, training, policy and procedures to increase awareness.
Objective 3.B: Develop hazard mitigation plan and provide technical assistance to implement plan.	
Action 3.B.1	Coordinate the development of a multi-jurisdictional plan.
Action 3.B.2	Seek grant funding to develop Countywide plan.
Action 3.B.3	Form City Working Group to update and monitor the plan.
	Action 3.B.3.1 Use representatives from all City departments, City Council, business community, citizens.
Objective 3.C: Limit growth and development in hazardous areas.	
Action 3.C.1	Update GIS mapping to identify hazardous areas.
Action 3.C.2	Enforce trespassing regulations in high-risk areas.
Action 3.C.3	Update General Plan and zoning regulations to reflect hazardous areas.
Action 3.C.4	Support transfer of development rights in hazard prone areas.

Goal 3: Build and support local capacity and commitment to become less vulnerable to hazards. (continued)	
Objective 3.D: Develop plan for upgrading City EOC.	
Action 3.D.1	Form planning group to determine needs.
Action 3.D.2	Hire consultant to determine options and costs.
Action 3.D.3	Seek grant funding for upgrades.

Goal 4: Enhance hazard mitigation coordination and communication with Federal, State and County governments.	
Objective 4.A: Establish and maintain closer working relationships with Federal, State and County agencies.	
Action 4.A.1	Encourage and assist in development of multi-jurisdictional/ multi-functional training and exercises to enhance hazard mitigation.
Action 4.A.2	Leverage resources and expertise that will further hazard mitigation efforts.
Objective 4.B: Encourage other organizations to incorporate hazard mitigation activities.	
Action 4.B.1	Encourage all jurisdictions to become part of the HIRT JPA.
Action 4.B.2	Establish and maintain lasting partnerships.
Action 4.B.3	Streamline policies to eliminate conflicts and duplication of effort.
Objective 4.C: Improve the City's capability and efficiency at administering pre- and post-disaster mitigation.	
Action 4.C.1	Maintain consistency with the State in administering recovery programs.
Action 4.C.2	Improve coordination with the County OES in dealing with local issues.

Goal 5: Reduce the possibility of damage and losses to existing assets, including people, critical facilities/infrastructure and public facilities due to <u>dam failure</u>.	
Objective 5.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to dam failure.	
Action 5.A.1	Update inundation maps every 10 years.

Goal 5: Reduce the possibility of damage and losses to existing assets, including people, critical facilities/infrastructure and public facilities due to <u>dam failure</u>. (continued)	
Action 5.A.2	Participate in community awareness meetings.
Action 5.A.3	Develop and distribute printed publications to the communities concerning hazards.
Objective 5.B: Protect existing assets with the highest relative vulnerability to the effects of a dam failure.	
Action 5.B.1	Identify hazard-prone structures.
Action 5.B.2	Construct barriers around structures.
Action 5.B.3	Encourage structural retrofitting.
Action 5.B.4	Encourage participation in National Flood Insurance.
Objective 5.C: Coordinate with and support existing efforts to mitigate dam failure (e.g., US Army Corps of Engineers, US Bureau of Reclamation, California Department of Water Resources).	
Action 5.C.1	Revise development ordinances to mitigate effects of development on wetland areas.
Action 5.C.2	Incorporate and maintain valuable wetlands in open space preservation programs.
Action 5.C.3	Review and revise, if necessary, sediment and erosion control regulations.
Objective 5.D: Protect floodplains from inappropriate development.	
Action 5.D.1	Strengthen existing development regulations to discourage land uses and activities that create hazards.
Action 5.D.2	Plan and zone for open space, recreational, agricultural, or other low-intensity uses within floodway fringes.

Goal 6: Reduce the possibility of damage and losses to existing assets, including people, critical facilities/infrastructure and public facilities due to <u>earthquakes</u>.	
Objective 6.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to earthquakes.	
Action 6.A.1	Update, adopt Building Codes to reflect current earthquake standards.
Action 6.A.2	Participate in community awareness meetings.
Action 6.A.3	Develop and distribute printed publications to the communities concerning hazards.

Goal 6: Reduce the possibility of damage and losses to existing assets, including people, critical facilities/infrastructure and public facilities due to earthquakes. (continued)	
Objective 6.B: Protect existing assets with the highest relative vulnerability to the effects of earthquakes.	
Action 6.B.1	Identify hazard-prone structures through GIS modeling.
Action 6.B.2	Build critical facilities that function after a major earthquake.
Action 6.B.3	Study local effects of ground motion, landslide, and liquefaction.
Objective 6.C: Coordinate with and support existing efforts to mitigate earthquake hazards	
Action 6.C.1	Identify projects for pre-disaster mitigation funding.
Objective 6.D: Address identified data limitations regarding the lack of information about the relative vulnerability of assets from earthquakes.	
Action 6.D.1	Assess Citywide utility infrastructure with regard to earthquake risk, including public and private utilities.
Action 6.D.2	Develop and implement an incentive program for seismic retrofits.
Action 6.D.3	Encourage the public to prepare and maintain a 3-day preparedness kit for home and work.

Goal 7: Reduce the possibility of damage and losses to existing assets, including people, critical facilities/infrastructure and public facilities due to coastal storms/erosion/tsunami.	
Objective 7.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to coastal storms/erosion.	
Action 7.A.1	Coordinate with coastal cities to develop a comprehensive plan.
Action 7.A.2	Participate in community awareness meetings.
Action 7.A.3	Develop and distribute printed publications to the community concerning hazards.
Objective 7.B: Protect existing assets with the highest relative vulnerability to the effects of coastal storms/erosion.	
Action 7.B.1	Retrofit structures to strengthen resistance to damage.

Goal 7: Reduce the possibility of damage and losses to existing assets, including people, critical facilities/infrastructure and public facilities due to <u>coastal storms/erosion/tsunami</u>. (continued)	
Action 7.B.2	Encourage the public to prepare and maintain a 3-day preparedness kit for home and work.
Action 7.B.3	Seek pre-disaster mitigation funding for coastal erosion projects.
Objective 7.C:	*Coordinate with and support existing efforts to mitigate severe coastal storms/erosion.*
Action 7.C.1	Review and update plans that would include coordination with cities, special districts and County departments.
Action 7.C.2	Develop and publish information sources for the public.
Objective 7.D:	*Address identified data limitations regarding the lack of information about the relative vulnerability of assets from coastal storms/erosion.*
Action 7.D.1	Identify hazard-prone structures through GIS modeling.
Action 7.D.2	Incorporate information and recommendations from coastal cities into the hazard mitigation plan.

Goal 8: Reduce the possibility of damage and losses to existing assets, including people, critical facilities/infrastructure and public facilities due to <u>floods</u>.	
Objective 8.A:	*Develop a comprehensive approach to reducing the possibility of damage and losses due to floods.*
Action 8.A.1	Review and compare existing flood control standards, zoning and building requirements.
Action 8.A.2	Identify flood-prone areas by using GIS.
Objective 8.B:	*Protect existing assets with the highest relative vulnerability to the effects of floods within the 100-year floodplain.*
Action 8.B.1	Assure adequate funding to restore damaged facilities to 100-year flood design.
Action 8.B.2	Update storm water system plans and improve storm water facilities in high-risk areas.
Action 8.B.3	Ensure adequate evacuation time in case of major hazard event.

Goal 8: Reduce the possibility of damage and losses to existing assets, including people, critical facilities/infrastructure and public facilities due to floods. (continued)	
Objective 8.C: Coordinate with and support existing efforts to mitigate floods (e.g., US Army Corps of Engineers, US Bureau of Reclamation, California Department of Water Resources).	
Action 8.C.1	Develop a flood control strategy that ensures coordination with Federal, State and local agencies.
Action 8.C.2	Improve hazard warning and response planning.
Objective 8.D: Minimize repetitive losses caused by flooding.	
Action 8.D.1	Identify those communities that have recurring losses.
Action 8.D.2	Develop project proposals to reduce flooding and improve control in flood prone areas.
Action 8.D.3	Seek pre-disaster mitigation funding.
Objective 8.E: Address identified data limitations regarding the lack of information about the relative vulnerability of assets from flooding.	
Action 8.E.1	Encourage the public to prepare and maintain a 3-day preparedness kit for home and work.
Action 8.E.2	Increase participation and improve compliance with the National Flood Insurance Program (NFIP).

5.10.2.3 Prioritization and Implementation of Action Items

Once the comprehensive list of jurisdictional goals, objectives, and action items listed above was developed, the proposed mitigation actions were prioritized. This step resulted in a list of acceptable and realistic actions that address the hazards identified in each jurisdiction. This prioritized list of action items was formed by the LPG weighing STAPLEE criteria

The Disaster Mitigation Action of 2000 (at 44 CFR Parts 201 and 206) requires the development of an action plan that not only includes prioritized actions but one that includes information on how the prioritized actions will be implemented. Implementation consists of identifying who is responsible for which action, what kind of funding mechanisms and other resources are available or will be pursued, and when the action will be completed.

The top 10 prioritized mitigation actions as well as an implementation strategy for each are:

Priority Action #1: Develop plan for upgrading City EOC. Install emergency management software in the City EOC. Incorporate GIS mapping and modeling into the City EOC.

Coordinating Individual/Organization: Public Safety

Potential Funding Source: General Fund, Grants.

Implementation Timeline: February 2004-December 2004.

Priority Action #2: Conduct training and exercises for all employees.

Coordinating Individual/Organization: Public Safety

Potential Funding Source: General Fund, Grants.

Implementation Timeline: February 2004-June 2005.

Priority Action #3: Seek pre-disaster mitigation funding.

Coordinating Individual/Organization: Public Safety

Potential Funding Source: General Fund

Implementation Timeline: February 2004-December 2006.

Priority Action #4: Provide information to the public on the City website, Newsletter, Citywide mail outs, Prevention Program and in conjunction with Special Events.

Coordinating Individual/Organization: Public Safety

Potential Funding Source: General Fund, Grants

Implementation Timeline: February 2004-December 2006.

Priority Action #5: Encourage the public to prepare and maintain a 3-day preparedness kit for home and work.

Coordinating Individual/Organization: Public Safety

Potential Funding Source: General Fund, Grants

Implementation Timeline: February 2004-December 2006.

Priority Action #6: Establish and maintain CERT program for the City.

Coordinating Individual/Organization: Public Safety

Potential Funding Source: General Fund, Grants

Implementation Timeline: January 2005-June 2005.

Priority Action #7: Coordinate the development of a multi-jurisdictional plan.

Coordinating Individual/Organization: Public Safety

Potential Funding Source: General Fund, Grants.

Implementation Timeline: January 2005-December 2005.

Priority Action #8: Encourage and assist in development of multi-jurisdictional/ multi-functional training and exercises to enhance hazard mitigation.

Coordinating Individual/Organization: Public Safety

Potential Funding Source: General Fund, Grants.

Implementation Timeline: February 2004-December 2006.

Priority Action #9: Improve hazard warning and response planning.

Coordinating Individual/Organization: Public Safety

Potential Funding Source: General Fund, Grants.

Implementation Timeline: February 2004-June 2005.

Priority Action #10: Form City Working Group to update and monitor the (hazard mitigation) plan.

Coordinating Individual/Organization: Public Safety

Potential Funding Source: General Fund, Grants.

Implementation Timeline: February 2004-June 2004.

5.11 CITY OF LA MESA

The City of La Mesa (La Mesa) reviewed a set of jurisdictional-level hazard maps including detailed critical facility information and localized potential hazard exposure/loss estimates to help identify the top hazards threatening their jurisdiction. In addition, LPGs were supplied with exposure/loss estimates for La Mesa summarized in Table 5.11-1. See Section 4.0 for additional details.

Table 5-11-1
Summary of Potential Hazard-Related Exposure/Loss in La Mesa

		Residential		Commercial		Critical Facilities	
Hazard Type	Exposed Population	Number of Residential Buildings	Potential Exposure/ Loss for Residential Buildings (x $1,000)	Number of Commercial Buildings	Potential Exposure/ Loss for Commercial Buildings (x $1,000)	Number of Critical Facilities	Potential Exposure for Critical Facilities (x $1,000)
Coastal Storm / Erosion	0	0	0	0	0	0	0
Dam Failure	1,337	262	101,715	11	9,092	13	22,844
Earthquake (Annualized Loss - Includes shaking, liquefaction and landslide components)	53,856	14,205	1,147	158	400	86* / 86**	3,275* / 17,166**
Floods (Loss)							
100 Year	29	8	462	1	310	0	0
500 Year	29	8	462	1	39	0	0
Rain- Induced Landslide							
High Risk	3,880	696	349,310	10	29,634	8	24,794
Moderate Risk	473	195	49,170	0	1,300	6	25,169
Tsunami	0	0	0	0	0	0	0
Wildfire/ Structure Fire							
Extreme	0	0	0	0	0	0	0
Very High	0	0	0	0	0	0	0
High	326	131	32,236	0	1,300	0	0
Moderate	53,530	14,074	4,277,345	158	734,606	115	572,558

* Represents 100-year earthquake value under three earthquake scenarios (shake only, shake and liquefaction, and shake and landslide).

** Represents 500-year earthquake value under three earthquake scenarios (shake only, shake and liquefaction, and shake and landslide).

After reviewing the localized hazard maps and exposure/loss table above, the following hazards were identified by the La Mesa LPG as their top five.

- **Fire**
- **Flood**

- **Landslide**
- **Dam Failure**
- **Earthquake**

5.11.1 Capabilities Assessment

The LPG identified current capabilities available for implementing hazard mitigation activities. The Capability Assessment (Assessment) portion of the jurisdictional mitigation plan identifies administrative, technical, legal and fiscal capabilities. This includes a summary of departments and their responsibilities associated to hazard mitigation planning as well as codes, ordinances, and plans already in place associated to hazard mitigation planning. The second part of the Assessment provides La Mesa's fiscal capabilities that may be applicable to providing financial resources to implement identified mitigation action items.

5.11.1.1 Existing Institutions, Plans, Policies and Ordinances

The following is a summary of existing departments in La Mesa and their responsibilities related to hazard mitigation planning and implementation, as well as existing planning documents and regulations related to mitigation efforts within the community. The administrative and technical capabilities of La Mesa, as shown in Table 5.11-2, provides an identification of the staff, personnel, and department resources available to implement the actions identified in the mitigation section of the Plan. Specific resources reviewed include those involving technical personnel such as planners/engineers with knowledge of land development and land management practices, engineers trained in construction practices related to building and infrastructure, planners and engineers with an understanding of natural or manmade hazards, floodplain managers, surveyors, personnel with GIS skills and scientists familiar with hazards in the community.

- City of La Mesa Fire Prevention Bureau
  - Adoption of Fire Codes
  - Review plans and sites for code compliance
  - Weed abatement program
  - Public education.
- City of La Mesa Community Development Department (including Building)
  - Coordinates the adoption of applicable codes
  - Develops ordinances
  - Reviews site plans for code compliance
  - Structure assessment following damage
- City of La Mesa Planning and Zoning Department
  - Maintains general plan

  - Oversees development process with in the City
- City of La Mesa Engineering Department
  - Develops and administers ordinances and policies for the City infrastructure
- City of La Mesa Public Works Department

Table 5.11-2
City of La Mesa: Administrative and Technical Capacity

Staff/Personnel Resources	Y/N	Department/Agency and Position
A. Planner(s) or engineer(s) with knowledge of land development and land management practices	Y	Community development and Public Works
B. Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Y	Community development and Public Works
C. Planners or Engineer(s) with an understanding of natural and/or manmade hazards	Y	Community development and Public Works
D. Floodplain manager	Y	Public Works
E. Surveyors	Y	Public Works
F. Staff with education or expertise to assess the community's vulnerability to hazards	Y	All Departments
G. Personnel skilled in GIS and/or HAZUS	Y	Community Development and Public Works
H. Scientists familiar with the hazards of the community	Y	
I. Emergency manager	Y	Police Department and Fire Department
J. Grant writers	Y	All Departments

The legal and regulatory capabilities of La Mesa are shown in Table 5.11-3, which presents the existing ordinances and codes that affect the physical or built environment of La Mesa. Examples of legal and/or regulatory capabilities can include: the City's building codes, zoning ordinances, subdivision ordnances, special purpose ordinances, growth management ordinances, site plan review, general plans, capital improvement plans, economic development plans, emergency response plans, and real estate disclosure plans.

Table 5.11-3
City of La Mesa: Legal and Regulatory Capability

Regulatory Tools (ordinances, codes, plans)	Local Authority (Y/N)	Does State Prohibit? (Y/N)
A. Building code	Y	Y
B. Zoning ordinance	Y	
C. Subdivision ordinance or regulations	Y	Y
D. Special purpose ordinances (floodplain management, storm water management, hillside or steep slope ordinances, wildfire ordinances, hazard setback requirements)	Y	
E. Growth management ordinances (also called "smart growth" or anti-sprawl programs)	Y	
F. Site plan review requirements	Y	Y
G. General or comprehensive plan	Y	Y
H. A capital improvements plan	Y	
I. An economic development plan	Y	N
J. An emergency response plan	Y	N
K. A post-disaster recovery plan	N	N
L. A post-disaster recovery ordinance	N	N
M. Real estate disclosure requirements	Y	Y

5.11.1.2 Fiscal Resources

Table 5.11-4 shows specific financial and budgetary tools available to La Mesa such as community development block grants; capital improvements project funding; authority to levy taxes for specific purposes; fees for water, sewer, gas, or electric services; impact fees for homebuyers or developers for new development; ability to incur debt through general obligations bonds; and withholding spending in hazard-prone areas.

Table 5.11-4
City of La Mesa: Fiscal Capability

Financial Resources	Accessible or Eligible to Use (Yes/No)
A. Community Development Block Grants (CDBG)	Y
B. Capital improvements project funding	Y
C. Authority to levy taxes for specific purposes	Y-Vote required
D. Fees for water, sewer, gas, or electric service	Y
E. Impact fees for homebuyers or developers for new developments/homes	Y
F. Incur debt through general obligation bonds	Y-Vote required
G. Incur debt through special tax and revenue bonds	Y-Vote required
H. Incur debt through private activity bonds	UK
I. Withhold spending in hazard-prone areas	Y
J. Other – SANDAG Grant	Y

5.11.2 Goals, Objectives and Actions

Listed below are La Mesa's specific hazard mitigation goals, objectives and related potential actions. For each goal, one or more objectives have been identified that provide strategies to attain the goal. Where appropriate, the City has identified a range of specific actions to achieve the objective and goal.

The goals and objectives were developed by considering the risk assessment findings, localized hazard identification and loss/exposure estimates, and an analysis of the jurisdiction's current capabilities assessment. These preliminary goals, objectives and actions were developed to represent a vision of long-term hazard reduction or enhancement of capabilities. To help in further development of these goals and objectives, the LPG compiled and reviewed current jurisdictional sources including the City's planning documents, codes, and ordinances. In addition, City representatives met with consultant staff and/or OES to specifically discuss these hazard-related goals, objectives and actions as they related to the overall Plan. Representatives of numerous City departments involved in hazard mitigation planning, including Fire, Police, and Public Works participated in the La Mesa LPG. These members provided input to the La Mesa LPG leads: Greg McAlpine and Kathy Feilen. Once developed, City staff presented them to the City of La Mesa City Council for their approval.

Public meetings were held throughout the County to present these preliminary goals, objectives and actions to citizens and to receive public input. At these meetings, specific consideration was given to hazard identification/profiles and the vulnerability assessment results. The following sections present the hazard-related goals, objectives and actions as prepared by Imperial Beach's LPG in conjunction with the Hazard Mitigation Working Group, locally elected officials, and local citizens. The following sections present the hazard-related goals, objectives and actions as prepared by La Mesa's LPG in conjunction with the Hazard Mitigation Working Group, locally elected officials, and local citizens.

5.11.2.1 Goals

The City of La Mesa has developed the following 9 Goals for their Hazard Mitigation Plan (See Attachment A for Goal 9).

Goal 1. Promote disaster-resistant future development

Goal 2. Increase public understanding, support, and demand for effective hazard mitigation.

Goal 3. Build and support local capacity and commitment to continuously become less vulnerable to hazards.

Goal 4. Improve coordination and communication with federal, state, local and tribal governments.

"Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to":

Goal 5. Floods.

Goal 6. Wildfires.

Goal 7. Dam Failure.

Goal 8. Geological Hazards.

Goal 9. Extremely Hazardous Materials Releases.

5.11.2.2 Objectives and Actions

The City of La Mesa developed the following broad list of objectives and actions to assist in the implementation of each of their 9 identified goals. The City of La Mesa developed objectives to assist in achieving their hazard mitigation goals. For each of these objectives, specific actions were developed that would assist in their implementation. A discussion of the prioritization and implementation of the action items is provided in Section 5.11.2.3.

Goal 1: Promote disaster resistant future development.	
Objective 1.A: Encourage and facilitate the development or updating of general plans and zoning ordinances to limit development in hazard areas.	
Action 1.A.1	Continue to update plans and ordinances to stay current with mitigation responsibilities.
Objective 1.B: Encourage and facilitate the adoption of building codes that protect renovated existing assets and new development in hazard areas.	
Action 1.B.1	Continue to require code compliance in areas such as earthquake (seismic) construction.
Action 1.B.2	Continue to require code compliance in weed abatement in brush areas.

Goal 1: Promote disaster resistant future development. (continued)	
Objective 1.C: Encourage consistent enforcement of general plans, zoning ordinance and building codes.	
Action 1.C.1	Continue current practice of code enforcement in all areas that require compliance.

Goal 2: Promote public understanding, support and demand for hazard mitigation.	
Objective 2.A: Educate the public to increase awareness of hazards and opportunities for mitigation actions.	
Action 2.A.1	Through print media and the city website, continue to make available information regarding hazard mitigation in the City of La Mesa.
Action 2.A.2	Increase awareness through public contacts in City facilities and field opportunities.
Objective 2.B: Promote partnerships between the state, counties, local and tribal governments to identify, prioritize, and implement mitigation actions.	
Action 2.B.1	Continue to use County and State OES to coordinate and assist in implementation of mitigation awareness and efforts.
Objective 2.C: Promote hazard mitigation in the business community.	
Action 2.C.1	Continue to provide information to businesses during annual fire prevention inspections.
Objective 2.D: Monitor and publicize the effectiveness of mitigation actions implemented statewide.	
Action 2.D.1	Continue to update the city website with information regarding mitigation efforts.

Goal 3: Build and support local capacity and commitment to continuously become less vulnerable to hazards.	
Objective 3.A: Increase awareness and knowledge of hazard mitigation principles and practice among state, local and tribal officials.	
Action 3.A.1	Continue to be a part in the efforts of the County UDC as well as other partnerships with agencies that have a mutual interest in hazard mitigation.
Action 3.A.2	Continue to conduct annual EOC drills at the city level.
Objective 3.B: Development model hazard mitigation plan and provide technical assistance to State agencies, local and tribal governments to prepare hazard mitigation plans.	

Goal 3: Build and support local capacity and commitment to continuously become less vulnerable to hazards. (continued)	
Action 3.B.1	At the regional level, continue to be a part of the development of the regional plan.

Goal 4: Improve hazard mitigation coordination and communication with federal, state, local and tribal governments.	
Objective 4.A: Establish and maintain closer working relationships with state agencies, local and tribal governments.	
Action 4.A.1	Continue participation at the UDC level in the region.
Action 4.A.2	Maintain relationships with Helix Water including disaster drill cross participation.
Action 4.A.3	Continue relationships with local service groups and other community members.
Objective 4.B: Encourage other organizations to incorporate hazard mitigation plans.	
Action 4.B.1	Provide assistance if needed to Chamber of Commerce and other local groups with an interest in hazard mitigation.
Objective 4.C: Improve the State's capability and efficiency at administering pre-and post-disaster mitigation.	
Action 4.C.1	Include County and State OES and others in the cities annual EOC drill.

Goal 5: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and State-owned facilities, due to <u>floods</u>.	
Objective 5.A: Protect existing assets with the highest relative vulnerability to the effects of floods within the 100-year floodplain.	
Action 5.A.1	Pursue grant funding for flood control projects as needed.
Objective 5.B: Minimize repetitive losses caused by flooding.	
Action 5.B.1	Continue to maintain Alvarado Creek drainage in this flood prone area.

Goal 6: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and State-owned facilities, due to wildfires.	
Objective 6.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to wildfires in new development areas.	
Action 6.A.1	Continue to require and enforce fire codes involving new construction in the Eastridge Development.
Action 6.A.2	Continue to ensure street width and turn around regulations are met in these urban/interface areas.
Objective 6.B: Protect existing assets with the highest relative vulnerability to the effects of wildfires.	
Action 6.B.1	Continue current practice of weed abatement in all city areas that are vulnerable.
Objective 6.C: Coordinate with and support existing efforts to mitigate wildfire hazards (e.g., US Forest Service, Bureau of Land Management).	
Action 6.C.1	Continue to participate in Zone, County and State mutual and automatic aid agreements.

Goal 7: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and State-owned facilities, due to dam failure.	
Objective 7.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to dam failure.	
Action 7.A.1	Although the Lake Murray Dam is outside city limits, monitor and cooperate with the City of San Diego to reduce the possible effects of dam failure to the City of La Mesa.
Objective 7.B: Address identified data limitations regarding the lack of information about the dam.	
Action 7.B.1	Maintain communications with the City of San Diego regarding dam failure at Lake Murray.

Goal 8: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and State-owned facilities, due to geological hazards.	
Objective 8.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to geological hazards.	
Action 8.A.1	Continue use of Uniform Building Code in all areas of new construction and remodel activity within the City.

5.11.2.3 Prioritization and Implementation of Action Items

Once the comprehensive list of jurisdictional goals, objectives, and action items listed above was developed, the proposed mitigation actions were prioritized. This step resulted in a list of acceptable and realistic actions that address the hazards identified in each jurisdiction. This prioritized list of action items was formed by the LPG weighing STAPLEE criteria

The Disaster Mitigation Action of 2000 (at 44 CFR Parts 201 and 206) requires the development of an action plan that not only includes prioritized actions but one that includes information on how the prioritized actions will be implemented. Implementation consists of identifying who is responsible for which action, what kind of funding mechanisms and other resources are available or will be pursued, and when the action will be completed.

The top 10 prioritized mitigation actions as well as an implementation strategy for each are:

Action Item #1: Continue to update plans and ordinances to stay current with mitigation responsibilities.

Coordinating Individual/Organization: Community Development Department

Potential Funding Source: General Fund

Implementation Timeline: On-going

Action Item #2: Through print media and the city website, continue to make available information regarding hazard mitigation in the City of La Mesa

Coordinating Individual/Organization: Fire Department

Potential Funding Source: General Fund

Implementation Timeline: On-going

Action Item #3: Continue to use County and State OES to coordinate and assist in implementation of mitigation awareness and efforts.

Coordinating Individual/Organization: Fire Department

Potential Funding Source: General Fund

Implementation Timeline: On-going

Action Item #4: Continue current practice of weed abatement in all city areas that are vulnerable.

Coordinating Individual/Organization: Fire Department

Potential Funding Source: General Fund

Implementation Timeline: On-going

Action Item #5: Continue to participate in Zone, County and State mutual and automatic aid agreements.

Coordinating Individual/Organization: Fire Department

Potential Funding Source: General Fund

Implementation Timeline: On-going

Action Item #6: Coordinate with other agencies and departments on training and planning for terrorist activities.

Coordinating Individual/Organization: Fire Department

Potential Funding Source: General Fund and possible grants

Implementation Timeline: On-going

Action Item #7: Maintain communication links that disseminate intelligence information.

Coordinating Individual/Organization: Police Department

Potential Funding Source: General Fund

Implementation Timeline: On-going

Action Item #8: Continue use of Uniform Building Code in all areas of new construction and remodel activity within the City.

Coordinating Individual/Organization:

Potential Funding Source: General Fund

Implementation Timeline: On-going

Action Item #9: Continue to conduct annual EOC drills at the city level.

Coordinating Individual/Organization: Fire Department

Potential Funding Source: General Fund and possible grants

Implementation Timeline: On-going

Action Item #10: At the regional level, continue to be a part of the development of the regional plan.

Coordinating Individual/Organization: Fire Department

Potential Funding Source: General Fund and possible grants

Implementation Timeline: On-going

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5.12 CITY OF LEMON GROVE

The City of Lemon Grove (Lemon Grove) reviewed a set of jurisdictional-level hazard maps including detailed critical facility information and localized potential hazard exposure/loss estimates to help identify the top hazards threatening their jurisdiction. In addition, LPGs were supplied with exposure/loss estimates for Lemon Grove summarized in Table 5.12-1. See Section 4.0 for additional details.

Table 5.12-1
Summary of Potential Hazard-Related Exposure/Loss in Lemon Grove

		Residential		Commercial		Critical Facilities	
Hazard Type	Exposed Population	Number of Residential Buildings	Potential Exposure/ Loss for Residential Buildings (x $1,000)	Number of Commercial Buildings	Potential Exposure/ Loss for Commercial Buildings (x $1,000)	Number of Critical Facilities	Potential Exposure for Critical Facilities (x $1,000)
Coastal Storm / Erosion	0	0	0	0	0	0	0
Dam Failure	0	0	0	0	0	0	0
Earthquake (Annualized Loss - Includes shaking, liquefaction and landslide components)	26,114	7,224	510	50	127	24* / 24**	164* / 1,361**
Floods (Loss)							
100 Year	280	78	3,311	3	1,815	0	0
500 Year	294	82	3,456	3	1,815	0	0
Rain-Induced Landslide							
High Risk	199	56	12,135	0	0	0	0
Moderate Risk	137	24	10,063	0	2,336	8	18,685
Tsunami	0	0	0	0	0	0	0
Wildfire/ Structure Fire							
Extreme	0	0	0	0	0	0	0
Very High	0	0	0	0	0	0	0
High	0	0	0	0	0	0	0
Moderate	25,023	6,871	1,706,745	47	208,246	35	58,050

* Represents 100-year earthquake value under three earthquake scenarios (shake only, shake and liquefaction, and shake and landslide).

** Represents 500-year earthquake value under three earthquake scenarios (shake only, shake and liquefaction, and shake and landslide).

After reviewing the localized hazard maps and exposure/loss table above, the following hazards were identified by the Lemon Grove LPG as their top five.

- **Earthquake**
- **Flood**

- **Landslide**
- **Wildfire**
- **Dam Failure**

5.12.1 Capabilities Assessment

The LPG identified current capabilities available for implementing hazard mitigation activities. The Capability Assessment (Assessment) portion of the jurisdictional mitigation plan identifies administrative, technical, legal and fiscal capabilities. This includes a summary of departments and their responsibilities associated to hazard mitigation planning as well as codes, ordinances, and plans already in place associated to hazard mitigation planning. The second part of the Assessment provides Lemon Grove's fiscal capabilities that may be applicable to providing financial resources to implement identified mitigation action items.

5.12.1.1 Existing Institutions, Plans, Policies and Ordinances

The following is a summary of existing departments in Lemon Grove and their responsibilities related to hazard mitigation planning and implementation, as well as existing planning documents and regulations related to mitigation efforts within the community. The administrative and technical capabilities of Lemon Grove, as shown in Table 5.12-2, provides an identification of the staff, personnel, and department resources available to implement the actions identified in the mitigation section of the Plan. Specific resources reviewed include those involving technical personnel such as planners/engineers with knowledge of land development and land management practices, engineers trained in construction practices related to building and infrastructure, planners and engineers with an understanding of natural or manmade hazards, floodplain managers, surveyors, personnel with GIS skills and scientists familiar with hazards in the community.

- City of Lemon Grove San Miguel Consolidated Fire Protection District
  - Includes Fire Prevention Department, Fire Plans and Subdivision Review
    - 1.1.11 Plans review of compliance with State, Federal and Local ordinances.
    - 1.1.12 Evaluation of water supply needs and establishing the location of current and future water supply needs.
  - Fire Prevention Inspections Department
    - 1.1.13 Conducts scheduled inspections of new construction.
    - 1.1.14 Initiate compliance Inspection of Hazardous Occupancies.
- City of Lemon Grove Community Services Department
  - Streets Division: Responsible for repairing and maintaining streets, curbs, gutters, storm drain channels, street sweeping and sidewalks
  - Parks Division: Responsible for maintaining trees and landscaping in public right-of-way.
  - Sewer Division: Identify sewer spills and mediate such spills.

- Facilities Division: Responsible for the day-to-day operation and maintenance of City facilities.

- City of Lemon Grove Community Development Department
  - Planning: Oversees implementation of General Plan requirements and reviews projects to ensure minimal adverse impacts from flood plains, slopes, canyons and grading.
- City of Lemon Grove Engineering Services Department
  - Storm water: Reduction of urban runoff and storm water to the greatest extent possible.
  - Reviews project designs and street and public improvements for proper engineering design.
- San Diego County Sheriff's Department
  - Provide law enforcement services (scene security, traffic and crowd control, and criminal investigation) at scene of a disaster.
  - Department policies and procedures to respond to and manage critical incidents.

Table 5.12-2
City of Lemon Grove: Administrative and Technical Capacity

Staff/Personnel Resources	Y/N	Department/Agency and Position
A. Planner(s) or engineer(s) with knowledge of land development and land management practices	Y	Community Development-Director, Senior Planner, Engineer Service-City Engineer, Association of Engineers
B. Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Y	Engineer Service-City of Engineer, Association of Engineers
C. Planners or Engineer(s) with an understanding of natural and/or manmade hazards	Y	Community Development Director
D. Floodplain manager	N	
E. Surveyors	N	
F. Staff with education or expertise to assess the community's vulnerability to hazards	Y	Fire Department-Division Chief
G. Personnel skilled in GIS and/or HAZUS	Y	Community Development-Administration Analyst /, Engineer Service-Storm Water Specialist
H. Scientists familiar with the hazards of the community	N	
I. Emergency manager	Y	City Manager
J. Grant writers	Y	City Manager-Grant Writer

The legal and regulatory capabilities of Lemon Grove are shown in Table 5.12-3, which presents the existing ordinances and codes that affect the physical or built environment of Lemon Grove. Examples of legal and/or regulatory capabilities can include: the City's building codes, zoning ordinances, subdivision ordnances, special purpose ordinances, growth management ordinances, site plan review, general plans, capital improvement plans, economic development plans, emergency response plans, and real estate disclosure plans.

Table 5.12-3
City of Lemon Grove: Legal and Regulatory Capability

Regulatory Tools (ordinances, codes, plans)	Local Authority (Y/N)	Does State Prohibit? (Y/N)
A. Building code	Y	N
B. Zoning ordinance	Y	N
C. Subdivision ordinance or regulations	Y	N
D. Special purpose ordinances (floodplain management, storm water management, hillside or steep slope ordinances, wildfire ordinances, hazard setback requirements)	Y	N
E. Growth management ordinances (also called "smart growth" or anti-sprawl programs)	Y	N
F. Site plan review requirements	Y	N
G. General or comprehensive plan	Y	N
H. A capital improvements plan	Y	N
I. An economic development plan	Y	N
J. An emergency response plan	Y	N
K. A post-disaster recovery plan	Y	N
L. A post-disaster recovery ordinance	Y	N
M. Real estate disclosure requirements	N	N

5.12.1.2 Fiscal Resources

Table 5.12-4 shows specific financial and budgetary tools available to Lemon Grove such as community development block grants; capital improvements project funding; authority to levy taxes for specific purposes; fees for water, sewer, gas, or electric services; impact fees for homebuyers or developers for new development; ability to incur debt through general obligations bonds; and withholding spending in hazard-prone areas.

Table 5.12-4
City of Lemon Grove: Fiscal Capability

Financial Resources	Accessible or Eligible to Use (Yes/No)
A. Community Development Block Grants (CDBG)	Y
B. Capital improvements project funding	Y
C. Authority to levy taxes for specific purposes	N
D. Fees for water, sewer, gas, or electric service	UK
E. Impact fees for homebuyers or developers for new developments/homes	Y
F. Incur debt through general obligation bonds	Y
G. Incur debt through special tax and revenue bonds	Y
H. Incur debt through private activity bonds	Y
I. Withhold spending in hazard-prone areas	Y

5.12.2 Goals, Objectives and Actions

Listed below are Lemon Grove's specific hazard mitigation goals, objectives and related potential actions. For each goal, one or more objectives have been identified that provide strategies to attain the goal. Where appropriate, the City has identified a range of specific actions to achieve the objective and goal.

The goals and objectives were developed by considering the risk assessment findings, localized hazard identification and loss/exposure estimates, and an analysis of the jurisdiction's current capabilities assessment. These preliminary goals, objectives and actions were developed to represent a vision of long-term hazard reduction or enhancement of capabilities. To help in further development of these goals and objectives, the LPG compiled and reviewed current jurisdictional sources including the City's planning documents, codes, and ordinances. In addition, City representatives met with consultant staff and/or OES to specifically discuss these hazard-related goals, objectives and actions as they related to the overall Plan. Representatives of numerous City departments involved in hazard mitigation planning, including Fire, Police, and Public Works provided input to the Lemon Grove LPG. The Lemon Grove LPG members were:

- Battalion Chief Jon Torchia
- Captain Gary Croucher
- Captain Mike Stein
- Captain Don Garcia
- Engineer Theresa Cates

Once developed, City staff presented them to the City of Lemon Grove City Council for their approval.

Public meetings were held throughout the County to present these preliminary goals, objectives and actions to citizens and to receive public input. At these meetings, specific consideration was given to hazard identification/profiles and the vulnerability assessment results. The following sections present the hazard-related goals, objectives and actions as prepared by Lemon Grove's LPG in conjunction with the Hazard Mitigation Working Group, locally elected officials, and local citizens.

5.12.2.1 Goals

The City of Lemon Grove has developed the following 5 Goals for their Hazard Mitigation Plan.

Goal 1. Promote disaster-resistant future development.

Goal 2. Build and support local capacity and commitment to continuously become less vulnerable to hazards.

Goal 3. Improve hazard mitigation coordination and communication with federal, state, and local governments.

"Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to":

Goal 4. Floods.

Goal 5. Earthquakes.

5.12.2.2 Objectives and Actions

The City of Lemon Grove developed the following broad list of objectives and actions to assist in the implementation of each of their 5 identified goals. The City of Lemon Grove developed objectives to assist in achieving their hazard mitigation goals. For each of these objectives, specific actions were developed that would assist in their implementation. A discussion of the prioritization and implementation of the action items is provided in Section 5.12.2.3.

Goal 1: Promote disaster-resistant future development.	
Objective 1.A: Facilitate the development or updating of general plans and zoning ordinances to limit development in hazard areas.	
Action 1.A.1	Update the General Plan every 10 years.
Action 1.A.2	Attract and retain qualified, professional and experienced staff

Goal 2: Build and support local capacity and commitment to continuously become less vulnerable to hazards.	
Objective 2.A: Increase awareness and knowledge of hazard mitigation principles and practices among local officials.	
Action 2.A.1	Build and support local partnerships, such as the United Disaster Council (UDC) and Homeland Preparedness Coordination Council (HPCC) and the coordination of mutual aid agreements.
Action 2.A.2	Build a team of community volunteers to work with the community before, during and after a disaster.
Action 2.A.3	Build hazard mitigation concerns into City of Lemon Grove planning and budgetary processes.
Objective 2.B: Solicit community organizations to incorporate hazard mitigation activities.	
Action 2.B.1	Communicate with local civic groups, schools and employees to encourage them to promote hazard mitigation as common safe working conditions.
Objective 2.C: Increase awareness and knowledge of hazard mitigation principles and practices among local residents.	
Action 2.C.1	Publish educational information in the City newsletter and on the City's website.

Goal 3: Improve hazard mitigation coordination and communication with federal, state and local governments.	
Objective 3.A: Establish and maintain closer working relationships with federal, state and local governments.	
Action 3.A.1	Build and support local partnerships, such as the United Disaster Council (UDC) and Homeland Preparedness Coordination Council (HPCC) and the coordination of mutual aid agreements.
Action 3.A.2	Encourage development of standardized Emergency Operations Plans within the City of Lemon Grove that coordinate with countywide Emergency Operations Plans.
Action 3.A.3	Develop multi-jurisdictional multi-functional training and exercises to enhance hazard mitigation.
Action 3.A.4	Leverage resources and expertise that will further hazard mitigation efforts.
Objective 3.B: Support a coordinated permitting activities process.	
Action 3.B.1	Develop notification procedures for all permits that support affected agencies.
Action 3.B.2	Streamline policies to eliminate conflicts and duplication of effort.
Action 3.B.3	Exchange resources and work with other agencies.

Goal 4: Reduce the possibility of damage and losses to existing assets, particularly people, critical infrastructure and public facilities due to floods.	
Objective 4.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to floods.	
Action 4.A.1	Review and compare existing flood control standards, zoning and building requirements.
Action 4.A.2	Adopt policies that discourage growth in flood-prone areas.
Action 4.A.3	Seek pre-disaster mitigation funding.

Goal 5: Reduce the possibility of damage and losses to existing assets, particularly people, critical infrastructure and public facilities due to earthquakes.	
Objective 5.A: Develop programs to limit damage and losses due to earthquakes	
Action 5.A.1	Update Building Codes to reflect current standards.
Action 5.A.2	Identify hazard-prone structures.
Action 5.A.3	Construct critical infrastructure and public facilities that will remain functional after earthquakes.

5.12.2.3 Prioritization and Implementation of Action Items

Once the comprehensive list of jurisdictional goals, objectives, and action items listed above was developed, the proposed mitigation actions were prioritized. This step resulted in a list of acceptable and realistic actions that address the hazards identified in each jurisdiction. This prioritized list of action items was formed by the LPG weighing STAPLEE criteria

The Disaster Mitigation Action of 2000 (at 44 CFR Parts 201 and 206) requires the development of an action plan that not only includes prioritized actions but one that includes information on how the prioritized actions will be implemented. Implementation consists of identifying who is responsible for which action, what kind of funding mechanisms and other resources are available or will be pursued, and when the action will be completed.

The top 10 prioritized mitigation actions as well as an implementation strategy for each are:

Action Item #1: Build and support local partnerships, such as the United Disaster Council (UDC) and Homeland Preparedness Coordination Council (HPCC), and the coordination of mutual aid agreements.

Coordinating Individual/Organization: Fire Chief

Potential Funding Source: General Fund

Implementation Timeline: On-going

Action Item #2: Build hazard mitigation concerns into City of Lemon Grove planning and budgetary processes.

Coordinating Individual/Organization: City Manager, CIP Committee

Potential Funding Source: General Fund

Implementation Timeline: February - March of each fiscal year

Action Item #3: Publish educational information in the City newsletter and on the City's website.

Coordinating Individual/Organization: City Manager Department

Potential Funding Source: General Fund

Implementation Timeline: Semi-annual, on-going

Action Item #4: Encourage development of standardized Emergency Operations Plans within the City of Lemon Grove that coordinate with countywide Emergency Operations Plans.

Coordinating Individual/Organization: Fire Chief

Potential Funding Source: General Fund

Implementation Timeline: On-going

Action Item #5: Streamline policies to eliminate conflicts and duplication of effort.

Coordinating Individual/Organization: Comm. Dev. Director

Potential Funding Source: General Fund

Implementation Timeline: On-going

Action Item #6: Exchange resources and work with other agencies

Coordinating Individual/Organization: Fire Chief

Potential Funding Source: General Fund

Implementation Timeline: On-going

Action Item #7: Review and compare existing flood control standards, zoning, and building requirements.

Coordinating Individual/Organization: Comm. Dev. Director

Potential Funding Source: General Fund

Implementation Timeline: On-going

Action Item #8: Adopt policies that discourage growth in flood-prone areas.

Coordinating Individual/Organization: City Manager

Potential Funding Source: General Fund

Implementation Timeline: January 2005 to December 2006

Action Item #9: Update Building Codes to reflect current standards.

Coordinating Individual/Organization: City Manager

Potential Funding Source: General Fund

Implementation Timeline: As State building code changes

Action Item #10: Identify hazard-prone areas

Coordinating Individual/Organization: Fire Chief

Potential Funding Source: General Fund

Implementation Timeline: July - October 2004

5.13 CITY OF NATIONAL CITY

The City of National City (National City) reviewed a set of jurisdictional-level hazard maps including detailed critical facility information and localized potential hazard exposure/loss estimates to help identify the top hazards threatening their jurisdiction. In addition, LPGs were supplied with exposure/loss estimates for National City summarized in Table 5.13-1. See Section 4.0 for additional details.

Table 5.13-1
Summary of Potential Hazard-Related Exposure/Loss in National City

		Residential		Commercial		Critical Facilities	
Hazard Type	Exposed Population	Number of Residential Buildings	Potential Exposure/ Loss for Residential Buildings (x $1,000)	Number of Commercial Buildings	Potential Exposure/ Loss for Commercial Buildings (x $1,000)	Number of Critical Facilities	Potential Exposure for Critical Facilities (x $1,000)
Coastal Storm / Erosion	0	0	0	0	0	0	0
Dam Failure	1,895	349	86,809	106	464,094	59	245,984
Earthquake (Loss)	54,081	8,776	1133	157	552	101* / 105**	6,850* / 48,848**
Floods (Loss)							
100 Year	2,702	439	19,845	37	21,306	18	114,649
500 Year	6,206	1,007	26,843	71	35,786	23	127,890
Rain-Induced Landslide							
High Risk	4,544	754	232,328	7	31,202	8	25,611
Moderate Risk	0	0	0	0	0	0	0
Tsunami	258	51	12,214	8	41,166	27	198,970
Wildfire/ Structure Fire							
Extreme	0	0	0	0	0	0	0
Very High	0	0	0	0	0	0	0
High	0	0	0	11	70,984	0	0
Moderate	51,399	8,691	2,556,844	146	635,882	139	785,917

* Represents 100-year earthquake value under three earthquake scenarios (shake only, shake and liquefaction, and shake and landslide).

** Represents 500-year earthquake value under three earthquake scenarios (shake only, shake and liquefaction, and shake and landslide).

After reviewing the localized hazard maps and exposure/loss table above, the following were identified by the National City LPG as their top hazards:

- **Floods**: dam failures
- **Seismic**: older structures
- **Structure Fires**: older structures

- **Hazmat Release**: industrial facilities
- **Lead Based Paint**: older homes

5.13.1 Capabilities Assessment

The LPG identified current capabilities available for implementing hazard mitigation activities. The Capability Assessment (Assessment) portion of the jurisdictional mitigation plan identifies administrative, technical, legal and fiscal capabilities. This includes a summary of departments and their responsibilities associated to hazard mitigation planning as well as codes, ordinances, and plans already in place associated to hazard mitigation planning. The second part of the Assessment provides National City's fiscal capabilities that may be applicable to providing financial resources to implement identified mitigation action items.

5.13.1.1 Existing Institutions, Plans, Policies and Ordinances

The following is a summary of existing departments in National City and their responsibilities related to hazard mitigation planning and implementation, as well as existing planning documents and regulations related to mitigation efforts within the community. The administrative and technical capabilities of National City, as shown in Table 5.13-2, provides an identification of the staff, personnel, and department resources available to implement the actions identified in the mitigation section of the Plan. Specific resources reviewed include those involving technical personnel such as planners/engineers with knowledge of land development and land management practices, engineers trained in construction practices related to building and infrastructure, planners and engineers with an understanding of natural or manmade hazards, floodplain managers, surveyors, personnel with GIS skills and scientists familiar with hazards in the community.

- City of National City Fire Department
  - Permits and Plan Review
  - Code Enforcement
  - Public Education
  - Emergency Plan
- City of National City Building Department
  - Permits and Plan Review
  - Code Enforcement
  - Public Education
- City of National City Public Works Department
  - Code Enforcement
  - Permits – Grading
  - Flood Plan Check

- City of National City Police Department
  - Public Education

Table 5.13-2
City of National City: Administrative and Technical Capacity

Staff/Personnel Resources	Y/N	Department/Agency and Position
A. Planner(s) or engineer(s) with knowledge of land development and land management practices	Y	Planning/CDC – Director, 3 Planners
B. Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Y	Building – Director, 2 Inspectors
C. Planners or Engineer(s) with an understanding of natural and/or manmade hazards	Y	Fire/Building/Planning/Police – Directors
D. Floodplain manager	Y	Public Works/Engineering – Director, 2 Engineers
E. Surveyors	N	
F. Staff with education or expertise to assess the community's vulnerability to hazards	Y	Fire/Building/Planning/Police – Directors
G. Personnel skilled in GIS and/or HAZUS	Y	Public Works/Engineering – Director, 2 Engineers
H. Scientists familiar with the hazards of the community	N	
I. Emergency manager	Y	Fire – Director
J. Grant writers	N	

The legal and regulatory capabilities of National City are shown in Table 5.13-3, which presents the existing ordinances and codes that affect the physical or built environment of National City. Examples of legal and/or regulatory capabilities can include: the City's building codes, zoning ordinances, subdivision ordnances, special purpose ordinances, growth management ordinances, site plan review, general plans, capital improvement plans, economic development plans, emergency response plans, and real estate disclosure plans.

Table 5.13-3
City of National City: Legal and Regulatory Capability

Regulatory Tools (ordinance, codes, plans)	Local Authority (Y/N)	Does State Prohibit? (Y/N)
A. Building code	Y	N
B. Zoning ordinance	Y	N
C. Subdivision ordinance or regulations	Y	N
D. Special purpose ordinances (floodplain management, storm water management, hillside or steep slope ordinances, wildfire ordinances, hazard setback requirements)	Y	N
E. Growth management ordinances (also called "smart growth" or anti-sprawl programs)	N	N
F. Site plan review requirements	Y	N
G. General or comprehensive plan	Y	N
H. A capital improvements plan	Y	N
I. An economic development plan	Y	N
J. An emergency response plan	Y	N
K. A post-disaster recovery plan	Y	N
L. A post-disaster recovery ordinance	Y	N
M. Real estate disclosure requirements	N	N

5.13.1.2 Fiscal Resources

Table 5.13-4 shows specific financial and budgetary tools available to National City such as community development block grants; capital improvements project funding; authority to levy taxes for specific purposes; fees for water, sewer, gas, or electric services; impact fees for homebuyers or developers for new development; ability to incur debt through general obligations bonds; and withholding spending in hazard-prone areas.

Table 5.13-4
City of National City: Fiscal Capability

Financial Resources	Accessible or Eligible to Use (Yes/No)
A. Community Development Block Grants (CDBG)	Y-Eligible, but limited accessibility
B. Capital improvements project funding	Y- Eligible, but limited accessibility
C. Authority to levy taxes for specific purposes	Y- Eligible, but limited accessibility
D. Fees for water, sewer, gas, or electric service	Y-Sewer Only
E. Impact fees for homebuyers or developers for new developments/homes	Y-Parks Only
F. Incur debt through general obligation bonds	Y- Eligible, but limited accessibility
G. Incur debt through special tax and revenue bonds	Y- Eligible, but limited accessibility
H. Incur debt through private activity bonds	Y-Accessible
I. Withhold spending in hazard-prone areas	Y

5.13.2 Goals, Objectives and Actions

Listed below are National City's specific hazard mitigation goals, objectives and related potential actions. For each goal, one or more objectives have been identified that provide strategies to attain the goal. Where appropriate, the City has identified a range of specific actions to achieve the objective and goal.

The goals and objectives were developed by considering the risk assessment findings, localized hazard identification and loss/exposure estimates, and an analysis of the jurisdiction's current capabilities assessment. These preliminary goals, objectives and actions were developed to represent a vision of long-term hazard reduction or enhancement of capabilities. To help in further development of these goals and objectives, the LPG compiled and reviewed current jurisdictional sources including the City's planning documents, codes, and ordinances. In addition, City representatives met with consultant staff and/or OES to specifically discuss these hazard-related goals, objectives and actions as they related to the overall Plan. Representatives of numerous City departments involved in hazard mitigation planning, including Fire, Police, and Public Works provided input to the National City LPG. The National City LPG members were:

- Kathleen Trees (Building and Safety Department)
- Donald Condon (Fire Department)
- Walter Amedee (Fire Department)
- Roger Post (Planning Department)
- Mike Harlan (Police Department)
- Din Daneshfar (Public Works/Engineering Department)

Once developed, City staff presented them to the City of National City City Council for their approval.

Public meetings were held throughout the County to present these preliminary goals, objectives and actions to citizens and to receive public input. At these meetings, specific consideration was given to hazard identification/profiles and the vulnerability assessment results. The following sections present the hazard-related goals, objectives and actions as prepared by National City's LPG in conjunction with the Hazard Mitigation Working Group, locally elected officials, and local citizens.

5.13.2.1 Goals

The City of National City has developed the following 8 Goals for their Hazard Mitigation Plan (See Attachment A for Goal 8).

Goal 1. Promote disaster-resistant future development.

Goal 2. Promote public understanding, support and demand for hazard mitigation.

Goal 3. Build and support local capacity and commitment to continuously become less vulnerable to hazards.

Goal 4. Improve hazard mitigation coordination and communication with federal, state and local governments.

"Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to":

Goal 5. Earthquakes.

Goal 6. Floods.

Goal 7. Structural Fire/Wildfire.

Goal 8. Manmade Hazards.

5.13.2.2 Objectives and Actions

The City of National City developed the following broad list objectives and actions to assist in the implementation of each of their 8 identified goals. The City of National City developed objectives to assist in achieving their hazard mitigation goals. For each of these objectives, specific actions were developed that would assist in their implementation. A discussion of the prioritization and implementation of the action items is provided in Section 5.13.2.3.

Goal 1: Promote disaster resistant future development.	
Objective 1.A: Continue to address natural hazards in future general plan updates.	
Action 1.A.1	Continue to update the General Plan periodically.
Action 1.A.2	Continue to update the Land Use Code periodically.

Goal 1: Promote disaster resistant future development. (continued)	
Objective 1.B: Encourage and facilitate the adoption of building codes that protect renovated existing assets and new development in hazard areas.	
Action 1.B.1	Adopt and implement current codes per state cycle.
Action 1.B.2	Adopt and implement existing building codes
Action 1.B.3	Adopt and implement lead-based paint ordinance.
Objective 1.C: Encourage consistent enforcement of the National City land use code and building codes.	
Action 1.C.1	Encourage Development Services Group (DSG) meetings quarterly.
Action 1.C.2	Train staff on current Land Use and Building Codes.
Objective 1.D: Discourage future development that exacerbates hazardous conditions.	
Action 1.D.1	Maintain and update the Flood Plain Ordinance periodically.
Action 1.D.2	Continue to update Land Use Codes periodically.
Objective 1.E: Address identified data limitations regarding development in hazard areas.	
Action 1.E.1	Implement Geographic Information System (GIS) program citywide.
Action 1.E.2	Use GIS and Census data to locate hazard areas in development zones.

Goal 2: Promote public understanding, support and demand for hazard mitigation.	
Objective 2.A: Educate the public to increase awareness of hazards and opportunities for mitigation actions.	
Action 2.A.1	Conduct workshops with community businesses on hazards.
Action 2.A.2	Establish a community risk reduction campaign.
Objective 2.B: Promote partnerships between the state, counties and local governments to identify, prioritize and implement mitigation actions.	
Action 2.B.1	Participate in workgroup activities with the County Office of Emergency Services (OES), Unified Disaster Council (UDC).
Action 2.B.2	Participate in workgroup activities with other municipalities.

Goal 2: Promote public understanding, support and demand for hazard mitigation. (continued)	
Action 2.B.3	Participate in workgroup activities with SANDAG.
Action 2.B.4	Participate in workgroup activities with Caltrans.
Objective 2.C: Promote hazard mitigation in the business community.	
Action 2.C.1	Conduct workshops with Community Businesses.
Action 2.C.2	Conduct informational meetings with Community Groups.
Objective 2.D: Monitor and publicize the effectiveness of mitigation actions implemented citywide.	
Action 2.D.1	Develop method to keep community informed of progress.
Objective 2.E: Discourage activities that exacerbate hazardous conditions.	
Action 2.E.1	Implement code enforcement for building without permits.
Action 2.E.2	Implement code enforcement for hazardous occupancies in accordance with adopted codes.

Goal 3: Build and support local capacity and commitment to continuously become less vulnerable to hazards.	
Objective 3.A: Increase awareness and knowledge of hazard mitigation principles and practice among local officials.	
Action 3.A.1	Conduct workshops with Community Officials
Action 3.A.2	Adopt ordinance for reduced fees on hazard mitigation projects.
Objective 3.B: Develop a hazard mitigation plan and provide technical assistance to implement the plan.	
Action 3.B.1	Work with consultants to develop hazard mitigation plan.
Action 3.B.2	Implement hazard mitigation plan recommendations.
Action 3.B.3	Establish HAZUS pilot program (GIS Based Community Risk Assessment Program).

Goal 4: Improve hazard mitigation coordination and communication with federal, state and local governments.	
Objective 4.A: Establish and maintain closer working relationships with state agencies and local governments.	
Action 4.A.1	Work with California U.S. Earthquake Consortium (CUSEC), National Institute for Building Sciences, Chamber of Commerce, American Red Cross, County Office of Emergency Services (OES), Unified Disaster Council (UDC), and Federal Emergency Management Agency (FEMA) to develop mitigation plans.
Action 4.A.2	Work with other municipalities to develop mitigation plans.
Objective 4.B: Encourage other organizations to incorporate hazard mitigation activities.	
Action 4.B.1	Hold seminars to encourage public and other organizations to take mitigation actions. This initiative can be developed in modular format to address the information needs of a range of target groups.
Action 4.B.2	Work with neighboring municipalities to develop joint mitigation plans.
Objective 4.C: Improve the City's capability and efficiency at administering pre- and post- disaster mitigation.	
Action 4.C.1	Work with consultants to develop hazard mitigation plan.
Action 4.C.2	Maintain an Emergency Response Plan.
Action 4.C.3	Schedule Emergency Response Plan Exercises.
Action 4.C.4	Educate public with pre-and post disaster advise.

Goal 5: Reduce the possibility of damage and losses to existing assets, particularly people and critical facilities/infrastructure due to earthquakes.	
Objective 5.A: Develop a comprehensive approach to reducing the possibility of damage and looses due to earthquakes.	
Action 5.A.1	Prepare detailed Engineering Evaluation of High Risk Bridges.
Action 5.A.2	Use Bridge/Access Design Standards.
Action 5.A.3	Maintain an Emergency Response Plan.
Action 5.A.4	Schedule Emergency Response Plan Exercises.
Action 5.A.5	Provide information to public of seismic risks through Housing Program.

Goal 5: Reduce the possibility of damage and losses to existing assets, particularly people and critical facilities/infrastructure due to earthquakes. (continued)	
Action 5.A.6	Maintain search and rescue equipment deployment objectives.
Action 5.A.7	Determine structural safety of buildings to be used for care and shelter of evacuees.
Objective 5.B: Protect existing assets with the highest relative vulnerability to the effects of earthquakes	
Action 5.B.1	Adopt and implement existing building codes.
Action 5.B.2	Conduct informational meetings with Community Groups.
Objective 5.C: Coordinate with and support existing efforts to mitigate earthquake hazards.	
Action 5.C.1	Work with Central U.S. Earthquake Consortium (CUSEC).
Action 5.C.2	Work with Caltrans.
Objective 5.D: Address identified data limitations regarding the lack of information about the relative vulnerability of assets from earthquakes.	
Action 5.D.1	Implement GIS program citywide.
Action 5.D.2	Use GIS and Census data to locate vulnerable buildings.

Goal 6: Reduce the possibility of damage and losses to existing assets, particularly people and critical facilities/infrastructure due to floods.	
Objective 6.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to floods.	
Action 6.A.1	Maintain Flood Retrofitting for Residential Structures.
Action 6.A.2	Maintain Storm Water System in Operable Conditions.
Action 6.A.3	Reduce Impervious Surfaces
Action 6.A.4	Maintain an Evacuation Plan.
Action 6.A.5	Maintain search and rescue equipment deployment objectives.

Goal 6: Reduce the possibility of damage and losses to existing assets, particularly people and critical facilities/infrastructure due to <u>floods</u>. (continued)	
Objective 6.B: Protect existing assets with the highest relative vulnerability to the effects of floods within the 100-year floodplain.	
Action 6.B.1	Construct water barriers as necessary.
Action 6.B.2	Construct detention basins as necessary.
Objective 6.C: Coordinate with and support existing efforts to mitigate floods (e.g., U.S. Army Corps of Engineers, US Bureau of Reclamation, California Department of Water Resources).	
Action 6.C.1	Participate in workgroup activities with the County.
Action 6.C.2	Participate in workgroup activities with the Caltrans.
Action 6.C.3	Participate in workgroup activities with the other municipalities.
Objective 6.D: Minimize repetitive losses caused by flooding.	
Action 6.D.1	Prepare and implement Best Management Practices.
Action 6.D.2	Schedule Flood Mitigation and recovery Interactive Exercises.
Objective 6.E: Address identified data limitations regarding the lack of information about the relative vulnerability of assets from flooding.	
Action 6.E.1	Implement GIS program citywide.
Action 6.E.2	Use GIS and Census data to locate vulnerable buildings.
Action 6.E.3	Prepare Hydrology Studies as necessary.
Action 6.E.4	Use Hydrological Modeling Techniques.

Goal 7: Reduce the possibility of damage and losses to existing assets, particularly people and critical facilities/infrastructure due to <u>structural fire/wildfire</u>.	
Objective 7.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to structural fire/wildfire.	
Action 7.A.1	Maintain a Fire Prevention Program.
Action 7.A.2	Maintain a Pre-Fire Plan Program.
Action 7.A.3	Maintain a Fire Suppression Program.

Goal 7: Reduce the possibility of damage and losses to existing assets, particularly people and critical facilities/infrastructure due to structural fire/wildfire. (continued)	
Action 7.A.4	Maintain a Housing Inspection Program.
Action 7.A.5	Maintain a Business License Inspection Program.
Action 7.A.6	Maintain a Housing Outreach Program.
Action 7.A.7	Maintain/update all Arson Registrants with required registration and conditions of probation or parole.
Objective 7.B: Protect existing assets with the highest relative vulnerability to the effects of structural fire/wildfire.	
Action 7.B.1	Maintain response times, pumping capacity and apparatus and equipment deployment objectives.
Action 7.B.2	Maintain adequate staffing to meet fire suppression objectives.
Action 7.B.3	Maintain standard operating procedures for fire ground operations.
Action 7.B.4	Eliminate non-fire resistant roofs.
Action 7.B.5	Install automatic fire detection and extinguishing systems in buildings according to adopted codes.
Objective 7.C: Coordinate with and support existing efforts to mitigate structural fire/wildfire.	
Action 7.C.1	Maintain mutual/auto aid agreements with neighboring municipalities.
Action 7.C.2	Maintain a plan check system to insure buildings are built in accordance with adopted codes.
Action 7.C.3	Conduct evacuation drills in high rise buildings.
Action 7.C.4	Maintain/update all Arson Registrants with required registration and conditions of probation or parole.
Objective 7.D: Address identified data limitations regarding the lack of information about the relative vulnerability of assets from structural fire/wildfire.	
Action 7.D.1	Implement GIS program citywide.
Action 7.D.2	Use GIS and Census data to locate vulnerable buildings.
Action 7.D.3	Join the County Regional Communications System (RCS) and update Fire/Police Department radios.

5.13.2.3 Prioritization and Implementation of Action Items

Once the comprehensive list of jurisdictional goals, objectives, and action items listed above was developed, the proposed mitigation actions were prioritized. This step resulted in a list of acceptable and realistic actions that address the hazards identified in each jurisdiction. This prioritized list of action items was formed by the LPG weighing STAPLEE criteria

The Disaster Mitigation Action of 2000 (at 44 CFR Parts 201 and 206) requires the development of an action plan that not only includes prioritized actions but one that includes information on how the prioritized actions will be implemented. Implementation consists of identifying who is responsible for which action, what kind of funding mechanisms and other resources are available or will be pursued, and when the action will be completed.

The top 10 prioritized mitigation actions as well as an implementation strategy for each are:

Priority Action #1: Maintain response times, pumping capacity, and apparatus and equipment deployment objectives.

Coordinating Individual/Organization: Fire Department

Potential Funding Source: City General Fund, Community Development Block Grant along with other applicable funding sources.

Implementation Timeline: July 2004 - August 2007

Priority Action #2: Maintain/update all Arson Registrants with required registration and conditions of probation or parole.

Coordinating Individual/Organization: Police Department

Potential Funding Source: General/Other Applicable Funds

Implementation Timeline: FY 03/04

Priority Action #3: Work with the Anti-Terrorism Advisory Council (ATAC).

Coordinating Individual/Organization: Police Department

Potential Funding Source: General/Other Applicable Funds

Implementation Timeline: FY 03/04

Priority Action #4: Adopt and implement lead based paint ordinance.

Coordinating Individual/Organization: Department of Building & Safety

Potential Funding Source: General Fund/HUD Lead Based Paint Hazard Reduction Grant Fund

Implementation Timeline: April 2004 – April 2005

Priority Action #5: Continue Maintenance of the Storm Water System in Operable Conditions

Coordinating Individual/Organization: Department of Public Works/Engineering

Potential Funding Source: CDBG, Gas Tax, Sewer System Maintenance, and General Funds

Implementation Timeline: FY 03/04

Priority Action #6: Implement code enforcement for buildings without permits.

Coordinating Individual/Organization: Department of Building & Safety

Potential Funding Source: Citation fees/General fund

Implementation Timeline: July 2004 – July 2006

Priority Action #7: Maintain a Fire prevention Program

Coordinating Individual/Organization: Fire Department

Potential Funding Source: General/Other Applicable Funds

Implementation Timeline: July 2004 - August 2007

Priority Action #8: Implement GIS Program

Coordinating Individual/Organization: Department of Public Works/Engineering

Potential Funding Source: General/Other Applicable Funds

Implementation Timeline: FYs 2003 through 2005

Priority Action #9: Continue to update General Plan periodically.

Coordinating Individual/Organization: Planning Dept.

Potential Funding Source: General Fund

Implementation Timeline: FY 03/04

Priority Action #10: Continue to update Land Use Code periodically.

Coordinating Individual/Organization: Planning Dept.

Potential Funding Source: General Fund

Implementation Timeline: FY 03/04

5.14 CITY OF OCEANSIDE

The City of Oceanside (Oceanside) reviewed a set of jurisdictional-level hazard maps including detailed critical facility information and localized potential hazard exposure/loss estimates to help identify the top hazards threatening their jurisdiction. In addition, LPGs were supplied with exposure/loss estimates for Oceanside summarized in Table 5.14-1. See Section 4.0 for additional details.

Table 5.14-1
Summary of Potential Hazard-Related Exposure/Loss in Oceanside

		Residential		Commercial		Critical Facilities	
Hazard Type	Exposed Population	Number of Residential Buildings	Potential Exposure/ Loss for Residential Buildings (x $1,000)	Number of Commercial Buildings	Potential Exposure/ Loss for Commercial Buildings (x $1,000)	Number of Critical Facilities	Potential Exposure for Critical Facilities (x $1,000)
Coastal Storm / Erosion	181	87	28962	0	0	0	0
Dam Failure	29,816	8,255	1,799,284	52	217,872	43	318,978
Earthquake (Annualized Loss - Includes shaking, liquefaction and landslide components)	160,421	45,696	6,138	274	1,176	131* / 134**	13,643* / 51,419**
Floods (Loss)							
100 Year	16,487	4,697	78,453	58	15,922	36	295,695
500 Year	32,014	9,120	193,198	73	22,570	54	326,657
Rain-Induced Landslide							
High Risk	29,870	9,037	2,374,682	31	162,948	27	37,062
Moderate Risk	2,500	965	232,517	1	8,168	6	10,042
Tsunami	1,506	405	224,276	9	21,400	11	129,342
Wildfire/ Structure Fire							
Extreme	0	0	0	0	0	0	0
Very High	625	223	55,113	0	5,768	1	298
High	1,942	688	177,599	6	33,956	10	28237
Moderate	152,424	43,223	10,824,378	259	1,164,678	177	728,971

* Represents 100-year earthquake value under three earthquake scenarios (shake only, shake and liquefaction, and shake and landslide).

** Represents 500-year earthquake value under three earthquake scenarios (shake only, shake and liquefaction, and shake and landslide).

After reviewing the localized hazard maps and exposure/loss table above, the following hazards were identified by the Oceanside LPG as their top five.

- **Flooding**: 25, 50 & 100 year storms and vegetation clogged river/creek channels, history
- **Earthquake**: Proximity to local faults, history

- **Coastal Storms/Erosion/Tsunami**: Constant and historical – proximity to Pacific Ocean, history
- **Wildfire**: Climate, location, and natural vegetation types, history
- **Human caused hazards**: Spills, releases, accidents, criminal activity, terrorist activity, history

5.14.1 Capabilities Assessment

The LPG identified current capabilities available for implementing hazard mitigation activities. The Capability Assessment (Assessment) portion of the jurisdictional mitigation plan identifies administrative, technical, legal and fiscal capabilities. This includes a summary of departments and their responsibilities associated to hazard mitigation planning as well as codes, ordinances, and plans already in place associated to hazard mitigation planning. The second part of the Assessment provides Oceanside's fiscal capabilities that may be applicable to providing financial resources to implement identified mitigation action items.

5.14.1.1 Existing Institutions, Plans, Policies and Ordinances

The following is a summary of existing departments in Oceanside and their responsibilities related to hazard mitigation planning and implementation, as well as existing planning documents and regulations related to mitigation efforts within the community. The administrative and technical capabilities of Oceanside, as shown in Table 5.14-2, provides an identification of the staff, personnel, and department resources available to implement the actions identified in the mitigation section of the Plan. Specific resources reviewed include those involving technical personnel such as planners/engineers with knowledge of land development and land management practices, engineers trained in construction practices related to building and infrastructure, planners and engineers with an understanding of natural or manmade hazards, floodplain managers, surveyors, personnel with GIS skills and scientists familiar with hazards in the community.

- City of Oceanside Fire Department
  - Emergency Response and Rescue services
  - Fire Prevention Bureau
  - Development Plans Review
  - Fire & Life Safety Inspection
- City of Oceanside Police Department
  - Police Services
- City of Oceanside Department of Public Works
  - Property Management
  - Hazardous Waste
  - Streets and Sidewalks
  - Lighting District

  - City Garage
- City of Oceanside Administrative Services
  - Finance Services
  - Personnel Services
  - Administrative Services
  - Government Services
- City of Oceanside Department of Harbors & Beaches
  - Harbor Patrol
  - Harbor Management
  - Harbor Maintenance
  - Lifeguard Services
- City of Oceanside Department of Water and Waste Water Management
  - Water Services
  - Wastewater management
  - GIS Services
  - Storm water Control
- City of Oceanside Building Department
  - Plan Review
  - Building Standards
  - Building Inspection
- City of Oceanside Planning Department
  - Community Planning
  - Planning Standards
  - Zoning
- City of Oceanside Engineering Department
  - Engineering Services

Table 5.14-2
City of Oceanside: Administrative and Technical Capacity

Staff/Personnel Resources	Y/N	Department/Agency and Position
A. Planner(s) or engineer(s) with knowledge of land development and land management practices	Y	Planning & Engineering Department Directors
B. Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Y	Engineering & Building Department Directors
C. Planners or Engineer(s) with an understanding of natural and/or manmade hazards	Y	Planning & Engineering Department Directors
D. Floodplain manager	Y	Engineering Department – City Engineer
E. Surveyors	N	Contracted as needed
F. Staff with education or expertise to assess the community's vulnerability to hazards	Y	Oceanside Fire Department – Fire Chief
G. Personnel skilled in GIS and/or HAZUS	Y	City of Oceanside Water Department – GIS Specialist
H. Scientists familiar with the hazards of the community	N	
I. Emergency manager	Y	Oceanside Fire Department – Fire Chief
J. Grant writers	N	

The legal and regulatory capabilities of Oceanside are shown in Table 5.14-3, which presents the existing ordinances and codes that affect the physical or built environment of Oceanside. Examples of legal and/or regulatory capabilities can include: the City's building codes, zoning ordinances, subdivision ordnances, special purpose ordinances, growth management ordinances, site plan review, general plans, capital improvement plans, economic development plans, emergency response plans, and real estate disclosure plans.

Table 5.14-3
City of Oceanside: Legal and Regulatory Capability

Regulatory Tools (ordinances, codes, plans)	Local Authority (Y/N0	Does State Prohibit? (Y/N)
A. Building code	Y	N
B. Zoning ordinance	Y	N
C. Subdivision ordinance or regulations	Y	N
D. Special purpose ordinances (floodplain management, storm water management, hillside or steep slope ordinances, wildfire ordinances, hazard setback requirements)	Y	N
E. Growth management ordinances (also called "smart growth" or anti-sprawl programs)	Y	N
F. Site plan review requirements	Y	N
G. General or comprehensive plan	Y	N
H. A capital improvements plan	Y	N
I. An economic development plan	Y	N
J. An emergency response plan	y	N
K. A post-disaster recovery plan	N	N
L. A post-disaster recovery ordinance	N	N

5.14.1.2 Fiscal Resources

Table 5.14-4 shows specific financial and budgetary tools available to Oceanside such as community development block grants; capital improvements project funding; authority to levy taxes for specific purposes; fees for water, sewer, gas, or electric services; impact fees for homebuyers or developers for new development; ability to incur debt through general obligations bonds; and withholding spending in hazard-prone areas.

Table 5.14-4
City of Oceanside: Fiscal Capability

Financial Resources	Accessible or Eligible to Use (Yes/No)
A. Community Development Block Grants (CDBG)	Y
B. Capital improvements project funding	Y
C. Authority to levy taxes for specific purposes	Y – 2/3 Majority popular vote required
D. Fees for water, sewer, gas, or electric service	Y
E. Impact fees for homebuyers or developers for new developments/homes	Y
F. Incur debt through general obligation bonds	Y
G. Incur debt through special tax and revenue bonds	Y – Majority popular vote required
H. Incur debt through private activity bonds	N
I. Withhold spending in hazard-prone areas	N

5.14.2 Goals, Objectives and Actions

Listed below are Oceanside's specific hazard mitigation goals, objectives and related potential actions. For each goal, one or more objectives have been identified that provide strategies to attain the goal. Where appropriate, the City has identified a range of specific actions to achieve the objective and goal.

The goals and objectives were developed by considering the risk assessment findings, localized hazard identification and loss/exposure estimates, and an analysis of the jurisdiction's current capabilities assessment. These preliminary goals, objectives and actions were developed to represent a vision of long-term hazard reduction or enhancement of capabilities. To help in further development of these goals and objectives, the LPG compiled and reviewed current jurisdictional sources including the City's planning documents, codes, and ordinances. In addition, City representatives met with consultant staff and/or OES to specifically discuss these hazard-related goals, objectives and actions as they related to the overall Plan. Representatives of numerous City departments involved in hazard mitigation planning, including Fire, Police, and Public Works provided input to the Oceanside LPG. The Oceanside LPG members were:

- Robert Dunham, Fire Marshal
- Marlene Donner, Fire Inspector/Investigator
- Glenn McCloskey, Asst Fire Chief

Once developed, City staff presented them to the City of Oceanside City Council for their approval.

Public meetings were held throughout the County to present these preliminary goals, objectives and actions to citizens and to receive public input. At these meetings, specific consideration was given to hazard identification/profiles and the vulnerability assessment results. The following sections present the hazard-related goals, objectives and actions as prepared by Oceanside's LPG in conjunction with the Hazard Mitigation Working Group, locally elected officials, and local citizens.

5.14.2.1 Goals

The City of Oceanside has developed the following 10 Goals for their Hazard Mitigation Plan (See Attachment A for Goal 10).

Goal 1. Promote disaster-resistant future development.

Goal 2. Increase public understanding, support, and demand for effective hazard mitigation.

Goal 3. Build and support local capacity and commitment to continuously become less vulnerable to hazards.

Goal 4. Improve coordination and communication with federal, state, local and tribal governments.

Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and State-owned facilities, due to …

Goal 5. Floods.

Goal 6. Wildfires.

Goal 7. Severe Weather.

Goal 8. Infestations/Diseases.

Goal 9. Geological Hazards.

Goal 10. Other Manmade Hazards.

5.14.2.2 Objectives and Actions

The City of Oceanside developed the following broad list objectives and actions to assist in the implementation of each of their 11 identified goals. The City of Oceanside developed objectives to assist in achieving their hazard mitigation goals. For each of these objectives, specific actions were developed that would assist in their implementation. A discussion of the prioritization and implementation of the action items is provided in Section 5.14.2.3.

Goal 1: Promote disaster-resistant future development.	
Objective 1.A: Facilitate the adoption, development or updating of Building, Engineering and Fire Codes and zoning ordinances to improve resistance to hazards and control development in high-hazard areas.	
Action 1.A.1	Adoption of most current Building, Engineering and Fire Codes
Objective 1.B: Discourage the present lack of State and Federal inter-departmental cooperation that exacerbates hazardous conditions.	
Action 1.B.1	Pursue vegetation management within river and creek channels

Goal 2: Promote public understanding, support and demand for hazard mitigation.	
Objective 2.A: Educate the public to increase awareness of hazards and opportunities for mitigation actions.	
Action 2.A.1	Enhance public awareness of hazard mitigation efforts utilizing Oceanside's local public access channel (KOCT – Oceanside Ca.) and available print medias
Action 2.A.2	Increase awareness of individual homeowners, other property owners, the business community, and others in the importance of taking proactive steps to mitigate the risk of hazards through use of the City's quarterly magazine
Action 2.A.3	Promote "Personal Preparedness" by production and distribution of video and print materials through public access television and local libraries

Goal 3: Build and support local capacity and commitment to continuously become less vulnerable to hazards	
Objective 3.A: Increase awareness and knowledge of hazard mitigation principles and practice among state, local and tribal officials.	
Action 3.A.1	Build and support local partnerships, such as the Unified Disaster Council (UDC) and Homeland Preparedness Coordination Council (HPCC), and the coordination of mutual aid agreements to reduce vulnerability to hazards and improve post-incident recovery
Action 3.A.2	Build hazard mitigation concerns into the City's planning process

Goal 4: Improve hazard mitigation coordination and communication with federal, state, local and tribal governments.	
Objective 4.A: Establish and maintain closer working relationships with state agencies, local and tribal governments.	
Action 4.A.1	Plan, practice, exercise, and operate the City's Emergency Operations Center (EOC) following the Standardized Emergency Management System (SEMS) and Incident Command System (ICS).
Action 4.A.2	Encourage further refinement and updating of the City's Emergency Operations Plan coordinated with bordering community's emergency plans and the County-wide Emergency Operations Plan.

Goal 5: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City of Oceanside owned facilities, due to identified hazards including flooding, earthquake, coastal storms/erosion/tsunami, wildfire, and human caused hazards.	
Objective 5.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to identified hazards including flooding, earthquake, coastal storms/erosion/tsunami, wildfire, and human caused hazards.	
Action 5.A.1	Develop an integrated communication/notification plan utilizing Geographic Information Systems (GIS) technology and the Emergency Broadcast System (EBS) including information about road closures, evacuation routes, shelters, emergency medical access, updated event information. Includes development of a countywide damage assessment team.
Action 5.A.2	Replacement of Oceanside Fire Stations #1 and #7 with a modern, hazard resistant, emergency self-supported, facilities
Action 5.A.3	Replace underground fuel storage tanks with above ground tanks at all City facilities

Goal 6: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City of Oceanside owned facilities, due to <u>floods.</u>	
Objective 6.A: Protect existing assets with the highest relative vulnerability to the effects of floods within the 100-year floodplain.	
Action 6.A.1	Seek State and Federal agency cooperation in the control and management of vegetation within local creek and river channels.
Action 6.A.2	Work with State and Federal authorities regarding regulations that add local expense and time to flood control measures and maintenance activities.

Goal 7: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and State-owned facilities, due to <u>wildfires</u>.	
Objective 7.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to wildfires.	
Action 7.A.1	Utilize aggressive vegetation management programs to provide buffer zones between unimproved wildland and development
Action 7.A.2	Adopt local building ordinances which improve building standards in urban/wildland interface areas including non-combustible fencing, boxed eaves, extruded metal window frames, Class-A non-combustible roofs and exterior wall coverings, and protected attic venting

Goal 8: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and State-owned facilities, due to <u>severe weather</u> (e.g., El Nino storms/, thunderstorms, lightening, tsunamis, and extreme temperatures).	
Objective 8.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to severe weather.	
Action 8.A.1	Coordinate with other County agencies in the utilization of SANDAG to develop GIS-based severe weather zone mapping

Goal 9: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and State-owned facilities, due to dam failure.	
Objective 9.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to dam failure.	
Action 9.A.1	Work with State and Federal agencies to develop a comprehensive vegetation management plan to reduce the overall vegetative mass that currently exists within in the San Luis Rey River channel

5.14.2.3 Prioritization and Implementation of Action Items

Once the comprehensive list of jurisdictional goals, objectives, and action items listed above was developed, the proposed mitigation actions were prioritized. This step resulted in a list of acceptable and realistic actions that address the hazards identified in each jurisdiction. This prioritized list of action items was formed by the LPG weighing STAPLEE criteria

The Disaster Mitigation Action of 2000 (at 44 CFR Parts 201 and 206) requires the development of an action plan that not only includes prioritized actions but one that includes information on how the prioritized actions will be implemented. Implementation consists of identifying who is responsible for which action, what kind of funding mechanisms and other resources are available or will be pursued, and when the action will be completed.

The top 10 prioritized mitigation actions as well as an implementation strategy for each are:

Action Item #1: Adoption of most current Building, Engineering and Fire Codes

Coordinating Individual/Organization: Fire Marshal & Building Official

Potential Funding Source: City of Oceanside

Implementation Timeline: 2004

Action Item #2: Pursue vegetation management within river and creek channels

Coordinating Individual/Organization: Public Works

Potential Funding Source: Federal Grant

Implementation Timeline: 2005/2006

Action Item #3: Enhance public awareness of hazard mitigation efforts utilizing Oceanside's local public access channel (KOCT – Oceanside Ca.) and available print medias

Coordinating Individual/Organization: Fire Department

Potential Funding Source: City of Oceanside and Grants

Implementation Timeline: 2004

Action Item #4: Increase awareness of individual homeowners, other property owners, the business community, and others in the importance of taking proactive steps to mitigate the risk of hazards. Use of the City's quarterly magazine

Coordinating Individual/Organization: Fire Department/City P.I.O

Potential Funding Source: City of Oceanside and Grants

Implementation Timeline: 2004/2005

Action Item #5: Promote "Personal Preparedness" by production and distribution of video and print materials through public access television and local libraries

Coordinating Individual/Organization: Fire Department

Potential Funding Source: Grant

Implementation Timeline: 2005/2006

Action Item #6: Plan, practice, exercise, and operate the City's Emergency Operations Center (EOC) following the Standardized Emergency Management System (SEMS) and Incident Command System (ICS)

Coordinating Individual/Organization: Fire Department

Potential Funding Source: Grant

Implementation Timeline: 2005/2006

Action Item #7: Encourage further refinement and updating of the City's Emergency Operations Plan coordinated with bordering community's emergency plans and the County-wide Emergency Operations Plan

Coordinating Individual/Organization: Fire Department

Potential Funding Source: Grant

Implementation Timeline: 2005/2006

Action Item #8: Replacement of Oceanside Fire Stations #1 and #7 with a modern, hazard resistant, emergency self-supported, facilities

Coordinating Individual/Organization: Fire Department

Potential Funding Source: City of Oceanside / Grants

Implementation Timeline: 2004/2005

Action Item #9: Replace underground fuel storage tanks with above ground tanks at all City facilities

Coordinating Individual/Organization: Public Works

Potential Funding Source: Grant

Implementation Timeline: 2005/2006

Action Item #10: Develop an integrated communication/notification plan utilizing Geographic Information Systems (GIS) technology and the Emergency Broadcast System (EBS) including information about road closures, evacuation routes, shelters, emergency medical access, updated event information. Includes development of a countywide damage assessment team.

Coordinating Individual/Organization: City of Oceanside / County of San Diego

Potential Funding Source: Grant

Implementation Timeline: 2005/2006

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5.15 CITY OF POWAY

The City of Poway (Poway) reviewed a set of jurisdictional-level hazard maps including detailed critical facility information and localized potential hazard exposure/loss estimates to help identify the top hazards threatening their jurisdiction. In addition, LPGs were supplied with exposure/loss estimates for Poway summarized in Table 5.15-1. See Section 4.0 for additional details.

Table 5.15-1
Summary of Potential Hazard-Related Exposure/Loss in Poway

		Residential		Commercial		Critical Facilities	
Hazard Type	Exposed Population	Number of Residential Buildings	Potential Exposure/ Loss for Residential Buildings (x $1,000)	Number of Commercial Buildings	Potential Exposure/ Loss for Commercial Buildings (x $1,000)	Number of Critical Facilities	Potential Exposure for Critical Facilities (x $1,000)
Coastal Storm / Erosion	0	0	0	0	0	0	0
Dam Failure	0	0	0	0	0	3	6,000
Earthquake (Annualized Loss - Includes shaking, liquefaction and landslide components)	48,054	15,684	917	153	339	105* / 106**	3,239* / 12,695**
Floods (Loss)							
100 Year	3,986	1,301	14,390	12	1,666	9	6,178
500 Year	5,345	1,745	28,045	16	3,805	11	8,044
Rain-Induced Landslide							
High Risk	2,515	874	169,170	56	317,358	5	106,157
Moderate Risk	11,354	4,030	1,120,165	27	98,302	39	261,013
Tsunami	0	0	0	0	0	0	0
Wildfire/ Structure Fire							
Extreme	0	0	0	0	0	0	0
Very High	3720	1141	348,023	4	20,162	2	4409
High	4,826	1696	469,703	32	116,278	35	162885
Moderate	36,900	11,904	3,044,913	106	554,400	68	285,672

* Represents 100-year earthquake value under three earthquake scenarios (shake only, shake and liquefaction, and shake and landslide).

** Represents 500-year earthquake value under three earthquake scenarios (shake only, shake and liquefaction, and shake and landslide).

After reviewing the localized hazard maps and exposure/loss table above, the following hazards were identified by the Poway LPG as their top five. A brief rational for including each of these is included.

- **Wildfire**: historical data and destructive potential.

- **Flooding**: historical data.
- **Manmade Hazards**: are considered potential hazards.
- **Earthquake Damage**: not from epicenter in Poway area, but because of possible damage to our electricity and water supplies.
- **Landslide/Rockslide**: on Poway Grade and Pomerado Road may result from earthquake or heavy rains.

5.15.1.1 Capabilities Assessment

The LPG identified current capabilities available for implementing hazard mitigation activities. The Capability Assessment (Assessment) portion of the jurisdictional mitigation plan identifies administrative, technical, legal and fiscal capabilities. This includes a summary of departments and their responsibilities associated to hazard mitigation planning as well as codes, ordinances, and plans already in place associated to hazard mitigation planning. The second part of the Assessment provides Poway's fiscal capabilities that may be applicable to providing financial resources to implement identified mitigation action items.

5.15.1.2 Existing Institutions, Plans, Policies and Ordinances

The following is a summary of existing departments in Poway and their responsibilities related to hazard mitigation planning and implementation, as well as existing planning documents and regulations related to mitigation efforts within the community. The administrative and technical capabilities of Poway, as shown in Table 5.15-2, provides an identification of the staff, personnel, and department resources available to implement the actions identified in the mitigation section of the Plan. Specific resources reviewed include those involving technical personnel such as planners/engineers with knowledge of land development and land management practices, engineers trained in construction practices related to building and infrastructure, planners and engineers with an understanding of natural or manmade hazards, floodplain managers, surveyors, personnel with GIS skills and scientists familiar with hazards in the community.

Table 5.15-2
City of Poway: Administrative and Technical Capacity

Staff/Personnel Resources	Y/N	Department/Agency and Position
A. Planner(s) or engineer(s) with knowledge of land development and land management practices	Y	
B. Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Y	
C. Planners or Engineer(s) with an understanding of natural and/or manmade hazards	Y	
D. Floodplain manager	Y	Development Services Planner/Engineers
E. Surveyors	Y	Consultants/hired firms
F. Staff with education or expertise to assess the community's vulnerability to hazards	Y	
G. Personnel skilled in GIS and/or HAZUS	Y	One staff member in Department Services does GIS
H. Scientists familiar with the hazards of the community	Y	City Staff and consultants
I. Emergency manager	Y	City Manager and Safety Department
J. Grant writers	N	Assigned to appropriate staff.

The legal and regulatory capabilities of Poway are shown in Table 5.15-3, which presents the existing ordinances and codes that affect the physical or built environment of Poway. Examples of legal and/or regulatory capabilities can include: the City's building codes, zoning ordinances, subdivision ordnances, special purpose ordinances, growth management ordinances, site plan review, general plans, capital improvement plans, economic development plans, emergency response plans, and real estate disclosure plans.

Table 5.15-3
City of Poway: Legal and Regulatory Capability

Regulatory Tools (ordinance, codes, plans)	Local Authority (Y/N)	Does State Prohibit (Y/N)
A. Building code	Y	N
B. Zoning ordinance	Y	N
C. Subdivision ordinance or regulations	Y	N
D. Special purpose ordinances (floodplain management, storm water management, hillside or steep slope ordinances, wildfire ordinances, hazard setback requirements)	Y	N
E. Growth management ordinances (also called "smart growth" or anti-sprawl programs)	Y	N
F. Site plan review requirements	Y	N
G. General or comprehensive plan	Y	N
H. A capital improvements plan	Y	N
I. An economic development plan	Y	N
J. An emergency response plan	Y	N
K. A post-disaster recovery plan	Y	N
L. A post-disaster recovery ordinance	N	N
M. Real estate disclosure requirements	N	N

5.15.1.3 Fiscal Resources

Table 5.15-4 shows specific financial and budgetary tools available to Poway such as community development block grants; capital improvements project funding; authority to levy taxes for specific purposes; fees for water, sewer, gas, or electric services; impact fees for homebuyers or developers for new development; ability to incur debt through general obligations bonds; and withholding spending in hazard-prone areas.

Table 5.15-4
City of Poway: Fiscal Capability

Financial Resources	Accessible or Eligible to Use (Yes/No)
A. Community Development Block Grants (CDBG)	Yes
B. Capital improvements project funding	Yes
C. Authority to levy taxes for specific purposes	No-requires 2/3 voter approval. Poway has special districts for LMD and Lighting.
D. Fees for water, sewer, gas, or electric service	Yes for water and sewer
E. Impact fees for homebuyers or developers for new developments/homes	Yes
F. Incur debt through general obligation bonds	No-requires 2/3 voter approval
G. Incur debt through special tax and revenue bonds	No-requires 2/3 voter approval
H. Incur debt through private activity bonds	No
I. Withhold spending in hazard-prone areas	Yes, subject to Council approval.

5.15.2 Goals, Objectives and Actions

Listed below are Poway's specific hazard mitigation goals, objectives and related potential actions. For each goal, one or more objectives have been identified that provide strategies to attain the goal. Where appropriate, the City has identified a range of specific actions to achieve the objective and goal.

The goals and objectives were developed by considering the risk assessment findings, localized hazard identification and loss/exposure estimates, and an analysis of the jurisdiction's current capabilities assessment. These preliminary goals, objectives and actions were developed to represent a vision of long-term hazard reduction or enhancement of capabilities. To help in further development of these goals and objectives, the LPG compiled and reviewed current jurisdictional sources including the City's planning documents, codes, and ordinances. In addition, City representatives met with consultant staff and/or OES to specifically discuss these hazard-related goals, objectives and actions as they related to the overall Plan. Representatives of numerous City departments involved in hazard mitigation planning, including Fire, Police, and Public Works provided input to the Poway LPG. The Poway LPG members were:

- Dennis Quillen, Public Works
- Elizabeth Dean, Public Works
- Tom Howard, Public Works
- Dan Cannon, Public Works
- James Howell, Public Works
- Jim Lyon, Development Services
- Niall Fritz, Development Services

- Garry MacPherson, Safety Services
- Bob Krans, Safety Services

Once developed, City staff presented them to the City of Poway City Council for their approval.

Public meetings were held throughout the County to present these preliminary goals, objectives and actions to citizens and to receive public input. At these meetings, specific consideration was given to hazard identification/profiles and the vulnerability assessment results. The following sections present the hazard-related goals, objectives and actions as prepared by Poway's LPG in conjunction with the Hazard Mitigation Working Group, locally elected officials, and local citizens.

5.15.2.1 Goals

The City of Poway has developed the following 3 Goals for their Hazard Mitigation Plan (See Attachment A for Goal 3, Objective D).

Goal 1. Promote resistance to the effects of disasters upon development and infrastruction.

Goal 2. Promote public understanding, support and demand for effective hazard mitigation.

Goal 3. Reduce the possibility of damage and losses to people, existing assets and critical facilities/infrastructure due to:

a. Wildfires.
b. Flooding .
c. Geological Hazards (landslide, rockslide, earthquake).
d. Manmade Hazards.

5.15.2.2 Objectives and Actions

The City of Poway developed the following broad list of objectives and actions to assist in the implementation of each of their 3 identified goals. The City of Poway developed objectives to assist in achieving their hazard mitigation goals. For each of these objectives, specific actions were developed that would assist in their implementation. A discussion of the prioritization and implementation of the action items is provided in Section 5.15.2.3.

Goal 1: Promote resistance to the effects of disasters upon development and infrastructure.	
Objective 1.A: The General Plan can be updated to further promote resistance to the effects of disasters upon development and infrastructure.	
Action 1.A.1	Evaluate and revise General Plan policies as necessary.
Action 1.A.2	Review and update FEMA maps regarding flood risk in Poway.
Action 1.A.3	Evaluate ways to improve the road access for emergency vehicles in remote locations.

Goal 1: Promote resistance to the effects of disasters upon development and infrastructure. (continued)	
Action 1.A.4	Update the Water Master Plan with particular attention to fire system upgrades.
Action 1.A.5	Update and upgrade the City's Emergency Operations Centers.

Goal 2: Promote public understanding, support and demand for effective hazard mitigation.	
Objective 2.A: Educate the public to increase their awareness of hazards and ways to mitigate damage.	
Action 2.A.1	Conduct annual SEMS review and training for appropriate City staff and the City Council.
Action 2.A.2	Continue and enhance public education and outreach activities regarding earthquake, fire, and flood.
Action 2.A.3	Conduct presentations regarding disaster preparedness for the Chamber of Commerce and the Poway Business Park Association.

Goal 3: Reduce the possibility of damage and losses to people, existing assets, and critical facilities/ infrastructure due to: wildfires, flooding, geological hazards (landslide, rockslide, earthquake), and manmade hazards.	
Objective 3.A: Plan and prepare for damage and loss from wildfire.	
Action 3.A.1	Update maps of potential wildfire areas in Poway. During the October 2003 Cedar Fire, homes near extensive open space areas were at high risk.
Action 3.A.2	Update fire control and evacuation plans for particular areas (e.g. High Valley, Old Coach, Garden Road, Beeler Canyon, and other areas near wildland vegetation).
Action 3.A.3	Implement the existing safety plan developed by Safety Services for the High Valley area, including a third road into and out of the area; consider also the Millards Ranch and the Beeler Canyon areas.
Action 3.A.4	Upgrade road access, surface, and grade for fire safety equipment at identified locations.
Action 3.A.5	Create defensible space in areas prone to wildfire.
Action 3.A.6	Update the Water Master Plan and upsize where needed. Evaluate adding hydrants, creating loops, and other means to improve pressure and volume where needed.

Goal 3: Reduce the possibility of damage and losses to people, existing assets, and critical facilities/ infrastructure due to: wildfires, flooding, geological hazards (landslide, rockslide, earthquake), and manmade hazards. (continued)	
Action 3.A.7	Investigate permanent placement of fire fighting aircraft in San Diego North County Inland.
Action 3.A.8	Evaluate undergrounding of utilities in areas that have high risk of wildfires.
Action 3.A.9	Review and update General Plan/Municipal Code and Fire Code regarding vegetation zones (defensible space). Evaluate distance requirements and allowing fire-resistant types of vegetation).
Action 3.A.10	Review and update General Plan/Municipal Code regarding construction on ridgelines and slopes.
Action 3.A.11	Review and update General Plan/Municipal Code regarding use of fire resistant building materials in high-risk zones (e.g. new materials and foam sprays for roofing).
Action 3.A.12	Investigate use of "control burns" in high-risk areas.
Action 3.A.13	Evaluate possible use of certain City trails as auxiliary routes in emergency.
Objective 3.B: Plan and prepare for damage and loss due to flooding.	
Action 3.B.1	Explore funding for erosion control materials and hydroseeding in the wake of the October 2003 Cedar Fire. In addition to public property, materials are frequently provided to at-risk residences particularly on slopes and hillsides.
Action 3.B.2	Implement the Drainage Master Plan and, as appropriate, evaluate channel enlargement and/or detention basins to regulate flow.
Action 3.B.3	Remove sediment and silt from channels as needed, and make structural improvements in floodways to increase capacity.
Action 3.B.4	Continue purchasing property in the floodway when they are available for sale.
Action 3.B.5	Update Poway Dam Inundation Plan as needed.
Objective 3.C: Plan and prepare for damage and loss due to geological hazards (landslide, rockslide, earthquake).	
Action 3.C.1	Develop an action plan to mitigate possible damage from landslide or rockslide on Poway Grade and Pomerado Road.
Action 3.C.2	Public Works to continue receiving e-mail alerts of seismic activities in Southern California via statewide earthquake alert. Report significant alerts to City Manager and Director of Safety Services.

Goal 3: Reduce the possibility of damage and losses to people, existing assets, and critical facilities/ infrastructure due to: wildfires, flooding, geological hazards (landslide, rockslide, earthquake), and manmade hazards. (continued)	
Action 3.C.3	Continue program to improve and/or retrofit water distribution system and wastewater system to reduce the impact of earthquakes. This includes installation of seismic valves at critical water storage tanks, and creating a safe drainage corridor in the event a tank fails.
Action 3.C.4	Purchase emergency backup generators for Public Works: Administration Building, Operations Center Building, and the Fleet Maintenance Building (which contains a gasoline fueling station).
Action 3.C.5	Develop the Public Works office site as another emergency response site for City operations, to include supplies and equipment.
Action 3.C.6	Develop a personal protection plan for all staff and teach survival skills.
Action 3.C.7	Provide specialized training to staff for rescue and recovery responsibilities.
Action 3.C.8	Investigate funding opportunities in order to provide disaster preparedness kits to special populations (seniors and the disabled) in the community.
Action 3.C.9	Evaluate the use of the Green Valley Truck Trail as an emergency response east-west corridor.
Action 3.C.10	Acquire a treated water connection from the San Diego County Water Authority to be used in emergencies.

5.15.2.3 Prioritization and Implementation of Action Items

Once the comprehensive list of jurisdictional goals, objectives, and action items listed above was developed, the proposed mitigation actions were prioritized. This step resulted in a list of acceptable and realistic actions that address the hazards identified in each jurisdiction. This prioritized list of action items was formed by the LPG weighing STAPLEE criteria

The Disaster Mitigation Action of 2000 (at 44 CFR Parts 201 and 206) requires the development of an action plan that not only includes prioritized actions but one that includes information on how the prioritized actions will be implemented. Implementation consists of identifying who is responsible for which action, what kind of funding mechanisms and other resources are available or will be pursued, and when the action will be completed.

The top 10 prioritized mitigation actions as well as an implementation strategy for each are:

Priority Action #1: Update Emergency Response Plan.

Coordinating Individual/Organization: Safety Services

Potential Funding Source: City of Poway

Implementation Timeline: FY 2004/05

Priority Action #2: Initiate plan to acquire access and evacuation routes in City, particularly in the High Valley area.

Coordinating Individual/Organization: Safety Services and Development Services

Potential Funding Source: City of Poway/FEMA

Implementation Timeline: 3 years, FY 2007/08

Priority Action #3: Remove excess sediment from channels and make structural improvements.

Coordinating Individual/Organization: Public Works

Potential Funding Source: City of Poway/FEMA

Implementation Timeline: FY 2004/05

Priority Action #4: Update Water Master Plan including fire protection upgrades if necessary.

Coordinating Individual/Organization: Public Works/Development Services

Potential Funding Source: City of Poway

Implementation Timeline: FY 2005/2006

Priority Action #5: Purchase emergency generators for Public Works Department

Coordinating Individual/Organization: Public Works

Potential Funding Source: City of Poway/FEMA

Implementation Timeline: FY 2004/05

Priority Action #6: Evaluate and implement a plan to make the Public Works operations site into a second Emergency Operations Center in addition to the City Hall/Fire Station I location.

Coordinating Individual/Organization: Public Works and Safety Services

Potential Funding Source: City of Poway/FEMA

Implementation Timeline: FY 2005/06

Priority Action #7: Develop and initiate an action plan to prevent and prepare for potential rockslides on Poway Grade and on Pomerado Road.

Coordinating Individual/Organization: Public Works and Development Services

Potential Funding Source: City of Poway/FEMA

Implementation Timeline: FY 2005/06

Priority Action #8: Develop and initiate an action plan to create defensible space in areas prone to wildfire, review General Plan/Municipal Code policies regarding vegetation, clearing, construction, and control burns.

Coordinating Individual/Organization: Safety Services and Development Services

Potential Funding Source: City of Poway/FEMA

Implementation Timeline: FY 2004/05

Priority Action #9: Update FEMA maps and planning overlay maps regarding flood risk and potential wildfire areas.

Coordinating Individual/Organization: Development Services, Safety Services, and Public Works

Potential Funding Source: City of Poway/FEMA

Implementation Timeline: FY 2004/05

Priority Action #10: Acquire treated water connection from San Diego County Water Authority for use in emergency.

Coordinating Individual/Organization: Public Works

Potential Funding Source: City of Poway/FEMA/Grants

Implementation Timeline: FY 2005/06

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5.16 CITY OF SAN DIEGO

The City of San Diego (San Diego) reviewed a set of jurisdictional-level hazard maps including detailed critical facility information and localized potential hazard exposure/loss estimates to help identify the top hazards threatening their jurisdiction. In addition, LPGs were supplied with exposure/loss estimates for San Diego summarized in Table 5.16-1. See Section 4.0 for additional details.

Table 5.16-1
Summary of Potential Hazard-Related Exposure/Loss in San Diego

		Residential		Commercial		Critical Facilities	
Hazard Type	Exposed Population	Number of Residential Buildings	Potential Exposure/ Loss for Residential Buildings (x $1,000)	Number of Commercial Buildings	Potential Exposure/ Loss for Commercial Buildings (x $1,000)	Number of Critical Facilities	Potential Exposure for Critical Facilities (x $1,000)
Coastal Storm / Erosion	1,849	749	310,630	12	118,954	0	0
Dam Failure	135,234	22,834	8,612,306	1,164	5,630,720	523	2,804,819
Earthquake (Annualized Loss - Includes shaking, liquefaction and landslide components)	1,223,503	309,774	42,415	4326	17,384	1,326* / 1,341**	71,207* / 492,822**
Floods (Loss)							
100 Year	49,530	12,541	338,856	331	153,581	162	1,589,400
500 Year	74,812	18,942	540,536	581	277,197	269	2,061,632
Rain-Induced Landslide							
High Risk	192,141	58,959	16,407,169	454	2,085,282	256	980,243
Moderate Risk	27,973	8,898	2,561,491	53	207,458	38	111,859
Tsunami	25,578	5,145	3,395,635	294	1,077,374	99	813,331
Wildfire/ Structure Fire							
Extreme	35	12	3561	0	0	10	19094
Very High	21,010	7,687	2,091,726	66	363,040	51	220,012
High	16,351	6,070	1,792,312	197	1,215,156	67	221,746
Moderate	1,143,729	285,539	87,721,495	3,828	17,178,244	1,584	5,884,949

* Represents 100-year earthquake value under three earthquake scenarios (shake only, shake and liquefaction, and shake and landslide).

** Represents 500-year earthquake value under three earthquake scenarios (shake only, shake and liquefaction, and shake and landslide).

After reviewing the localized hazard maps and exposure/loss table above, the following hazards were identified by the San Diego LPG as their top five.

- **Structure Fire/Wildfire**
- **Coastal Storms/Erosion/Tsunami**

- **Earthquakes**
- **Dam Failure**
- **Other Manmade Hazards**

5.16.1 Capabilities Assessment

The LPG identified current capabilities available for implementing hazard mitigation activities. The Capability Assessment (Assessment) portion of the jurisdictional mitigation plan identifies administrative, technical, legal and fiscal capabilities. This includes a summary of departments and their responsibilities associated to hazard mitigation planning as well as codes, ordinances, and plans already in place associated to hazard mitigation planning. The second part of the Assessment provides San Diego's fiscal capabilities that may be applicable to providing financial resources to implement identified mitigation action items.

5.16.1.1 Existing Institutions, Plans, Policies and Ordinances

The following is a summary of existing departments in San Diego and their responsibilities related to hazard mitigation planning and implementation, as well as existing planning documents and regulations related to mitigation efforts within the community. The administrative and technical capabilities of San Diego, as shown in Table 5.16-2, provides an identification of the staff, personnel, and department resources available to implement the actions identified in the mitigation section of the Plan. Specific resources reviewed include those involving technical personnel such as planners/engineers with knowledge of land development and land management practices, engineers trained in construction practices related to building and infrastructure, planners and engineers with an understanding of natural or manmade hazards, floodplain managers, surveyors, personnel with GIS skills and scientists familiar with hazards in the community.

- City of San Diego Community and Economic Development Department
  - With an emphasis on urban core neighborhoods and low and moderate income residents, the City of San Diego's Community and Economic Development Department (CED) improves the quality of life and ensures a health economy for all San Diegans through job development, business development, neighborhood revitalization, public improvements, redevelopment, social services and revenue enhancements
  - CED is responsible for generating employment, strengthening the local economy, and tax base and improving the climate for business.
  - CED is responsible for all redevelopment activities not covered by the Center City Development Corporation (CCDC) or the Southeastern Economic Development Corporation (SEDC).
  - CED anticipates and responds to the changing needs of neighborhood residents and the community.
  - CED activities, particularly those for which Federal funds are used, focus on mechanisms and activities to facilitate participation in the economy by all residents, including the unemployed,

the low skilled, or other economically disadvantaged persons. Such activities are targeted to low-income areas of the City of San Diego including redevelopment areas, the Enterprise Community, and Targeted Employment Areas.

- City of San Diego Development Services Department
  - The Development Services Department (DSD) manages the City of San Diego's land development process from concept to completion. The scope of responsibility for construction and development projects includes permit issuance; review of subdivision maps and public improvement and grading plans; compliance with land use regulations, community plans and environmental status; review of construction plans; and construction projects.
  - Land Development Code / Environmentally Sensitive Land Regulations and Coastal Development Regulations: These sections of the Land Development Code would require permits and compliance with specific requirements for any disturbance of defined environmentally sensitive lands (habitat, wetlands, steep hillsides, coastal bluffs, etc.) or for any work done within the coastal zone. This would include impacts resulting from emergency work to repair or restore an area damaged by those hazards included in this plan. The Land Development Code, however, has specific provisions allowing the City Manager to authorize emergency work without permits and to have the required permits obtained after the fact. This would allow emergency work to be performed without delay.

- City of San Diego – Engineering and Capital Projects Department
  - This Department is responsible for planning, design and construction of public improvement projects that encompass building fire stations, libraries, parks and parks buildings, police stations, bikeways, drainage facilities, street lights, street improvements, and water and sewer facilities.
  - Field Engineering Division: Provides construction management, materials testing, and construction surveying for capital, land development, and public, improvement projects.
  - Architectural Engineering and Contracts Division: Provides project management, design and review of public buildings, construction document processing, advertisement and contract award processing, and ADA /Title 24 compliance.
  - Water and Sewer Division: Provides project management, design and review of water and sewer infrastructure projects
  - Transportation Engineering Division: Provides project management, design, and preparation of construction documents for transportation improvement projects that include drains, channels, roadways, major streets, bridges, coastal erosion improvements, bikeways, alleys, and slope restoration.

- City of San Diego - Environmental Services Department
  - Collection Services Division: This division within the Environmental Services Department is responsible for collecting, hauling and disposing of refuse, recyclables and yard waste from residences, small businesses and public rights of way litter containers. Collection Services is

also responsible for various event mitigations related to site-specific removal of debris, recyclable materials, and yard waste.

- Refuse Disposal Division: This division is responsible for disposing solid waste at the Miramar Landfill in an environmentally sound manner, maintaining the City's seven closed landfills in environmental compliance, operating the Miramar Landfill and the Landfill Gas Collection Systems, as well as maintaining regulatory and NPDES compliance at the inactive sites.
- Energy Division: This division is responsible for energy policy development, alternate energy project development and regulatory agency coordination. It is also responsible for energy project development and construction management.
- Waste Reduction & Diversion (WRAD) Division: This division provides equipment and drivers for removal of debris in critical, public safety cases and develops public education for post-disaster debris disposal and procedures. This division also provides technical knowledge for addressing recycling and waste diversion issues. This division assigns enforcement authority for all municipal code solid waste and applicable state codes.
- Environmental Protection Division: This division manages several programs at the City of San Diego, including the Asbestos and Lead Management Program, Lead Safe Neighborhoods Program, the Household Hazardous Materials Program, the Hazardous Materials Management Program, the Landfill Load Check Program, and the Underground Storage Tank Program (USTP). The Asbestos and Lead Management Program was established for City operations to comply with regulations regarding asbestos and lead abatements and disposal; and to act as the City's liaison to the regulating agencies. The Lead Safe Neighborhoods Program was established for elimination of lead poisoning in San Diego through enforcement, education and outreach. The Household Hazardous Materials Program was established in 1988 for City operations to comply with regulations regarding hazardous materials use, storage and disposal; and to act as City's liaison to the regulating agencies. The Hazardous Materials Management Program ensures residents have a legal and appropriate mechanism to recycle/dispose of their leftover or no longer wanted hazardous products used to maintain their residence, vehicle, yard or pool. The Landfill Load Check Program checks loads of waste entering the Miramar Landfill to ensure the contents comply with landfill waste acceptance regulations and policies. The Underground Storage Tank Program ensures compliance with laws and regulations pertaining to fueling systems, and assessment and mitigation/cleanup of contaminated soil and groundwater. This program also provides expertise in design, construction and operation of fueling systems, soil and groundwater remediation, mitigation of environmental, health and safety construction, and public safety hazards.

- City of San Diego – Fire Department
  - The mission of the City of San Diego Fire Department is to provide dependable service in a responsive fashion while showing care and compassion for those in need; to protect lives, property and the environment through fire suppression, rescue, disaster preparedness, fire prevention, and community education, medical care, and hazardous material mitigation; to provide a professional and caring environment that is fair, honest, ethical, and progressive,

service oriented organization which provides innovative and effective leadership; and to be supportive and responsive to the needs of City Government.

  - The City of San Diego Fire Department conducts subdivision plan review for fire access, provision of fire lanes, types of water supply needs, and location of water supply sources. The Fire Department also conducts plan review and occupancy classification in hazardous areas both in and outside buildings, establishing or reviewing the type, amount, hazard class, use, and dispensing and mixing of hazardous materials.

- City of San Diego – General Services Department
  - Purchasing Division: Responsible for day-to-day and emergency procurement for all City departments.
  - Facilities Division: Responsible for day-to-day operation, repair and maintenance of City facilities including preventative maintenance, emergency repairs and, as funding permits, deferred maintenance.
  - Storm Water Pollution Prevention Division: Conducts education, employee training, water quality monitoring, source identification, code enforcement, watershed management, and Best Management Practices development/implementation with the City of San Diego. Represents the City on storm water and NPDES storm water permit issues before the Principal Permittee and the County Department of Environmental Health, and Regional Water Quality Board Control. The Storm Water Program also provides technical expertise to all City departments to ensure implementation and compliance with permits.

- City of San Diego – Metropolitan Wastewater Department
  - Public Information Office/Volunteer Canyon Watchers Program: This office within the Metropolitan Wastewater Department trains citizen volunteers to identify sewer spills or potential spills in canyon areas inaccessible to vehicle traffic.
  - City Hazardous Materials Program
  - MWWD Health, Safety, and Training Program: Includes procedures for Bloodborne Pathogens Program, Chemical Hygiene Plan, Confined Spaces Program, Hazard Communication Program, and Hazardous Materials Transport Program
  - MWWD Department Operations Plan: Includes ICS functions for declared emergencies with in MWWD.

- City of San Diego – Planning Department
  - The mission of the City of San Diego's Planning Department is to create a well planned, desirable living and working environment for the residents of San Diego through the development and implementation of land use and transportation policies and long-range fiscal planning for public facilities.
  - Progress Guide and General Plan – Public Facilities, Services and Safety Element/ Guidelines and Standards for Fire Stations: Provides guidelines and standards for location of fire stations.

- Progress Guide and General Plan – Conservation Element: Guidelines and Standards and Recommendations for Land and Landforms, Beaches and Shoreline, Erosion and Agricultural Lands: Guidelines and standards for Land and Landforms to minimize adverse impacts from floodplains, steep slopes, canyons, coastal and waterfront lands, and grading. Recommendations section has policies to minimize adverse impacts.
- Progress Guide and General Plan – Seismic Safety Element: Recommendations for minimizing future land use development in inappropriate areas, based on seismic risk.
- Disaster Preparedness-San Diego Emergency Plan: Provides background on San Diego's Emergency Preparedness Plan and recommendations for minimizing impact of emergencies due to hazards and disasters.
- Drainage and Flood Control: Provides guidelines and standards for design and construction of drainage facilities.
- General Plan Draft Mobility Element **(not yet adopted):** The draft update of the City's General Plan Transportation Element (Mobility Element) includes a section on Intelligent Transportation Systems (ITS). ITS includes among numerous other functions Emergency Management Systems which covers coordination of emergency operations and hazardous materials cleanup. ITS facilitates the coordination and controls necessary to detect and respond to incidents appropriately and in a timely manner.
- Black Mountain Ranch Sub-area Plan: Includes a Mitigation and Monitoring Program to ensure that adequate environmental mitigation measures are implemented. The program includes measures relating to hydrology, landform alteration, geology and soil erosion,
- Carmel Valley Development Unit Three Precise Plan: Includes recommendations on grading and drainage to minimize erosion, sedimentation and rainwater runoff. Among the recommendations are that drainage facilities should be constructed on-site concurrently with grading operations.
- Carmel Valley Neighborhood 1 Precise Plan: Includes policies and recommendations on landforms, landscape grading, and drainage, in part to minimize erosion and facilitate proper drainage.
- College Area Community Plan: Includes recommendations for canyon fire protection
- Del Mar Mesa Specific Plan: Includes a requirement for a master drainage plan which would address sizing and siting of facilities required to mitigate potential impacts to downstream facilities from increases in run-off and erosion due to the Specific Plan. Also includes policies to minimize grading and erosion impacts.
- Dennery Ranch Precise Plan: Includes several drainage mitigation measures to reduce on-site and off-site impacts. Environment Impact Report for Dennery Ranch requires several erosion and run-off control measures.
- Kearny Mesa Community Plan: Includes a recommendation to require a geologic reconnaissance study prior to project approval to identify development constraints when geologic hazards are known to exist. Also includes a recommendation to maintain the natural drainage system and minimize use of impervious surfaces.

- La Jolla Community Plan (Draft – not yet in effect): Includes policies and recommendations on natural resource protection, protection of shoreline areas, coastal bluffs, and steep hillsides.
- Mid-City Communities Plan: Includes goals and recommendations on faults and liquefaction, soil structure, landslides, shrink and swell characteristics, hazardous materials, and soil quality. Also includes goals and recommendations on police and public safety, and fire and life safety.
- Mira Mesa Community Plan: Provides erosion control measures for north city areas draining into Los Penasquitos or San Dieguito Lagoons.
- Mission Valley Community Plan: Includes a major section on flood control policies and recommendations. Also includes an extensive Wetlands Management Plan.
- Multiple Species Conservation Program (MSCP): The MSCP Program includes considerable open space lands around flood plains. This land helps preserve the floodplain and prevent excessive development in floodplain areas. Additionally, the MSCP requires restoration of slopes in or adjacent to the preserve with native vegetation. This can help to prevent erosion.
- Ocean Beach Precise Plan: Includes goals and recommendations on police and fire protection. Includes goals and recommendations on shoreline development to minimize bluff erosion.
- Peninsula Community Plan: Includes recommendations for erosion control and bluff stabilization, especially along Sunset Cliffs.
- Rancho Bernardo Community Plan: Includes recommendation that northwestern and southern drainage areas should be served by courses and channels within open space areas and minor drainage structures. Also, where open space areas are used for drainage, the drainage channel and or flow area should be kept free of obstructions.
- Rancho Encantada Precise Plan: Includes drainage and erosion control guidelines to reduce runoff and minimize erosion. Also includes a provision in the Mitigation Monitoring and Reporting Program (MMRP) that an existing 4,000 gallon above ground diesel fuel tank at "Site J" be removed within 6 months of vacation by the lessee. The MMRP also states that several buildings proposed for demolition may contain hazardous materials and that following demolition, the soil should be field screened in areas where hazardous materials were known to have been used or stored. If contamination is discovered, the property owner is required to take remedial action as appropriate, with a written report to the City.
- Sabre Springs Community Plan: One objective is to maintain, to the maximum extent possible, Chicarita and Penasquitos Creeks in their natural drainage condition. The Plan gives specific direction on how to accomplish this objective. Grading should minimize the potential for erosion and settling.
- San Pasqual Valley Plan: This plan contains a flood control element with several policies and proposals for minimizing flood potential. Main proposals are to modify existing leases to allow pilot channel maintenance by the City and not the lessees and to maintain an approximately 40 foot wide pilot channel bottom to maintain flood carrying capacity.

- Scripps Miramar Ranch Community Plan: Community Environment Element includes a provision that runoff containing chemical pollutants should not be permitted to contaminate the public water supply in Miramar Reservoir. All runoff containing contaminants should drain away from the reservoir into a natural or City approved drainage system. To achieve this, the Plan recommends that a fill slope not exceeding 100 feet high be required in the canyon on the northeast perimeter of the reservoir. In the same section is a provision that Floodplain Fringe Overlay zoning should be applied to land within Carroll Canyon where appropriate.

- City of San Diego – Police Department
  - San Diego Police Department provides law enforcement, scene security, traffic and crowd control, and criminal investigations at the scene of a disaster
  - The Police Department plans for and implements the Dam Failure Plan and San Diego River Road Closure Plan
- City of San Diego – Transportation Department
  - The Transportation Department's mission is to protect and preserve the health, safety and well-being of the citizens of San Diego through effective and efficient maintenance and operation of the City's transportation infrastructure. To this end, every member of the Transportation Department strives for responsiveness, dedication, effectiveness and excellence in public service.
  - Street Division: Responsible for maintaining and repairing streets, curbs, gutters, traffic signals, street lights, storm channels, storm drain structures, street sweeping, trees in the public right-of-way, and bridges.
  - Parking Management: Under the direction of the SDPD, assists in traffic regulation and control.
  - Bi-Nationals Division: Assists in the coordination/communication with Mexico.
- City of San Diego – Water Department:
  - The mission of the Water Department is to provide the best quality of water to the citizens of San Diego in a professional, effective, efficient, and sensitive manner in all aspects of operation so that the public health, environment, and quality of life are enhanced.
  - The following plans and programs require extensive compliance with specific regulations that deal with our water department operations: Emergency Response Plan; Process Safety Management; Chlorine Plan; Vulnerability Assessment

Table 5.16-2
City of San Diego: Administrative and Technical Capacity

Staff/Personnel Resources	Y/N	Department/Agency and Position
A. Planner(s) or engineer(s) with knowledge of land development and land management practices	Y	Planning, Development Services, Community/Economic Development, Environmental Services, and Engineering and Capital Projects
B. Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Y	Engineering & Capital Projects, General Services/Facilities and Development Services.
C. Planners or Engineer(s) with an understanding of natural and/or manmade hazards	Y	Fire-Rescue, Police, Development Services, Planning, Environmental Services, and Engineering and Capital Projects.
D. Floodplain manager	Y	Development Services, and Engineering and Capital Projects
E. Surveyors	Y	Engineering & Capital Projects and Environmental Services
F. Staff with education or expertise to assess the community's vulnerability to hazards	Y	Development Services
G. Personnel skilled in GIS and/or HAZUS	Y	Information, Technology & Communications, and Engineering and Capital Projects
H. Scientists familiar with the hazards of the community	N	
I. Emergency manager	Y	Homeland Security, and Engineering and Capital Projects
J. Grant writers	Y	Financial Management, Park & Recreation and Environmental Services.

The legal and regulatory capabilities of San Diego are shown in Table 5.16-3, which presents the existing ordinances and codes that affect the physical or built environment of San Diego. Examples of legal and/or regulatory capabilities can include: the City's building codes, zoning ordinances, subdivision ordnances, special purpose ordinances, growth management ordinances, site plan review, general plans, capital improvement plans, economic development plans, emergency response plans, and real estate disclosure plans.

Table 5.16-3
City of San Diego: Legal and Regulatory Capability

Regulatory Tools (ordinances, codes, plans)	Local Authority (Y/N)	Does State Prohibit (Y/N)
A. Building code	Y	N
B. Zoning ordinance	Y	N
C. Subdivision ordinance or regulations	Y	N
D. Special purpose ordinances (floodplain management, storm water management, hillside or steep slope ordinances, wildfire ordinances, hazard setback requirements)	Y	N
E. Growth management ordinances (also called "smart growth" or anti-sprawl programs)	Y	N
F. Site plan review requirements	Y	N
G. General or comprehensive plan	Y	N
H. A capital improvements plan	Y	N
I. An economic development plan	Y	N
J. An emergency response plan	Y	N
K. A post-disaster recovery plan	Y	N
L. A post-disaster recovery ordinance	N	N
M. Real estate disclosure requirements	N	N

5.16.1.2 Fiscal Resources

Table 5.16-4 shows specific financial and budgetary tools available to San Diego such as community development block grants; capital improvements project funding; authority to levy taxes for specific purposes; fees for water, sewer, gas, or electric services; impact fees for homebuyers or developers for new development; ability to incur debt through general obligations bonds; and withholding spending in hazard-prone areas.

Table 5.16-4
City of San Diego: Fiscal Capability

Financial Resources	Accessible or Eligible to Use (Yes/No)
A. Community Development Block Grants (CDBG)	Yes
B. Capital improvements project funding	Yes
C. Authority to levy taxes for specific purposes	Yes
D. Fees for water, sewer, gas, or electric service	Yes
E. Impact fees for homebuyers or developers for new developments/homes	Yes
F. Incur debt through general obligation bonds	Yes
G. Incur debt through special tax and revenue bonds	Yes
H. Incur debt through private activity bonds	UK
I. Withhold spending in hazard-prone areas	Yes

5.16.2 Goals, Objectives and Actions

Listed below are San Diego's specific hazard mitigation goals, objectives and related potential actions. For each goal, one or more objectives have been identified that provide strategies to attain the goal. Where appropriate, the City has identified a range of specific actions to achieve the objective and goal.

The goals and objectives were developed by considering the risk assessment findings, localized hazard identification and loss/exposure estimates, and an analysis of the jurisdiction's current capabilities assessment. These preliminary goals, objectives and actions were developed to represent a vision of long-term hazard reduction or enhancement of capabilities. To help in further development of these goals and objectives, the LPG compiled and reviewed current jurisdictional sources including the City's planning documents, codes, and ordinances. In addition, City representatives met with consultant staff and/or OES to specifically discuss these hazard-related goals, objectives and actions as they related to the overall Plan. Representatives of numerous City departments involved in hazard mitigation planning, including Fire, Police, and Public Works provided input to the San Diego LPG. The San Diego LPG members were:

- Carey Brooks
- Kelly Broughton
- Gabriela Cloverdale
- Paul Cooper
- Lance Dormann
- Kevin Haupt
- Werner Landry
- D.P. Lee

- Herb Lemmons
- Frankie Murphy
- Roger Myers
- Jose Navarro
- Joey Perry
- Myles Pomeroy
- Hossein Ruhi
- Tony Ruiz
- Eugene Ruzzini
- Peter Sandoval
- Mario Sierra
- Donna Skinner
- Keith Strehle
- Dave Stucky
- Jim Van Norman
- Llew Willis

Once developed, City staff presented them to the City of San Diego City Council for their approval.

Public meetings were held throughout the County to present these preliminary goals, objectives and actions to citizens and to receive public input. At these meetings, specific consideration was given to hazard identification/profiles and the vulnerability assessment results. The following sections present the hazard-related goals, objectives and actions as prepared by San Diego's LPG in conjunction with the Hazard Mitigation Working Group, locally elected officials, and local citizens.

5.16.2.1 Goals

The City of San Diego has developed the following 9 Goals for their Hazard Mitigation Plan.

Goal 1. Promote disaster-resistant future development.

Goal 2. Increase public understanding, support, and demand for effective hazard mitigation.

Goal 3. Build and support local capacity and commitment to continuously become less vulnerable to hazards.

Goal 4. Improve coordination and communication with federal, state, local and tribal governments.

"Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and State-owned facilities, due to":

Goal 5. All Hazards.

Goal 6. Floods.

Goal 7. Severe Weather.

Goal 8. Geological Hazards.

Goal 9. Structural/Wildfire.

5.16.2.2 Objectives and Actions

The City of San Diego developed the following broad list of objectives and actions to assist in the implementation of each of their 9 identified goals. The City of San Diego developed objectives to assist in achieving their hazard mitigation goals. For each of these objectives, specific actions were developed that would assist in their implementation. A discussion of the prioritization and implementation of the action items is provided in Section 5.16.2.3.

Goal 1: Promote disaster-resistant future development.	
Objective 1.A: Encourage and facilitate the development or updating of general plans and zoning ordinances to limit development in hazard areas.	
Action 1.A.1	Update the Public Facilities, Services, and Safety elements of the City's General Plan.

Goal 2: Promote public understanding, support and demand for hazard mitigation.	
Objective 2.A: Educate the public to increase awareness of hazards and opportunities for mitigation actions.	
Action 2.A.1	Enhance the public's awareness of hazard mitigation efforts utilizing the City of San Diego's cable TV channel and other electronic media, as well as through traditional print media.
Action 2.A.2	Increase awareness of individual homeowners, other property owners, the business community, and others in the importance of taking proactive steps to mitigate the risk of hazards.
Objective 2.B: Promote partnerships between the state, counties, local and tribal governments to identify, prioritize, and implement mitigation actions.	

Goal 2: Promote public understanding, support and demand for hazard mitigation. (continued)	
Action 2.B.1	Utilize SANDAG to assist in gathering and/or providing information for regional hazard mitigation.
Action 2.B.2	Work with San Diego's legislative delegation to develop legislation to require the Governor's Office of Planning and Research to develop guidelines for the preparation of public safety elements to include hazard mitigation and model hazard mitigation planning.

Goal 3: Build and support local capacity and commitment to continuously become less vulnerable to hazards.	
Objective 3.A: Increase awareness and knowledge of hazard mitigation principles and practice among state, local and tribal officials.	
Action 3.A.1	Build and support local partnerships, such as the Unified Disaster Council (UDC) and Homeland Preparedness Coordination Council (HPCC), and the coordination of mutual aid agreements to continuously become less vulnerable to hazards.
Action 3.A.2	Build a team of community volunteers to work with the community before, during, and after a disaster.
Action 3.A.3	Build hazard mitigation concerns into City of San Diego planning and budgetary processes.

Goal 4: Improve hazard mitigation coordination and communication with federal, state, local and tribal governments.	
Objective 4.A: Establish and maintain closer working relationships with state agencies, local and tribal governments.	
Action 4.A.1	Operate the City's Emergency Operations Center (EOC) and Department Operations Centers (DOC) following the Standardized Emergency Management System (SEMS) and Incident Command System (ICS).
Action 4.A.2	Encourage development of standardized Emergency Operations Plans within the City of San Diego that coordinate with County-wide Emergency Operations Plans.
Objective 4.B: Encourage other organizations to incorporate hazard mitigation activities.	
Action 4.B.1	Work with local chambers of commerce, trade associations, and employee unions to encourage them to promote hazard mitigation as part of safe work practices.

Goal 4: Improve hazard mitigation coordination and communication with federal, state, local and tribal governments. (continued)	
Objective 4.C: Improve the State's capability and efficiency at administering pre- and post-disaster mitigation.	
Action 4.C.1	Participate in the development and execution of Emergency Operations Center (EOC) and Department Operation Centers (DOC) table top and functional disaster exercises (addressing the response and recovery phases), which include Federal Military and State representative participation.

Goal 5: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and State-owned facilities, due to hazards (structural fire/wildfire, coastal storms/erosion/tsunami, earthquake, dam failure, flood, landslide, and other human caused hazards).	
Objective 5.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to hazards (structural fire/wildfire, coastal storms/erosion/tsunami, earthquake, dam failure, flood, landslide, and other human caused hazards).	
Action 5.A.1	Develop an integrated communication/notification plan, including information about road closures, evacuation routes, unified command post locations, staging areas, and shelters. This includes coordination between police and fire personnel for evacuations, and a County-wide damage assessment team.
Action 5.A.2	Develop a post-disaster construction and demolition waste recycling ordinance, which includes alternate recycling and disposal sites.
Action 5.A.3	Provide to critical City of San Diego facilities backup electrical power generating systems, fuel, and necessary supplies in case of major power outages.
Action 5.A.4	Replace all underground petroleum storage tanks with above ground tanks at critical City facilities.

Goal 6: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and State-owned facilities, due to <u>floods</u>.	
Objective 6.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to floods.	
Action 6.A.1	Work with Federal and State authorities regarding regulations that add expense and time to flood control measures and maintenance activities.

Goal 7: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and State-owned facilities, due to <u>severe weather</u> (e.g., El Nino storms, thunderstorms, and tsunamis).	
Objective 7.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to severe weather.	
Action 7.A.1	Utilize SANGIS to develop GIS-based severe weather zone mapping.

Goal 8: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and State-owned facilities, due to <u>geological hazards</u>.	
Objective 8.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to geological hazards.	
Action 8.A.1	Coordinate efforts within the City of San Diego to develop a seismic report of the City and how it affects City facilities and infrastructure.
Action 8.A.2	Develop a means of providing water for fire fighting when water service is disrupted.

Goal 9: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and State-owned facilities, due to <u>structural/wildfires</u>.	
Objective 9.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to structural/wild fires.	
Action 9.A.1	Enhance the Open Space Brush Management Program to ensure compliance with brush management requirements.
Action 9.A.2	Establish an urban/wild land fire technical working group in conjunction with County and State representatives.

5.16.2.3 Prioritization and Implementation of Action Items

Once the comprehensive list of jurisdictional goals, objectives, and action items listed above was developed, the proposed mitigation actions were prioritized. This step resulted in a list of acceptable and realistic actions that address the hazards identified in each jurisdiction. This prioritized list of action items was formed by the LPG weighing STAPLEE criteria

The Disaster Mitigation Action of 2000 (at 44 CFR Parts 201 and 206) requires the development of an action plan that not only includes prioritized actions but one that includes information on how the prioritized actions will be implemented. Implementation consists of identifying who is responsible for which action, what kind of funding mechanisms and other resources are available or will be pursued, and when the action will be completed.

The top 22 prioritized mitigation actions as well as an implementation strategy for each are:

Action Item #1: Enhance the public's awareness of hazard mitigation efforts utilizing the City of San Diego's cable TV channel and other electronic media, as well as through traditional print media.

Coordinating Individual/Organization: Public and Media Affairs/Information Technology and Communications

Potential Funding Source: Operating Budget

Implementation Timeline: 1 - 3 year time frame

Action Item #2: Develop an integrated communication/notification plan, including information about road closures, evacuation routes, unified command post locations, staging areas, and shelters. This includes coordination between police and fire personnel for evacuations, and a County-wide damage assessment team.

Coordinating Individual/Organization: Homeland Preparedness Coordination Council & Office of Homeland Security

Potential Funding Source: Operating Budget

Implementation Timeline: 1 - 3 year time frame

Action Item #3: Build and support local partnerships, such as the Unified Disaster Council (UDC) and Homeland Preparedness Coordination Council (HPCC), and the coordination of mutual aid agreements to continuously become less vulnerable to hazards.

Coordinating Individual/Organization: Homeland Preparedness Coordination Council & Office of Homeland Security

Potential Funding Source: Operating Budget

Implementation Timeline: 1 – 3 year time frame

Action Item #4: Develop a means of providing water for fire fighting when water service is disrupted.

Coordinating Individual/Organization: Engineering and Capital Projects/Water/ Transportation/General Services/Fire Rescue

Potential Funding Source: Need to seek Federal or State funding

Implementation Timeline: 1-10 year time frame

Action Item #5: Build hazard mitigation concerns into the City' of San Diego planning and budgetary processes.

Coordinating Individual/Organization: Financial Management/Planning

Potential Funding Source: Need to seek Federal or State funding

Implementation Timeline: 1 – 3 year time frame

Action Item #6: Provide to critical City of San Diego facilities backup electrical power, fuel, and necessary supplies in case of major power outages.

Coordinating Individual/Organization: Homeland Preparedness Coordination Council

Potential Funding Source: Need to seek Federal or State funding

Implementation Timeline: 1 – 3 year time frame

Action Item #7: Coordinate efforts within the City of San Diego to develop a seismic report of the City and how it affects City facilities and infrastructure.

Coordinating Individual/Organization: Fire/Water/Metropolitan Waste Water/Planning/Development Services

Potential Funding Source: Need to obtain Federal or State funding

Implementation Timeline: 1 – 5 year time frame

Action Item #8: Develop a post-disaster construction and demolition ordinance, which includes alternate recycling and disposal sites.

Coordinating Individual/Organization: General Services/Environmental Services/Development Services

Potential Funding Source: Need to obtain Federal or State funding

Implementation Timeline: 1 – 3 year time frame

Action Item #9: Increase awareness of individual homeowners, other property owners, the business community, and others in the importance of taking proactive steps to mitigate the risk of hazards..

Coordinating Individual/Organization: Public and Media Affairs/Information Technology and Communications/Environmental Services

Potential Funding Source: Operating Budget

Implementation Timeline: 1 - 3 year time frame

Action Item #10: Participate in the development and execution of Emergency Operations Center (EOC) and Department Operations Centers (DOC) table top and functional disaster exercises (addressing the response and recovery phases), which include Federal Military and State representative participation.

Coordinating Individual/Organization: Office of Homeland Security & Homeland Preparedness Coordination Council

Potential Funding Source: Operating Budget

Implementation Timeline: 1 –3 year time frame

Action Item #11: Work with local chambers of commerce, trade associations, and employee unions to encourage them to promote hazard mitigation as a part of safe work practices.

Coordinating Individual/Organization: Community and Economic Development

Potential Funding Source: Operating Budget

Implementation Timeline: 1 –3 year time frame

Action Item #12: Encourage development of standardized Emergency Operations Plans within the City of San Diego that coordinate with County-wide Emergency Operations Plans.

Coordinating Individual/Organization: Office of Homeland Security & Homeland Preparedness Coordination Council

Potential Funding Source: Need to seek Federal or State funding

Implementation Timeline: 1 – 3 year time frame

Action Item #13: Operate the City's Emergency Operations Center (EOC) and Department Operations Centers (DOC) following the Standardized Emergency Management System (SEMS) and Incident Command System (ICS).

Coordinating Individual/Organization: Office of Homeland Security & Homeland Preparedness Coordination Council

Potential Funding Source: Operating Budget

Implementation Timeline: 1 – 3 year time frame

Action Item #14: Update the Public Facilities, Services, and Safety elements of the City's General Plan.

Coordinating Individual/Organization: Planning

Potential Funding Source: Operating Budget

Implementation Timeline: 1 –5 year time frame

Action Item #15: Replace all underground petroleum storage tanks with above ground tanks at critical City facilities.

Coordinating Individual/Organization: Environmental Services

Potential Funding Source: Need to seek Federal or State funding

Implementation Timeline: 1 – 10 year time frame

Action Item #16: Build a team of community volunteers to work with the community before, during, and after a disaster.

Coordinating Individual/Organization: Public and Media Affairs/Information Technology and Communication

Potential Funding Source: Operating Budget

Implementation Timeline: 1 – 3 year time frame

Action Item #17: Utilize SANDAG to assist in gathering and/or providing information for regional hazard mitigation.

Coordinating Individual/Organization: Information Technology and Communication

Potential Funding Source: Operating Budget

Implementation Timeline: 1 – 3 year time frame

Action Item #18: Work with San Diego's legislative delegation to develop legislation to require the Governor's Office of Planning and Research to develop guidelines for the preparation of public safety elements to include hazard mitigation and model hazard mitigation planning.

Coordinating Individual/Organization: Governmental Relations

Potential Funding Source: Operating Budget

Implementation Timeline: 1 – 3 year time frame

Action Item #19: Work with Federal and State authorities regarding regulations that add expense and time to flood control measures and maintenance activities.

Coordinating Individual/Organization: Governmental Relations

Potential Funding Source: Operating Budget

Implementation Timeline: 1 –3 year time frame

Action Item #20: Utilize SANGIS to develop GIS-based severe weather zone mapping.

Coordinating Individual/Organization: Information Technology and Communication

Potential Funding Source: Operating Budget

Implementation Timeline: 1 – 3 year time frame

Action Item #21: Enhance the Open Space Brush Management Program to ensure compliance with brush management requirements.

Coordinating Individual/Organization: Office of Homeland Security & Homeland Preparedness Coordination Council & Fire and Life Safety

Potential Funding Source: Need to seek Federal or State funding

Implementation Timeline: 1 – 5 year time frame

Action Item #22: Establish an urban/wild land fire technical working group in conjunction with County and State representatives.

Coordinating Individual/Organization: Office of Homeland Security & Homeland Preparedness Coordination Council & Fire and Life Safety

Potential Funding Source: Operating Budget

Implementation Timeline: 1 – 3 year time frame

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5.17 CITY OF SAN MARCOS

The City of San Marcos (San Marcos) reviewed a set of jurisdictional-level hazard maps including detailed critical facility information and localized potential hazard exposure/loss estimates to help identify the top hazards threatening their jurisdiction. In addition, LPGs were supplied with exposure/loss estimates for San Marcos summarized in Table 5.17-1. See Section 4.0 for additional details.

Table 5.17-1
Summary of Potential Hazard-Related Exposure/Loss in San Marcos

		Residential		Commercial		Critical Facilities	
Hazard Type	**Exposed Population**	**Number of Residential Buildings**	**Potential Exposure/ Loss for Residential Buildings (x $1,000)**	**Number of Commercial Buildings**	**Potential Exposure/ Loss for Commercial Buildings (x $1,000)**	**Number of Critical Facilities**	**Potential Exposure for Critical Facilities (x $1,000)**
Coastal Storm / Erosion	0	0	0	0	0	0	0
Dam Failure	1,584	427	101,770	27	83,598	7	7,349
Earthquake (Annualized Loss - Includes shaking, liquefaction and landslide components)	63,000	15,191	1047	239	671	63* / 63**	1,865* / 8,560**
Floods (Loss)							
100 Year	2,751	760	8,227	51	11,394	12	18,900
500 Year	2,971	821	9,825	54	13,125	13	19,820
Rain-Induced Landslide							
High Risk-	0	0	0	0	0	0	0
Moderate Risk	7,627	2,382	564,765	30	127,238	14	19,868
Tsunami	0	0	0	0	0	0	0
Wildfire/ Structure Fire							
Extreme	0	0	0	0	0	0	0
Very High	258	86	14,062	0	3,580	1	4,272
High	4,598	1,447	346,034	10	54,236	4	8,000
Moderate	47,998	12,927	2,823,430	227	829,950	82	349,113

* Represents 100-year earthquake value under three earthquake scenarios (shake only, shake and liquefaction, and shake and landslide).

** Represents 500-year earthquake value under three earthquake scenarios (shake only, shake and liquefaction, and shake and landslide).

After reviewing the localized hazard maps and exposure/loss table above, the following hazards were identified by the San Marcos LPG as their top five. A brief rational for including each of these is included.

- **Wildfire**: Wildland interface, protected open spaces, undeveloped areas, fuel model, historical occurrences
- **Dam Failure/Flood**: Central business district of the city is located in flood prone areas (100 year floodplain). South Lake Dam failure inundation area is in the same central business district. Difficulty in implementing mitigation measures due to state and federal regulations.
- **Hazardous Materials Release**: Highway 78 is a major transportation corridor. Fixed facilities located throughout the city.
- **Earthquake**: Low risk based upon known faults and projected peak accelerations in San Marcos as a result of a Rose Canyon fault which is 12.4 miles (19.9 km) from San Marcos Civic Center.
- **Landslide**: Low risk.

5.17.1 Capabilities Assessment

The LPG identified current capabilities available for implementing hazard mitigation activities. The Capability Assessment (Assessment) portion of the jurisdictional mitigation plan identifies administrative, technical, legal and fiscal capabilities. This includes a summary of departments and their responsibilities associated to hazard mitigation planning as well as codes, ordinances, and plans already in place associated to hazard mitigation planning. The second part of the Assessment provides San Marcos' fiscal capabilities that may be applicable to providing financial resources to implement identified mitigation action items.

5.17.1.1 Existing Institutions, Plans, Policies and Ordinances

The following is a summary of existing departments in San Marcos and their responsibilities related to hazard mitigation planning and implementation, as well as existing planning documents and regulations related to mitigation efforts within the community. The administrative and technical capabilities of San Marcos, as shown in Table 5.17-2, provides an identification of the staff, personnel, and department resources available to implement the actions identified in the mitigation section of the Plan. Specific resources reviewed include those involving technical personnel such as planners/engineers with knowledge of land development and land management practices, engineers trained in construction practices related to building and infrastructure, planners and engineers with an understanding of natural or manmade hazards, floodplain managers, surveyors, personnel with GIS skills and scientists familiar with hazards in the community.

- City of San Marcos Planning Department
  - Zoning Ordinance-Chapter 20.76: Flood damage prevention-regulates development within the floodplain.
  - Zoning Ordinance-Chapter 20.79: Hazardous Waste Management plan.
  - Zoning Ordinance-Chapter 20.80 Plan review including fire comments and conditions.
  - Slope Density Ordinance (No.78-472): Minimizes concentration of homes within fuel management zones.

- Administrative Capabilities: All staff planners and engineers have an understanding of land development and building systems. Planning Director and Principal Planner are member of the Planning Division Emergency Response Team

- City of San Marcos Finance Department
  - Fiscal Capabilities:

    1.1.15 Public Facility Financing Plan: Requires development to pay fees to assist in area-wide circulation improvements, drainage improvements and GIS.

    1.1.16 Community Facilities District: Police and Fire CFD fees to fund capital improvements.

    1.1.17 Redevelopment Area Funds: Tax increment funds to assist in completion of major infrastructure improvements.

    1.1.18 Developer Contributions, Traffic Safety Fund, Community Development Block Grants, General Fund, and General Grants.

- City of San Marcos Fire Department
  - SMMC 17.64.060: Prohibits above ground flammable and combustible liquids storage containers.
  - SMMC 17.64.070: Bulk storage of LPG not allowed in commercial or residential districts.
  - SMMC 17.64.080: Storage of explosives and blasting agents prohibited.
  - SMMC 17.64.090: Building division will not issue a certificate of occupancy without fire department approval.
  - SMMC 17.64.120: Road width requirements to provide for ingress/egress of emergency vehicles.
  - SMMC 17.64.130: Fire hydrant type and number requirements
  - SMMC 17.64.140: Fire hydrant spacing requirements
  - SMMC 17.64.160: Ability to require water storage tanks to meet fire flow demands.
  - SMMC 17.64.180-200: Automatic Fire Extinguishing system requirements.
  - SMMC 17.64.240: Includes Wildland Interface Standard as adopted by the County of San Diego.
  - SMMC 17.64.250: San Diego County Hazmat reporting requirements.
  - SMMC 17.64.260: Prohibits sale of fireworks.
  - SMMC 8.64.010: Gives the authority to abate weeds, shrubs and dead trees.

- City of San Marcos Public Works Department
  - Storm Drain Maintenance: Storm drain inlets, outlets and channels are inspected and cleaned on an annual basis.
  - Erosion Control: Best management practices to minimize erosion from October to April.

- Weed Abatement: Herbicide application to roadway shoulder to reduce ignition potential from roadway traffic.
- Roadway Construction Inspections: Verify grades and construction materials to reduce incorrect grades and improperly substituted materials.

- City of San Marcos Engineering Department
  - SMMC 17.32.40: Grading ordinance-hydrology, hydraulics, soils, geological studies
  - SMMC 17.32.100:Cut and fill slopes, fill placement
  - SMMC 17.32.130: Temporary and permanent erosion control measures
  - SMMC 17.32.160, 170: Slope stabilization
  - Inundation Analysis: Study and mitigations needed for any development downstream of existing dams.
  - Jurisdictional Urban Runoff Management Plan: Guidelines and requirements for sediment and erosion control.

Table 5.17-2
City of San Marcos: Administrative and Technical Capacity

Staff/Personnel Resources	Y/N	Department/Agency and Position
A. Planner(s) or engineer(s) with knowledge of land development and land management practices	Y	Planning Division-Planning Division Director, Principal Planner, Senior Planner, Associate Planners, Assistant Engineer. Engineering Division: City Engineer, Principle Civil Engineer, Senior Civil Engineer, Associate Civil Engineer, Assistant Engineer.
B. Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Y	Engineering Division- See above Building Division-Building Division Director, Senior Building Inspector, Building Inspectors.
C. Planners or Engineer(s) with an understanding of natural and/or manmade hazards	Y	Planning Division-Planning Division Director, Principle Planner, Senior Planner, Associate Planners, Assistant Planners. Engineering Division- City Engineer, Principle Civil Engineer, Senior Civil Engineer, Associate Civil Engineer, Assistant Engineer.
D. Floodplain manager	Y	City Engineer
E. Surveyors	N	Contract services available
F. Staff with education or expertise to assess the community's vulnerability to hazards	Y	Fire Department-Fire Chief, Deputy Fire Chief, Fire Marshal
G. Personnel skilled in GIS and/or HAZUS	N	
H. Scientists familiar with the hazards of the community	N	
I. Emergency manager	Y	Fire Department-Fire Chief, Deputy Fire Chief, Fire Marshal
J. Grant writers	Y	Finance

The legal and regulatory capabilities of San Marcos are shown in Table 5.17-3, which presents the existing ordinances and codes that affect the physical or built environment of San Marcos. Examples of legal and/or regulatory capabilities can include: the City's building codes, zoning ordinances, subdivision

ordnances, special purpose ordinances, growth management ordinances, site plan review, general plans, capital improvement plans, economic development plans, emergency response plans, and real estate disclosure plans.

Table 5.17-3
City of San Marcos: Legal and Regulatory Capability

Regulatory Tools (ordinances, codes, plans)	Local Authority (Y/N)	Does State Prohibit (Y/N)
A. Building code	Y	N
B. Zoning ordinance	Y	N
C. Subdivision ordinance or regulations	Y	N
D. Special purpose ordinances (floodplain management, storm water management, hillside or steep slope ordinances, wildfire ordinances, hazard setback requirements)	Y	N
E. Growth management ordinances (also called "smart growth" or anti-sprawl programs)	Y	N
F. Site plan review requirements	Y	N
G. General or comprehensive plan	Y	N
H. A capital improvements plan	Y	N
I. An economic development plan	Y	N
J. An emergency response plan	Y	N
K. A post-disaster recovery plan	Y	N
L. A post-disaster recovery ordinance	Y	N
M. Real estate disclosure requirements	N	N
N. Charter City	Y	N

5.17.1.2 Fiscal Resources

Table 5.17-4 shows specific financial and budgetary tools available to San Marcos such as community development block grants; capital improvements project funding; authority to levy taxes for specific purposes; fees for water, sewer, gas, or electric services; impact fees for homebuyers or developers for new development; ability to incur debt through general obligations bonds; and withholding spending in hazard-prone areas.

Table 5.17-4
City of San Marcos: Fiscal Capability

Financial Tools	Accessible or Eligible to Use (Yes/No)
A. Community Development Block Grants (CDBG)	Yes
B. Capital improvements project funding	Yes
C. Authority to levy taxes for specific purposes	Limited - Subject to Proposition 13 and Proposition 218.
D. Fees for water, sewer, gas, or electric service	No
E. Impact fees for homebuyers or developers for new developments/homes	Yes, PFF and CFD's
F. Incur debt through general obligation bonds	Yes
G. Incur debt through special tax and revenue bonds	Yes
H. Incur debt through private activity bonds	No
I. Withhold spending in hazard-prone areas	Yes

5.17.2 Goals, Objectives and Actions

Listed below are San Marcos' specific hazard mitigation goals, objectives and related potential actions. For each goal, one or more objectives have been identified that provide strategies to attain the goal. Where appropriate, the City has identified a range of specific actions to achieve the objective and goal.

The goals and objectives were developed by considering the risk assessment findings, localized hazard identification and loss/exposure estimates, and an analysis of the jurisdiction's current capabilities assessment. These preliminary goals, objectives and actions were developed to represent a vision of long-term hazard reduction or enhancement of capabilities. To help in further development of these goals and objectives, the LPG compiled and reviewed current jurisdictional sources including the City's planning documents, codes, and ordinances. In addition, City representatives met with consultant staff and/or OES to specifically discuss these hazard-related goals, objectives and actions as they related to the overall Plan. Representatives of numerous City departments involved in hazard mitigation planning, including Fire, Police, and Public Works provided input to the San Marcos LPG. The San Marcos LPG members were:

- Scott Hansen
- Larry Webb
- Carl Blasdell
- Gena Franco
- Karen Brindley
- Mike Mercereau
- Jerry Backoff

Once developed, City staff presented them to the City of San Marcos City Council for their approval.

Public meetings were held throughout the County to present these preliminary goals, objectives and actions to citizens and to receive public input. At these meetings, specific consideration was given to hazard identification/profiles and the vulnerability assessment results. The following sections present the hazard-related goals, objectives and actions as prepared by San Marcos' LPG in conjunction with the Hazard Mitigation Working Group, locally elected officials, and local citizens.

5.17.2.1 Goals

The City of San Marcos has developed the following 10 Goals for their Hazard Mitigation Plan (See Attachment A for Goals 9 and 10).

Goal 1. Continue to promote disaster-resistant development.

Goal 2. Promote public understanding, support and demand for hazard mitigation.

Goal 3. Build and support local capacity and commitment to continuously become less vulnerable to hazards.

Goal 4. Improve hazard mitigation coordination and communication with federal, state, local and tribal governments.

"Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to":

Goal 5. Floods.

Goal 6. Wildfires.

Goal 7. Dam Failure.

Goal 8. Geological Hazards.

Goal 9. Hazardous Materials.

Goal 10. Other Manmade Hazards..

5.17.2.2 Objectives and Actions

The City of San Marcos developed the following broad list of objectives and actions to assist in the implementation of each of their 10 identified goals. The City of San Marcos developed objectives to assist in achieving their hazard mitigation goals. For each of these objectives, specific actions were developed that would assist in their implementation. A discussion of the prioritization and implementation of the action items is provided in Section 5.17.2.3.

Goal 1: Continue to promote disaster-resistant development.	
Objective 1.A: Encourage and facilitate the development or updating of general plans and zoning ordinances to limit development in hazard areas.	
Action 1.A.1	Review and update the City of San Marcos General plan as needed to limit the impacts of development in hazard prone areas.
Objective 1.B: Adopt new State building codes that protect renovated existing assets and new development in hazard areas.	
Action 1.B.2	Continue to enforce existing zoning ordinances that protect new development and renovations in hazard prone areas.

Goal 2: Promote public understanding, support and demand for hazard mitigation.	
Objective 2.A: Educate the public to increase awareness of hazards and opportunities for mitigation actions.	
Action 2.A.1	Provide public information brochures that discuss the hazards and mitigation actions that the public may take. Make these available through the City to the public.
Action 2.A.2	Implement a public education program to increase the awareness of the public to the threat of wildfire to the City of San Marcos.
Objective 2.B: Promote partnerships between the state, counties, local and tribal governments to identify, prioritize, and implement mitigation actions.	
Action 2.B.1	Coordinate dam failure inundation awareness training/information with Vallecitos Water District
Objective 2.C: Promote hazard mitigation in the business community.	
Action 2.C.1	Continue to utilize the fire department's fire prevention inspection program to educate business owners and managers regarding hazard mitigation.

Goal 3: Build and support local capacity and commitment to continuously become less vulnerable to hazards.	
Objective 3.A: Increase awareness and knowledge of hazard mitigation principles and practice among local officials.	
Action 3.A.1	Update City of San Marcos Disaster plan every two years.
Action 3.A.2	Review HAZMIT plan every three years and update as needed.

Goal 3: Build and support local capacity and commitment to continuously become less vulnerable to hazards. (continued)	
Action 3.A.3	Review Annexes every two years and update as needed.
Action 3.A.4	Review completed Hazard Mitigation Plan with City personnel.
Action 3.A.5	Evaluate the fire departments readiness to respond to and mitigate hazards.
Objective 3.B: Conduct annual review of available resources	
Action 3.B.1	Update the Fire Department Resource Directory annually

Goal 4: Improve hazard mitigation coordination and communication with federal, state, local and tribal governments.	
Objective 4.A: Establish and maintain closer working relationships with state agencies, local and tribal governments.	
Action 4.A.1	Maintain membership in the San Diego UDC
Action 4.A.2	Continue participation in regional programs to include HIRT, USAR, MMST, FIRESCOPE
Objective 4.B: Encourage other organizations to incorporate hazard mitigation activities.	
Action 4.B.1	Encourage Palomar College and California State University San Marcos to develop hazard mitigation plans and disaster preparedness.
Action 4.B.2	Make available a copy of the Cities completed Hazard Mitigation plan for the publics viewing.

Goal 5: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to floods.	
Objective 5.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to floods.	
Action 5.A.1	Continue to implement development regulations and restrictions identified in the City ordinances and in accordance with FEMA requirements.
Action 5.A.2	Continue to apply impact fees to new developments in order to address new drainage infrastructure needs.
Action 5.A.3	As funding becomes available, commence drainage improvements to reduce food risks.

Goal 5: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to floods. (continued)	
Action 5.A.4	Continue imposing conditions on new developments to construct drainage improvements to reduce possibility of flooding.
Action 5.A.5	Pursue State or Federal grants to finance updating of existing flood plain maps as deemed necessary.
Action 5.A.6	Adopt procedures for and schedule regular dam inspections to ensure dam safety.
Action 5.A.7	Provide flood awareness training to City personnel.
Action 5.A.8	Evaluate the fire departments readiness to respond to and mitigate flood hazards.
Action 5.A.9	Continue annual storm drain maintenance program
Action 5.A.10	Design new City owned critical facilities located in flood prone areas to minimize damage due to flooding
Objective 5.B: Protect existing assets with the highest relative vulnerability to the effects of floods within the 100-year floodplain.	
Action 5.B.1	Educate property owners in the flood prone areas about ways to reduce or prevent loss due to flooding.
Action 5.B.2	Provide gravel bags or other means to properties in the flood prone areas for temporary protection against flooding.
Action 5.B.3	Stay vigilant in preventing illegal construction or placement of obstructions in the flood hazard zones to limit increased flooding in other areas
Objective 5.C: Coordinate with and support existing efforts to mitigate floods (e.g., US Army Corps of Engineers, US Bureau of Reclamation, San Diego County Department of Water Resources).	
Action 5.C.1	Work to adopt the San Marcos Creek Specific Plan and coordinate with the US Army Corps of Engineers, San Diego County Regional Water Quality Control Board, US Fish and Wildlife, and California Fish and Game to implement a plan to minimize potential impact to future development along the Reaches 2, 4, and 5.
Action 5.C.2	Coordinate efforts with the State Department of Transportation (Caltrans) to identify and pursue State and Federal Funding to upgrade existing drainage facilities, under crossing State Route 78 to current design standards.
Action 5.C.3	As funding becomes available, implement improvement projects to upgrade drainage facility under crossings city wide.
Objective 5.D: Minimize repetitive losses caused by flooding.	
Action 5.D.1	Continue to require uses, which are vulnerable to floods, including facilities, which serve such uses, be protected against flood damage at the time of construction.

Goal 5: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to floods. (continued)	
Action 5.D.2	Reconstruction of any structure in the flood hazard areas shall be in accordance with the City Ordinance as well as FEMA requirements.
Action 5.D.3	Deny construction permits for additions or enhancements to existing non-conforming structures in flood hazard areas.

Goal 6: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to wildfires.	
Objective 6.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to wildfires.	
Action 6.A.1	Develop and institute a wildland urban interface fire prevention public education campaign.
Action 6.A.2	Increase fuel modification requirements for new development from 100' to 150'.
Action 6.A.3	Require fuel modeling for all new development located in the wildland interface zone.
Action 6.A.4	Continue to ensure required street widths, paving, and grades can accommodate emergency vehicles.
Action 6.A.5	Increase Fire Prevention Staff as appropriate.
Action 6.A.6	Pursue State and/or Federal grants as available to assist in reducing losses due to wildfires.
Action 6.A.7	Evaluate the fire departments readiness to respond to and mitigate wildfires.
Action 6.A.8	Continue to evaluate service level needs and impacts as part of the review process of major projects.
Action 6.A.9	Design new City owned critical facilities located in wildfire prone areas to minimize damage due to wildfires.
Objective 6.B: Protect existing assets with the highest relative vulnerability to the effects of wildfires.	
Action 6.B.1	Develop pre-incident plans for high vulnerability areas
Action 6.B.2	Ensure access and egress routes in high vulnerability areas are maintained per City Ordinance.
Action 6.B.3	Conduct annual wildland fire fighting and ICS training to ensure operational readiness.

Goal 6: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to wildfires. (continued)	
Action 6.B.4	Develop and institute a wildland urban interface fire prevention public education campaign.
Action 6.B.5	Maintain annual weed abatement program.
Action 6.B.6	Apply herbicide to roadway shoulder to reduce ignition potential from roadway traffic.
Action 6.B.7	Develop map showing parcel ownership information to assist with identifying available funding for vegetation clearance.
Objective 6.C:	*Coordinate with and support existing efforts to mitigate wildfire hazards (e.g., US Forest Service, Bureau of Land Management, CDF).*
Action 6.C.1	Coordinate 6.B.1 with the CDF in SRA/LRA areas were applicable.
Action 6.C.2	As communications equipment is replaced strive for interoperability with other agencies.
Action 6.C.3	Continue to participate in the California Fire Master Mutual Aid Agreement, the San Diego county Fire Master Mutual Aid Agreement, and the North Zone Automatic Aid Agreement.

Goal 7: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to dam failure.	
Objective 7.A:	*Develop a comprehensive approach to reducing the possibility of damage and losses due to dam failure.*
Action 7.A.1	Adopt procedures for and schedule regular City owned dam inspections to ensure dam safety.
Action 7.A.2	Provide dam failure inundation awareness training to City personnel.
Action 7.A.3	Evaluate the fire departments readiness to respond to and mitigate dam failure hazards.
Action 7.A.4	Design new City owned critical facilities located in dam failure inundation areas to minimize damage due to flooding caused by a dam failure.

Goal 8: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to geological hazards.	
Objective 8.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to geological hazards.	
Action 8.A.1	Continue to apply the City's Grading Ordinance, which requires preparation of geologic and soils studies in preparation of grading plans.
Action 8.A.2	Require development in areas with geologic hazards to use appropriate construction techniques recommended by a registered engineer and set back requirements per City ordinance.
Action 8.A.3	Evaluate the fire departments readiness to respond to and mitigate geological hazards.
Objective 8.B: Protect existing assets with the highest relative vulnerability to the effects of geological hazards.	
Action 8.B.1	Continue to require all manmade slopes to be landscaped and or revegetated in compliance with the City's Grading Ordinance.
Action 8.B.2	Require clustering of development.
Objective 8.C: Coordinate with and support existing efforts to mitigate geological hazards (e.g., California Geological Survey, US Geological Survey).	
Action 8.C.1	Continue to review updates to geological hazards maps and revise local ordinances as appropriate as new geological hazards are identified.
Action 8.C.2	Continue to maintain USGS seismic monitoring station at Fire Station #1.

5.17.2.3 Prioritization and Implementation of Action Items

Once the comprehensive list of jurisdictional goals, objectives, and action items listed above was developed, the proposed mitigation actions were prioritized. This step resulted in a list of acceptable and realistic actions that address the hazards identified in each jurisdiction. This prioritized list of action items was formed by the LPG weighing STAPLEE criteria

The Disaster Mitigation Action of 2000 (at 44 CFR Parts 201 and 206) requires the development of an action plan that not only includes prioritized actions but one that includes information on how the prioritized actions will be implemented. Implementation consists of identifying who is responsible for which action, what kind of funding mechanisms and other resources are available or will be pursued, and when the action will be completed.

The top 10 prioritized mitigation actions as well as an implementation strategy for each are:

Priority Action #1: Implement a public education program to increase the awareness of the public to the threat of wildfire to the City of San Marcos.

Coordinating Individual/Organization: Fire Department

Potential Funding Source: Grants

Implementation Timeline: July 2003 – August 2006

Priority Action #2: Increase fuel modification requirements for new development from 100 feet to 150 feet.

Coordinating Individual/Organization: Fire, Planning Departments

Potential Funding Source: Grants

Implementation Timeline: July 2003 – August 2006

Priority Action #3: Increase Fire Prevention Staff as appropriate.

Coordinating Individual/Organization: Fire Department

Potential Funding Source: Fire Inspection Fees

Implementation Timeline: July 2003 – August 2006

Priority Action #4: Develop pre incident plans for high vulnerability wildland urban interface areas.

Coordinating Individual/Organization: Fire Department

Potential Funding Source: Grants

Implementation Timeline: July 2003 – August 2006

Priority Action #5: Develop a comprehensive approach to reducing the possibility of damage and losses due to geological hazards by continuing to apply the City's Grading Ordinance, which requires preparation of geologic and soils studies in preparation of grading plans.

Coordinating Individual/Organization: Planning, Engineering, Building, Public Works Departments

Potential Funding Source: Public Works

Implementation Timeline: July 2003 – August 2006

Priority Action #6: Work to adopt the San Marcos Creek Specific Plan and coordinate with the US Army Corps of Engineers, San Diego County Regional Water Quality Control Board, US Fish and Wildlife, and California Fish and Game to implement a plan to minimize potential impact to future development along the Reaches 2, 4, and 5.

Coordinating Individual/Organization: Planning, Engineering Departments

Potential Funding Source: General Fund

Implementation Timeline: July 2003 – August 2006

Priority Action #7: Pursue State and/or Federal grants as available to assist in reducing losses due to other manmade hazards.

Coordinating Individual/Organization: Fire Department

Potential Funding Source: Grants

Implementation Timeline: July 2003 – August 2006

Priority Action #8: Develop map showing parcel ownership information to assist with identifying available funding for vegetation clearance.

Coordinating Individual/Organization: Fire Department

Potential Funding Source: Grants

Implementation Timeline: July 2003 – August 2006

Priority Action #9: Equip and train personnel on use of hazardous materials release mitigation tools and equipment.

Coordinating Individual/Organization: Fire Department

Potential Funding Source: Grants

Implementation Timeline: July 2003 – August 2006

Priority Action #10: Develop a comprehensive approach to reducing the possibility of damage and losses due to floods by continuing to implement development regulations and restrictions identified in the City ordinances and in accordance with FEMA requirements.

Coordinating Individual/Organization: Planning, Engineering, Building, Public Works Departments

Potential Funding Source: General Fund, Grants

Implementation Timeline: July 2003 – August 2006

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5.18 CITY OF SANTEE

The City of Santee (Santee) reviewed a set of jurisdictional-level hazard maps including detailed critical facility information and localized potential hazard exposure/loss estimates to help identify the top hazards threatening their jurisdiction. In addition, LPGs were supplied with exposure/loss estimates for Santee summarized in Table 5.18-1. See Section 4.0 for additional details.

Table 5.18-1
Summary of Potential Hazard-Related Exposure/Loss in Santee

		Residential		Commercial		Critical Facilities	
Hazard Type	Exposed Population	Number of Residential Buildings	Potential Exposure/ Loss for Residential Buildings (x $1,000)	Number of Commercial Buildings	Potential Exposure/ Loss for Commercial Buildings (x $1,000)	Number of Critical Facilities	Potential Exposure for Critical Facilities (x $1,000)
Coastal Storm / Erosion	0	0	0	0	0	0	0
Dam Failure	44,595	13,677	2,888,845	228	859,108	94	394,180
Earthquake (Annualized Loss - Includes shaking, liquefaction and landslide components)	52,439	16,362	1,355	123	360	52* / 53**	1,723* / 8,759**
Floods (Loss)							
100 Year	3,286	1,026	8,386	24	2,572	9	52,648
500 Year	4,282	1,337	16,283	31	6,446	11	56,648
Rain-Induced Landslide							
High Risk	5,139	1,637	393,653	7	26,456	5	12,096
Moderate Risk	5,728	1,627	357,839	17	51,630	2	4,838
Tsunami	0	0	0	0	0	0	0
Wildfire/ Structure Fire							
Extreme	0	0	0	0	0	0	0
Very High	957	276	72,739	1	2,044	2	686
High	3,007	948	231,225	6	25,404	8	48,783
Moderate	45,775	14,641	3,237,198	107	401,928	48	167,481

* Represents 100-year earthquake value under three earthquake scenarios (shake only, shake and liquefaction, and shake and landslide).

** Represents 500-year earthquake value under three earthquake scenarios (shake only, shake and liquefaction, and shake and landslide).

After reviewing the localized hazard maps and exposure/loss table above, the following hazards were identified by the Santee LPG as their top five. A brief rational for including each of these is included.

- **Wildfire**: The northern portion of the City is undeveloped, difficult to access hilly terrain. This area and the adjacent undeveloped areas outside the City have been subject to multiple fires in the past. Most of the adjacent undeveloped areas have been set aside to remain in their natural state.
- **Dam Failure/Flood**: The City is split by the San Diego River that has a significant flow volume and floodway/floodplain. The San Diego River watershed also has two significant dams upstream.
- **Earthquake**: There are numerous ancient landslides within the City including some that have been reactivated and resulted in the partial or complete loss of homes. The San Diego River floodplain consists of alluvial soils that are subject to liquefaction during seismic events. Additionally, the City is within 10 miles of a significant earthquake fault.
- **Hazardous Materials Release**: Three freeways are within the City and a major arterial within the City is designated as a federal oversized load route. Numerous industrial facilities within the City handle hazardous materials on a regular basis
- **Human Caused Events**: Terrorism and crime can create vulnerabilities within the facilities within the City. The flight paths and landing zones of an adjacent general aviation airport and nearby military airfield pass over the City.

5.18.1 Capabilities Assessment

The LPG identified current capabilities available for implementing hazard mitigation activities. The Capability Assessment (Assessment) portion of the jurisdictional mitigation plan identifies administrative, technical, legal and fiscal capabilities. This includes a summary of departments and their responsibilities associated to hazard mitigation planning as well as codes, ordinances, and plans already in place associated to hazard mitigation planning. The second part of the Assessment provides Santee's fiscal capabilities that may be applicable to providing financial resources to implement identified mitigation action items.

5.18.1.1 Existing Institutions, Plans, Policies and Ordinances

The following is a summary of existing departments in Santee and their responsibilities related to hazard mitigation planning and implementation, as well as existing planning documents and regulations related to mitigation efforts within the community. The administrative and technical capabilities of Santee, as shown in Table 5.18-2, provides an identification of the staff, personnel, and department resources available to implement the actions identified in the mitigation section of the Plan. Specific resources reviewed include those involving technical personnel such as planners/engineers with knowledge of land development and land management practices, engineers trained in construction practices related to building and infrastructure, planners and engineers with an understanding of natural or manmade hazards, floodplain managers, surveyors, personnel with GIS skills and scientists familiar with hazards in the community.

- City of Santee Fire Department
  - Administration
  - Fire prevention

  - Emergency medical services
  - Suppression
  - Code enforcement
  - Emergency management
- City of Santee Planning and Building Department
  - General Plan
  - Zoning ordinances
  - Development standards
  - Development review process
  - Building codes
  - Structure evaluation
- City of Santee Engineering Department
  - Flooding
  - Grading
  - Transportation
  - Geotechnical review
  - Structural evaluation
- City of Santee Public Works Department
  - Maintain infrastructure including buildings
  - Flood control
  - Traffic control
  - Emergency response
- County of San Diego Sheriff Department
  - Enforcement
  - Investigation
  - Security
  - Emergency response
  - Traffic control

Table 5.18-2
City of Santee: Administrative and Technical Capacity

Staff/Personnel Resource	Y/N	Department/Agency and Position
A. Planner(s) or engineer(s) with knowledge of land development and land management practices	Y	Development Services staff
B. Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Y	Development Services staff
C. Planners or Engineer(s) with an understanding of natural and/or manmade hazards	Y	Development Services staff
D. Floodplain manager	Y	Development Services – City Engineer
E. Surveyors	N	
F. Staff with education or expertise to assess the community's vulnerability to hazards	Y	Fire staff, Development Services, Community Services
G. Personnel skilled in GIS and/or HAZUS	Y	Development Services staff
H. Scientists familiar with the hazards of the community	Y	Fire staff and Development Services staff
I. Emergency manager	Y	Fire staff
J. Grant writers	Y	Development Services staff
K. Staff with FEMA Integrated Emergency Management training	Y	Fire staff and Development Services staff

The legal and regulatory capabilities of Santee are shown in Table 5.18-3, which presents the existing ordinances and codes that affect the physical or built environment of Santee. Examples of legal and/or regulatory capabilities can include: the City's building codes, zoning ordinances, subdivision ordnances, special purpose ordinances, growth management ordinances, site plan review, general plans, capital improvement plans, economic development plans, emergency response plans, and real estate disclosure plans.

Table 5.18-3
City of Santee: Legal and Regulatory Capability

Regulatory Tools (ordinances, codes, plans)	Local Authority (Y/N)	Does State Prohibit (Y/N)
A. Building code	Y	N
B. Zoning ordinance	Y	N
C. Subdivision ordinance or regulations	Y	N
D. Special purpose ordinances (floodplain management, storm water management, hillside or steep slope ordinances, wildfire ordinances, hazard setback requirements)	Y	N
E. Growth management ordinances (also called "smart growth" or anti-sprawl programs)	Y	N
F. Site plan review requirements	Y	N
G. General or comprehensive plan	Y	N
H. A capital improvements plan	Y	N
I. An economic development plan	Y	N
J. An emergency response plan	Y	N
K. A post-disaster recovery plan	Y	N
L. A post-disaster recovery ordinance		
M. Real estate disclosure requirements	Y	N

5.18.1.2 Fiscal Resources

Table 5.18-4 shows specific financial and budgetary tools available to Santee such as community development block grants; capital improvements project funding; authority to levy taxes for specific purposes; fees for water, sewer, gas, or electric services; impact fees for homebuyers or developers for new development; ability to incur debt through general obligations bonds; and withholding spending in hazard-prone areas.

Table 5.18-4
City of Santee: Fiscal Capability

Financial Resources	Accessible or Eligible to Use (Yes/No)
A. Community Development Block Grants (CDBG)	Yes in qualified areas
B. Capital improvements project funding	Yes
C. Authority to levy taxes for specific purposes	Yes
D. Fees for water, sewer, gas, or electric service	No
E. Impact fees for homebuyers or developers for new developments/homes	Yes
F. Incur debt through general obligation bonds	Yes
G. Incur debt through special tax and revenue bonds	Yes
H. Incur debt through private activity bonds	UK
I. Withhold spending in hazard-prone areas	Yes

5.18.2 Goals, Objectives and Actions

Listed below are Santee's specific hazard mitigation goals, objectives and related potential actions. For each goal, one or more objectives have been identified that provide strategies to attain the goal. Where appropriate, the City has identified a range of specific actions to achieve the objective and goal.

The goals and objectives were developed by considering the risk assessment findings, localized hazard identification and loss/exposure estimates, and an analysis of the jurisdiction's current capabilities assessment. These preliminary goals, objectives and actions were developed to represent a vision of long-term hazard reduction or enhancement of capabilities. To help in further development of these goals and objectives, the LPG compiled and reviewed current jurisdictional sources including the City's planning documents, codes, and ordinances. In addition, City representatives met with consultant staff and/or OES to specifically discuss these hazard-related goals, objectives and actions as they related to the overall Plan. Representatives of numerous City departments involved in hazard mitigation planning, including Fire, Police, and Public Works provided input to the Santee LPG. The Santee LPG members were:

- Howard Rayon, Fire Division Chief Operations
- Dave Miller, Fire Captain
- Cary Stewart, City Engineer

Once developed, City staff presented them to the City of Santee City Council for their approval.

Public meetings were held throughout the County to present these preliminary goals, objectives and actions to citizens and to receive public input. At these meetings, specific consideration was given to hazard identification/profiles and the vulnerability assessment results. The following sections present the hazard-related goals, objectives and actions as prepared by Santee's LPG in conjunction with the Hazard Mitigation Working Group, locally elected officials, and local citizens.

5.18.2.1 Goals

The City of Santee has developed the following 11 Goals for their Hazard Mitigation Plan (See Attachment A for Goals 10 and 11).

Goal 1. Promote disaster-resistant future development.

Goal 2. Increase public understanding, support, and demand for effective hazard mitigation.

Goal 3. Build and support local capacity and commitment to continuously become less vulnerable to hazards.

Goal 4. Improve coordination and communication with federal, state, local and tribal governments.

Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and State-owned facilities, due to …

Goal 5. Floods.

Goal 6. Wildfires.

Goal 7. Severe Weather.

Goal 8. Infestations/Diseases.

Goal 9. Geological Hazards.

Goal 10. Extremely Hazardous Materials Releases.

Goal 11. Other Human Caused Hazards.

5.18.2.2 Objectives and Actions

The City of Santee developed the following broad list of objectives and actions to assist in the implementation of each of their 10 identified goals. The City of Santee developed objectives to assist in achieving their hazard mitigation goals. For each of these objectives, specific actions were developed that would assist in their implementation. A discussion of the prioritization and implementation of the action items is provided in Section 5.18.2.3.

Goal 1: Promote disaster-resistant future development.	
Objective 1.A: Implement and continue to update the City's General Plan and land development ordinances to limit development in hazard areas.	
Action 1.A.1	Continue the development review process that requires the identification, mitigation and/or removal of all hazards for all new developments.
Action 1.A.2	Continue to review and update City ordinances as necessary to comply with new technologies, regulations and practices.

Goal 1: Promote disaster-resistant future development. (continued)	
Objective 1.B: Encourage and facilitate the adoption of building codes that protect renovated existing assets and new development in hazard areas.	
Action 1.B.1	Continue to monitor the updates of the Uniform Codes.
Action 1.B.2	Continue the adoption of Uniform Codes updates as appropriate.
Objective 1.C: Encourage consistent enforcement of general plans, zoning ordinances, and building codes.	
Action 1.C.1	Continue to review all building and construction plans for conformance to applicable codes.
Action 1.C.2	Continue to provide the necessary level of building and construction inspection to insure that structures and other facilities are constructed as designed.
Action 1.C.3	Continue to pursue code enforcement to insure that structures and properties are maintained in such a manner that hazardous conditions are not created.
Objective 1.D: Discourage future development that exacerbates hazardous conditions.	
Action 1.D.1	Continue to not approve developments that are unable to mitigate or remove hazard conditions.
Action 1.D.2	Continue to update and maintain information on known hazards to assist in the identification of hazards that may impact future development.

Goal 2: Promote public understanding, support and demand for hazard mitigation.	
Objective 2.A: Educate the public to increase awareness of hazards and opportunities for mitigation actions.	
Action 2.A.1	Continue to participate in regional public education efforts concerning natural and man-made disasters and emergencies.
Action 2.A.2	Continue to provide Household Hazardous Waste education in the proper disposal of household hazardous waste.
Action 2.A.3	Continue to operate public awareness programs, such as the City newsletter, to help address potential safety issues for City residents.
Action 2.A.4	Continue to provide an educational program for kids, using clown firefighters to spread fire safety ideas at schools and city functions.

Goal 2: Promote public understanding, support and demand for hazard mitigation. (continued)	
Action 2.A.5	Continue to maintain a visible presence at many community events providing information on department programs and safety issues.
Objective 2.B: Promote partnerships between the state, counties, local and tribal governments to identify, prioritize, and implement mitigation actions.	
Action 2.B.1	Continue to participate as a member of the Unified San Diego County Emergency Services Organization (ESO) which is comprised of the 18 incorporated cities within the county and the County of San Diego.
Action 2.B.2	Continue to maintain an automatic aid agreement with all surrounding communities.
Action 2.B.3	Continue to participate in mutual aid agreements with the San Diego County, State of California, California Department of Forestry and U.S. Forest Service.
Objective 2.C: Promote hazard mitigation in the business community.	
Action 2.C.1	Continue to maintain an active relationship with the Chamber of Commerce.
Action 2.C.2	Continue to have Fire and Development Services staffs provide education materials to and perform proactive inspections of businesses for issues such as fire safety, hazardous materials storage and general housekeeping practices.
Action 2.C.3	Continue to include Fire and Development Services staff in the review of new business license applications.
Objective 2.D: Monitor and publicize the effectiveness of mitigation actions implemented statewide.	
Action 2.D.1	Continue to use the City newsletter to promote the identification of hazards and associated safety measures to take.
Action 2.D.2	Continue to use press releases to promote hazard mitigation.
Objective 2.E: Discourage activities that exacerbate hazardous conditions.	
Action 2.E.1	Continue to pursue code enforcement to insure that structures and properties are maintained in such a manner that hazardous conditions are not created.
Action 2.E.2	Continue to update and maintain information on known hazards to assist in the identification of hazards that may impact existing structures and properties.

Goal 3: Build and support local capacity and commitment to continuously become less vulnerable to hazards.	
Objective 3.A: Increase the awareness and knowledge of hazard mitigation principles and practice among state and local officials.	
Action 3.A.1	Continue to train staff to ensure the effective management of emergency operations under the Standardized Emergency Management System (SEMS).
Action 3.A.2	Continue to participate in regional emergency management trainings and exercises.
Action 3.A.3	Continue to use local communication, such as the City newsletter, to raise the public awareness to hazards.
Objective 3.B: Develop model hazard mitigation plan and provide technical assistance to State agencies and local governments to prepare hazard mitigation plans.	
Action 3.B.1	Continue to maintain policies and procedures to ensure the effective management of emergency operations under the Standardized Emergency Management System (SEMS) during emergencies that affect the City.
Objective 3.C: Refine the web-based Hazard Mitigation Planning System and provide technical assistance to State agencies, local and tribal governments utilizing the system.	

Goal 4: Improve hazard mitigation coordination and communication with federal, state, local and tribal governments.	
Objective 4.A: Establish and maintain closer working relationships with state agencies and local governments.	
Action 4.A.1	Continue to maintain a local emergency management organization that operates under the Standardized Emergency Management System (SEMS).
Action 4.A.2	Continue to participate in the San Diego County Operational Area Emergency Management that is coordinated by the San Diego County Office of Disaster Preparedness (ODP).
Action 4.A.3	Continue to coordination with ODP as part of OES Mutual Aid Region 6 and the OES Southern Administrative Region.
Action 4.A.4	Continue to have local trainings and participate in regional emergency management trainings and exercises.
Objective 4.B: Encourage other organizations to incorporate hazard mitigation activities.	

Goal 4: Improve hazard mitigation coordination and communication with federal, state, local and tribal governments. (continued)	
Action 4.B.1	Continue to maintain a SEMS Emergency Management Plan that includes participation by the local school districts, local utility companies, regional utility companies, volunteer agencies and private agencies.
Action 4.B.2	Continue to invite these groups to participate in local emergency management trainings and exercises.
Objective 4.C: Improve the State's capability and efficiency at administering pre- and post-disaster mitigation.	
Action 4.C.1	Continue to train staff to ensure the effective management of emergency operations under the Standardized Emergency Management System (SEMS).
Action 4.C.2	Continue to provide mutual aid as needed by OES.

Goal 5: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and State-owned facilities, due to <u>floods</u>.	
Objective 5.A: Minimize injuries, loss of life and property damage resulting from flood hazards.	
Action 5.A.1	The City should continue to encourage the use of innovative site design strategies within the floodplain which ensure minimizing of flood hazards.
Action 5.A.2	All development proposed within a floodplain area shall continued to be required by the City to utilize design and site planning techniques to ensure that structures are elevated at least one foot above the 100-year flood level.
Action 5.A.3	All proposed projects which would modify the configuration of any of the three main waterways in Santee (San Diego River and Sycamore and Forester Creeks) shall continue to be required to submit a report prepared by a registered engineer that analyzes potential effects of the project downstream as well as in the local vicinity.
Action 5.A.4	The City shall continue to enforce its Flood Damage Prevention Ordinance that limits the placement of structures and uses in flood prone areas, controls dredging, filling or other activities that could modify the natural floodplain and prevents construction of barriers or structures that could divert flood flows and cause upstream or downstream impacts.
Objective 5.B: Protect existing assets with the highest relative vulnerability to the effects of floods within the 100-year floodplain.	

Goal 5: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and State-owned facilities, due to floods. (continued)	
Action 5.B.1	Continue to monitor and maintain all waterways and drainage facilities within the City.
Action 5.B.2	Continue to monitor water levels in the City's main waterways during severe storm events.
Action 5.B.3	Continue to actively pursue the improvement of drainage ways and flood control facilities through the Capital Improvements Program of the City.
Objective 5.C: Coordinate with and support existing efforts to mitigate floods (e.g., US Army Corps of Engineers, US Bureau of Reclamation, and San Diego County Department of Water Resources).	
Action 5.C.1	Continue to coordinate flooding issues along the San Diego River with the County and City of San Diego.
Objective 5.D: Minimize repetitive losses caused by flooding.	
Action 5.D.1	Continue to actively pursue the improvement of drainage ways and flood control facilities so as to lessen recurrent flood problems and include such public improvements in the Capital Improvements Program for the City.
Action 5.D.2	Continue to identify existing assets with the highest relative vulnerability to the effects of floods within the 100-year floodplains of the City's waterways.
Action 5.D.3	Continue to participate in the National Flood Insurance Program.
Objective 5.E: Address identified data limitations regarding the lack of information about relative vulnerability of assets from floods (e.g., Q3/digital floodplain maps for missing counties)	
Action 5.E.1	Continue to require CLOMAs or LOMRs for all changes to the floodplains caused by new development.

Goal 6: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and State-owned facilities, due to wildfires.
Objective 6.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to wildfires.

Goal 6: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and State-owned facilities, due to wildfires. (continued)	
Action 6.A.1	Continue to maintain an automatic aid agreement on first alarm or greater with all surrounding communities.
Action 6.A.2	Continue to require that proposed developments should be approved only after it is determined that there will be adequate water supply and pressure to maintain the required fire flow at the time of development.
Action 6.A.3	Continue to require that all proposed development shall satisfy the minimum structural fire protection standards contained in the adopted edition of the Uniform Fire and Building Codes; however, where deemed appropriate the City shall enhance the minimum standards to provide optimum protection.
Action 6.A.4	Continue to require fire sprinklers in all new construction.
Action 6.A.5	Continue to require emergency access routes in all developments to be adequately wide to allow the entry and maneuvering of emergency vehicles.
Action 6.A.6	Investigate permanent placement of fire fighting aircraft in San Diego East County.
Action 6.A.7	Evaluate undergrounding of utilities in areas that have high risk of wildfires.
Action 6.A.8	Investigate use of "controlled burns" in high-risk areas.
Objective 6.B: Protect existing assets with the highest relative vulnerability to the effects of wildfires.	
Action 6.B.1	The City should support State legislation that would provide tax incentives to encourage the repair or demolition of structures that could be considered fire hazards.
Action 6.B.2	Continue to enforce the existing weed abatement program.
Action 6.B.3	Continue to ensure that all construction materials used for renovating or remodeling existing structures meeting current fire and building codes.
Objective 6.C: Coordinate with and support existing efforts to mitigate wildfire hazards (e.g., US Forest Service, Bureau of Land Management).	
Action 6.C.1	Continue to maintain both the San Diego County and State of California Master Mutual Aid Agreements, and maintain a separate agreement with the California Department of Forestry and U.S. Forest Service.
Objective 6.D: Address identified data limitations regarding the lack of information related to wildfires (e.g., a comprehensive database of California wildfires, a California wildfire risk model, and relative vulnerability of assets).	

Goal 7: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and State-owned facilities, due to <u>severe weather</u> (e.g., El Nino storms/, thunderstorms, lightening, tsunamis, and extreme temperatures).	
Objective 7.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to severe weather.	
Action 7.A.1	Continue to perform preventative maintenance and inspection of existing storm drains, inlets outlets and channels.
Action 7.A.2	Continue to require that drainage facilities are designed to convey the 100-year storm.
Action 7.A.3	Continue to require new construction to adequately convey all water away from structures and the site.
Objective 7.B: Protect existing assets with the highest relative vulnerability to the effects of weather.	
Action 7.B.1	Continue to provide the public access to sandbags for flood protection.
Action 7.B.2	Continue to provide 24 hour public works and other non-safety personnel support during emergency operations.
Action 7.B.3	Continue to monitor transportation infrastructure during emergencies to maintain access for emergency vehicles and to close to access when necessary for safety.
Objective 7.C: Coordinate with and support existing efforts to mitigate severe weather (e.g., National Weather Service).	
Action 7.C.1	Continue to participate in regional emergency operation efforts.
Objective 7.D: Address identified data limitations regarding the lack of information about the relative vulnerability of assets from severe weather (e.g., construction type, age, condition, compliance with current building codes, etc.)	

Goal 8: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and State-owned facilities, due to <u>dam failure</u>.
Objective 8.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to dam failure.

Goal 8: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and State-owned facilities, due to <u>dam failure</u>. (continued)	
Action 8.A.1	Continue to work with the San Diego County ODP to maintain dam failure inundation maps.
Action 8.A.2	Continue to maintain a dam failure emergency action plan.
Objective 8.B: Protect existing assets with the highest relative vulnerability to the effects of dam failure.	
Action 8.B.1	Maintain contact with the owner agencies to monitor reservoir water levels behind dams.
Action 8.B.2	Continue to include a dam failure scenario in our EOC exercises.
Objective 8.C: Address identified data limitations regarding the lack of information about the relative vulnerability of assets from dam failure.	
Action 8.C.1	Maintain contact with the owner agencies to monitor dam inspections.

Goal 9: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and State-owned facilities, due to <u>geological hazards</u>.	
Objective 9.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to geological hazards.	
Action 9.A.1	Continue to implement the City's geologic/seismic hazards regulations and review procedures identified in the City's General Plan.
Action 9.A.2	Continue to ensure that if a project is proposed in an area identified herein as seismically and/or geologically hazardous, the proposal shall demonstrate through appropriate geologic studies and investigations that either the unfavorable conditions do not exist in the specific area in question or that they may be avoided or mitigated through proper site planning, design and construction.
Action 9.A.3	Continue a California Environmental Quality Act level review on all new projects that requires all significant environmental effects of a proposed project, including geologic and soil conditions, to be identified and discussed, and identified significant effects are adequately mitigated.

Goal 9: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and State-owned facilities, due to geological hazards. (continued)	
Action 9.A.4	Continue to require that all geotechnical studies of critical facilities should be performed in accordance with "Guidelines to Geologic/Seismic Reports," California Division of Mines and Geology (CDMG), Notes Number 37 and "Recommended Guidelines for Determining the Maximum Credible and the Maximum Probable Earthquakes," CDMG Notes Number 43.
Objective 9.B: Protect existing assets with the highest relative vulnerability to the effects of geological hazards.	
Action 9.B.1	The City should continue to utilize existing and evolving geologic, geophysical and engineering knowledge to distinguish and delineate those areas that are particularly susceptible to damage from seismic and other geologic conditions.
Action 9.B.2	Continue to require retrofits to existing building as part of major renovation.
Objective 9.C: Coordinate with and support existing efforts to mitigate geological hazards (e.g., California Geological Survey, US Geological Survey).	
Action 9.C.1	Continue to maintain a City of Santee geologic hazards map.
Objective 9.D: Address identified data limitations regarding the lack of information about the relative vulnerability of assets from earthquakes (e.g., data on structure/building types, reinforcements, etc.).	

5.18.2.3 Prioritization and Implementation of Action Items

Once the comprehensive list of jurisdictional goals, objectives, and action items listed above was developed, the proposed mitigation actions were prioritized. This step resulted in a list of acceptable and realistic actions that address the hazards identified in each jurisdiction. This prioritized list of action items was formed by the LPG weighing STAPLEE criteria

The Disaster Mitigation Action of 2000 (at 44 CFR Parts 201 and 206) requires the development of an action plan that not only includes prioritized actions but one that includes information on how the prioritized actions will be implemented. Implementation consists of identifying who is responsible for which action, what kind of funding mechanisms and other resources are available or will be pursued, and when the action will be completed.

The top 10 prioritized mitigation actions as well as an implementation strategy for each are:

Action Item #1: City will work to ensure that all proposed and future development satisfies the minimum structural fire protection standards contained in the adopted edition of the

Uniform Fire and Building Codes. Where it is deemed appropriate, the City shall enhance the minimum standards to provide optimum protection.

Coordinating Individual/Organization: Division Chief Mike Rottenberg, Fire Marshal, and selected members of the Department of Development Services (specific project driven)

Potential Funding Source: City of Santee Fire Department adopted budget, City of Santee Department of Development Services adopted budget, City of Santee adopted budget, General Fund

Implementation Timeline: February 2004 though December 2007

Action Item #2: The City will continue to aggressively enforce the existing weed abatement law, and modify and enhance where necessary, modifying fuel types and providing a defensible space around all structures

Coordinating Individual/Organization: Division Chief Mike Rottenberg, Fire Marshal, and selected members of the Department of Development Services (specific project driven)

Potential Funding Source: City of Santee Fire Department adopted budget, City of Santee Department of Development Services adopted budget, City of Santee adopted budget, General Fund

Implementation Timeline: February 2004 though December 2007

Action Item #3: City will continue to maintain active membership and participation in both the San Diego County Mutual Aid Agreement, and the State of California Master Mutual Aid Agreement, and maintain a separate agreement with the U.S. Forest Service, to ensure adequate resources are available in the City for any future anticipated wildland incidents.

Coordinating Individual/Organization: Division Chief Howard Rayon, Fire Department Operations

Potential Funding Source: City of Santee Fire Department adopted budget, City of Santee adopted budget, General Fund

Implementation Timeline: February 2004 though December 2007

Action Item #4: City will continue to perform preventative maintenance and inspection of existing storm drains, inlets, outlets and channels; continue to require that drainage facilities are designed to convey the 100-year storm predictions; and continue to require new construction to adequately convey all water from structures and construction sites.

Coordinating Individual/Organization: Lee Miller, Director of Public Works, selected members of the Department of Development Services (specific project driven)

Potential Funding Source: City of Santee Department of Development Services adopted budget, City of Santee Community Services adopted budget, City of Santee adopted budget, General Fund

Implementation Timeline: February 2004 though December 2007

Action Item #5: City will continue to work with the County of San Diego Office of Emergency Services to maintain and update dam failure inundation maps; continue to maintain a dam failure action plan as part of the City's Disaster Preparedness Plan; and continue to include a dam failure scenario in City Emergency Operations Center exercises.

Coordinating Individual/Organization: Division Chief Howard Rayon, Fire Department Operations

Potential Funding Source: City of Santee Fire Department adopted budget, City of Santee adopted budget, General Fund

Implementation Timeline: February 2004 though December 2007

Action Item #6: City will continue to implement the City's geologic/seismic hazard regulations and review related procedures identified in the City's General Plan; and continue to ensure that any proposed projects in areas identified as seismically and/or geologically hazardous, shall demonstrate through appropriate geologic studies and investigations that either the unfavorable conditions do not exist in the specific area in question or that they may be avoided and/or mitigated through proper site planning, design and construction.

Coordinating Individual/Organization: Division Chief Mike Rottenberg, Fire Marshal, Lee Miller, Director of Public Works, and selected members of the Department of Development Services (specific project driven)

Potential Funding Source: City of Santee Fire Department adopted budget, City of Santee Department of Community Services adopted budget, City of Santee Department of Development Services adopted budget, City of Santee adopted budget, General Fund

Implementation Timeline: February 2004 though December 2007

Action Item #7: Continue a California Environmental Quality Act level review on all new projects that require all significant effects of a proposed project, including geologic and soil conditions, to be identified and discussed, and identified significant effects are adequately mitigated; continue to require that all geotechnical studies of critical facilities should be performed in accordance with "Guidelines to Geologic Seismic Reports," California Division of Mines and Geology (CDMG), Notes Number 37 and "Recommended Guidelines for Determining the Maximum Credible and the Maximum Probable Earthquakes," CDMG Notes Number 43.

Coordinating Individual/Organization: Division Chief Mike Rottenberg, Fire Marshal, and selected members of the Department of Development Services (specific project driven)

Potential Funding Source: City of Santee Fire Department adopted budget, City of Santee Department of Development Services adopted budget, City of Santee adopted budget, General Fund

Implementation Timeline: February 2004 though December 2007

Action Item #8: The City will continue to utilize existing and evolving geologic, geophysical and engineering knowledge to distinguish and delineate those areas that are particularly susceptible to damage from seismic and other geologic conditions; and continue to require retrofits to existing building construction as part of any major renovations.

Coordinating Individual/Organization: Division Chief Mike Rottenberg, Fire Marshal, Lee Miller, and selected members of the Department of Development Services (specific project driven)

Potential Funding Source: City of Santee Fire Department adopted budget, City of Santee Department of Development Services adopted budget, City of Santee adopted budget, General Fund, and various grant sources as they become available to the City

Implementation Timeline: February 2004 though December 2007

Action Item #9: Continue to use the City's Development Review Ordinance procedures and the Uniform Fire Code to regulate and limit the manufacture, storage, and/or use of hazardous materials within the City; continue to participate as a member of the San Diego County Joint Powers Authority utilizing the Hazardous Materials Response Team to mitigate hazardous materials incidents; and continue to use the San Diego County Hazardous Waste Management Plan as the primary planning document for providing overall policy on hazardous waste management within the City.

Coordinating Individual/Organization: Division Chief Mike Rottenberg, Fire Marshal, Division Chief Howard Rayon, Operations, and selected members of the Department of Development Services (specific project driven)

Potential Funding Source: City of Santee Fire Department adopted budget, City of Santee Department of Development Services adopted budget, City of Santee adopted budget, General Fund

Implementation Timeline: February 2004 though December 2007

Action Item #10: Continue to coordinate and support existing efforts to mitigate other manmade hazards within the City, cooperating and sharing information with other agencies including but not limited to the Department of Homeland Security, California Department of Public Safety, San Diego County Office of Emergency Services, San Diego County Department of Water Resources, Bureau of Reclamation, California Department of Justice, California Department of Transportation, the Federal Aviation Administration, and the Department of Defense

Coordinating Individual/Organization: Division Chief Howard Rayon, Fire Department Operations, Captain Glenn Revell, San Diego County Sheriff's Office, Lee Miller, Director of Public Works, and selected members of the Department of Development Services (specific project driven)

Potential Funding Source: City of Santee Fire Department adopted budget, City of Santee Department of Community Services adopted budget, City of Santee Department of Development Services adopted budget, City of Santee adopted budget, General Fund, San Diego County Sheriff's Office adopted budget, and various grant sources as they become available to the City

Implementation Timeline: February 2004 though December 2007

5.19 CITY OF SOLANA BEACH

The City of Solana Beach (Solana Beach) reviewed a set of jurisdictional-level hazard maps including detailed critical facility information and localized potential hazard exposure/loss estimates to help identify the top hazards threatening their jurisdiction. In addition, LPGs were supplied with exposure/loss estimates for Solana Beach summarized in Table 5.19-1. See Section 4.0 for additional details.

Table 5.19-1
Summary of Potential Hazard-Related Exposure/Loss in Solana Beach

		Residential		Commercial		Critical Facilities	
Hazard Type	Exposed Population	Number of Residential Buildings	Potential Exposure/ Loss for Residential Buildings (x $1,000)	Number of Commercial Buildings	Potential Exposure/ Loss for Commercial Buildings (x $1,000)	Number of Critical Facilities	Potential Exposure for Critical Facilities (x $1,000)
Coastal Storm / Erosion	821	253	113,905	1	732	0	0
Dam Failure	0	0	0	0	0	0	0
Earthquake (Annualized Loss - Includes shaking, liquefaction and landslide components)	12,766	5,171	743	100	411	18* / 18**	177* / 1,706**
Floods (Loss)							
100 Year	594	241	6,692	6	2,377	1	1,920
500 Year	765	310	8,885	7	2,862	1	1,920
Rain-Induced Landslide							
High Risk	3,792	1,282	401,003	14	69,664	2	2,920
Moderate Risk	0	0	0	0	0	0	0
Tsunami	521	159	78,974	0	0	4	2,426
Wildfire/ Structure Fire							
Extreme	0	0	0	0	0	0	0
Very High	0	0	0	0	0	0	0
High	0	0	0	0	0	0	0
Moderate	12,766	5,171	1,531,192	100	438,930	34	71,773

* Represents 100-year earthquake value under three earthquake scenarios (shake only, shake and liquefaction, and shake and landslide).

** Represents 500-year earthquake value under three earthquake scenarios (shake only, shake and liquefaction, and shake and landslide).

After reviewing the localized hazard maps and exposure/loss table above, the following hazards were identified by the Solana Beach LPG as their top five. A brief rational for including each of these is included.

- **Coastal Storm/Erosion**: constant and historical

- **Landslide**: coupled with above and earthquake/tsunami
- **Earthquake**: proximity to local faults
- **Tsunami**: proximity to Pacific Ocean
- **Wildfire**: climate and location

5.19.1 Capabilities Assessment

The LPG identified current capabilities available for implementing hazard mitigation activities. The Capability Assessment (Assessment) portion of the jurisdictional mitigation plan identifies administrative, technical, legal and fiscal capabilities. This includes a summary of departments and their responsibilities associated to hazard mitigation planning as well as codes, ordinances, and plans already in place associated to hazard mitigation planning. The second part of the Assessment provides Solana Beach's fiscal capabilities that may be applicable to providing financial resources to implement identified mitigation action items.

5.19.1.1 Existing Institutions, Plans, Policies and Ordinances

The following is a summary of existing departments in Solana Beach and their responsibilities related to hazard mitigation planning and implementation, as well as existing planning documents and regulations related to mitigation efforts within the community. The administrative and technical capabilities of Solana Beach, as shown in Table 5.19-2, provides an identification of the staff, personnel, and department resources available to implement the actions identified in the mitigation section of the Plan. Specific resources reviewed include those involving technical personnel such as planners/engineers with knowledge of land development and land management practices, engineers trained in construction practices related to building and infrastructure, planners and engineers with an understanding of natural or manmade hazards, floodplain managers, surveyors, personnel with GIS skills and scientists familiar with hazards in the community.

Table 5.19-2
City of Solana Beach: Administrative and Technical Capacity

Staff/Personnel Resources	Y/N	Department/Agency and Position
A. Planner(s) or engineer(s) with knowledge of land development and land management practices	Y	Planning – Director of Community Development
B. Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Y	Engineering – City Engineer
C. Planners or Engineer(s) with an understanding of natural and/or manmade hazards	Y	Planning & Engineering – Director of Community Development City/Engineer
D. Floodplain manager	Y	Engineering –City Engineer
E. Surveyors	N	Engineering –City Engineer
F. Staff with education or expertise to assess the community's vulnerability to hazards	Y	Fire Department – Director of Public Safety
G. Personnel skilled in GIS and/or HAZUS	Y	SANDAG
H. Scientists familiar with the hazards of the community	Y	Consultants
I. Emergency manager	Y	Fire Department – Director of Public Safety.
J. Grant writers	N	

The legal and regulatory capabilities of Solana Beach are shown in Table 5.19-3, which presents the existing ordinances and codes that affect the physical or built environment of Solana Beach. Examples of legal and/or regulatory capabilities can include: the City's building codes, zoning ordinances, subdivision ordnances, special purpose ordinances, growth management ordinances, site plan review, general plans, capital improvement plans, economic development plans, emergency response plans, and real estate disclosure plans.

Table 5.19-3
City of Solana Beach: Legal and Regulatory Capability

Regulatory Tools (ordinances, codes, plans)	Local Authority (Y/N)	Does State Prohibit (Y/N)
A. Building code	Y	N
B. Zoning ordinance	Y	N
C. Subdivision ordinance or regulations	Y	N
D. Special purpose ordinances (floodplain management, storm water management, hillside or steep slope ordinances, wildfire ordinances, hazard setback requirements)	Y	N
E. Growth management ordinances (also called "smart growth" or anti-sprawl programs)	Y	N
F. Site plan review requirements	Y	N
G. General or comprehensive plan	Y	N
H. A capital improvements plan	Y	N
I. An economic development plan	Y	N
J. An emergency response plan	Y	N
K. A post-disaster recovery plan	N	N
L. A post-disaster recovery ordinance	N	N
M. Real estate disclosure requirements	Y	N

5.19.1.2 Fiscal Resources

Table 5.19-4 shows specific financial and budgetary tools available to Solana Beach such as community development block grants; capital improvements project funding; authority to levy taxes for specific purposes; fees for water, sewer, gas, or electric services; impact fees for homebuyers or developers for new development; ability to incur debt through general obligations bonds; and withholding spending in hazard-prone areas.

Table 5.19-4
City of Solana Beach: Fiscal Capability

Financial Resources	Accessible or Eligible to Use (Yes/No)
A. Community Development Block Grants (CDBG)	Y
B. Capital improvements project funding	Y
C. Authority to levy taxes for specific purposes	Y-Vote Required
D. Fees for water, sewer, gas, or electric service	Y
E. Impact fees for homebuyers or developers for new developments/homes	Y-Limited, not currently used
F. Incur debt through general obligation bonds	Y
G. Incur debt through special tax and revenue bonds	Y-Vote not required
H. Incur debt through private activity bonds	N
I. Withhold spending in hazard-prone areas	Y

5.19.2 Goals, Objectives and Actions

Listed below are Solana Beach's specific hazard mitigation goals, objectives and related potential actions. For each goal, one or more objectives have been identified that provide strategies to attain the goal. Where appropriate, the City has identified a range of specific actions to achieve the objective and goal.

The goals and objectives were developed by considering the risk assessment findings, localized hazard identification and loss/exposure estimates, and an analysis of the jurisdiction's current capabilities assessment. These preliminary goals, objectives and actions were developed to represent a vision of long-term hazard reduction or enhancement of capabilities. To help in further development of these goals and objectives, the LPG compiled and reviewed current jurisdictional sources including the City's planning documents, codes, and ordinances. In addition, City representatives met with consultant staff and/or OES to specifically discuss these hazard-related goals, objectives and actions as they related to the overall Plan. Representatives of numerous City departments involved in hazard mitigation planning, including Fire, Police, and Public Works provided input to the Solana Beach LPG. The Solana Beach LPG members were:

- David Ott, Director of Public Safety
- David Holmerud, Deputy Fire Chief
- Steven Apple, Director of Community Development
- Chandra Collure, City Engineer

Once developed, City staff presented them to the City of Solana Beach City Council for their approval.

Public meetings were held throughout the County to present these preliminary goals, objectives and actions to citizens and to receive public input. At these meetings, specific consideration was given to hazard identification/profiles and the vulnerability assessment results. The following sections present the

hazard-related goals, objectives and actions as prepared by Solana Beach's LPG in conjunction with the Hazard Mitigation Working Group, locally elected officials, and local citizens.

5.19.2.1 Goals

The City of Solana Beach has developed the following 6 Goals for their Hazard Mitigation Plan (See Attachment A for Goal 6).

Goal 1. Promote public understanding, support and demand for hazard mitigation.

Goal 2. Improve hazard mitigation coordination and communication with federal, state, local and tribal governments.

"Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to":

Goal 3. Floods.

Goal 4. Wildfires.

Goal 5. Geological Hazards.

Goal 6 Other Manmade Hazards.

5.19.2.2 Objectives and Actions

The City of Solana Beach developed the following broad list of objectives and actions to assist in the implementation of each of their 6 identified goals. The City of Solana Beach developed objectives to assist in achieving their hazard mitigation goals. For each of these objectives, specific actions were developed that would assist in their implementation. A discussion of the prioritization and implementation of the action items is provided in Section 5.19.2.3.

Goal 1: Promote public understanding, support and demand for hazard mitigation.	
Objective 1.A: Educate the public to increase awareness of hazards and opportunities for mitigation actions.	
Action 1.A.1	Institutionalize hazard mitigation into City's planning efforts.
Action 1.A.2	Public workshops to discuss particular hazards and related mitigation measures.
Objective 1.B: Promote partnerships between the state, counties, local and tribal governments to identify, prioritize, and implement mitigation actions.	
Action 1.B.1	Coordinate with regional efforts to share resources and knowledge.
Action 1.B.2	Streamline policies to eliminate conflicts and duplication of effort.

Goal 1: Promote public understanding, support and demand for hazard mitigation. (continued)	
Objective 1.C: Promote hazard mitigation in the business community.	
Action 1.C.1	Use business liaison and Chamber of Commerce as conduits for information.
Action 1.C.2	Explore opportunities to work with public/private partnerships.
Objective 1.D: Monitor and publicize the effectiveness of mitigation actions implemented locally.	
Action 1.D.1	Utilize City newsletter, press releases and public meetings.
Action 1.D.2	Train and review with staff implemented programs as part of regular training.
Objective 1.E: Discourage activities that exacerbate hazardous conditions.	
Action 1.E.1	Make hazard mitigation part of the planning and approval process.
Action 1.E.2	Stepped up Code Enforcement activities targeting these conditions.

Goal 2: Improve hazard mitigation coordination and communication with federal, state, local and tribal governments.	
Objective 2.A: Establish and maintain closer working relationships with state agencies, local and tribal governments.	
Action 2.A.1	Maintain partnerships in mitigation and disaster planning.
Action 2.A.2	Explore opportunities for additional funding through cooperative efforts.
Objective 2.B: Encourage other organizations to incorporate hazard mitigation activities.	
Action 2.B.1	Work with business and environmental community to understand importance.
Objective 2.C: Improve the City's capability and efficiency at administering pre- and post-disaster mitigation.	
Action 2.C.1	Find additional training opportunities for staff.
Action 2.C.2	Establish training schedule for tabletop exercises.
Action 2.C.3	Make this institutional for the staff.

Goal 3: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to <u>floods</u>.	
Objective 3.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to floods.	
Action 3.A.1	Clear identification of potential flood prone areas.
Action 3.A.2	Promote monitoring and maintenance of flood control channels.
Action 3.A.3	Develop pre-incident action plans for affected areas.
Objective 3.B: Coordinate with and support existing efforts to mitigate floods (e.g., US Army Corps of Engineers, US Bureau of Reclamation, San Diego County Department of Water Resources).	
Action 3.B.1	Streamline policies to eliminate conflicts and duplication of effort.
Action 3.B.2	Enforce regulatory measures that ensure any new development will not take place within 100-year flood plain.
Objective 3.C: Minimize repetitive losses caused by flooding.	
Action 3.C.1	Restrict ability to re-build without taking mitigation measures to avoid repeats.
Objective 3.D: Address identified data limitations regarding the lack of information about relative vulnerability of assets from floods.	
Action 3.D.1	Work with regional agencies, (ODP, SanGis) to accurately map affected areas.
Action 3.D.2	Share and train with acquired information with all city department's and personnel.
Action 3.D.3	Coordinate with City of Del Mar joint training opportunities between staffs.

Goal 4: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to <u>wildfires</u>.	
Objective 4.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to wildfires.	
Action 4.A.1	Annually review and update wildland pre-plans for firefighting forces.
Action 4.A.2	Maximize utilization of outside firefighting equipment and staff resources
Action 4.A.3	Implement Fire Code enhancements for wildland-urban interface.

Goal 4: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to wildfires. (continued)	
Objective 4.B: Coordinate with and support existing efforts to mitigate wildfire hazards (e.g., County or San Diego & State of California)	
Action 4.B.1	Develop mitigation measures to enhance protection of homes along San Elijo Reserve.
Action 4.B.2	Work in conjunction and cooperation with San Elijo Lagoon Conservancy to achieve mitigation efforts.
Action 4.B.3	Coordinate with other agencies to ensure consistency among standards.

Goal 5: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to geological hazards.	
Objective 5.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to geological hazards.	
Action 5.A.1	Continue to explore strategies and opportunities for sand replenishment.
Action 5.A.2	Finish development local coastal plan.
Objective 5.B: Protect existing assets with the highest relative vulnerability to the effects of geological hazards.	
Action 5.B.1	Continue efforts to develop local coastal plan to address bluff protection measures.
Action 5.B.2	Monitor existing protective measures taken to assure their continued effectiveness.

5.19.2.3 Prioritization and Implementation of Action Items

Once the comprehensive list of jurisdictional goals, objectives, and action items listed above was developed, the proposed mitigation actions were prioritized. This step resulted in a list of acceptable and realistic actions that address the hazards identified in each jurisdiction. This prioritized list of action items was formed by the LPG weighing STAPLEE criteria

The Disaster Mitigation Action of 2000 (at 44 CFR Parts 201 and 206) requires the development of an action plan that not only includes prioritized actions but one that includes information on how the prioritized actions will be implemented. Implementation consists of identifying who is responsible for which action, what kind of funding mechanisms and other resources are available or will be pursued, and when the action will be completed.

The top 10 prioritized mitigation actions as well as an implementation strategy for each are:

Action Item #1: Develop a comprehensive approach to reducing the possibility of damage and losses due to geological hazards. Continue to explore strategies and opportunities for sand replenishment. Finish development local coastal plan and/or other coastal bluff policies.

Coordinating Individual/Organization: Community Development

Potential Funding Source: General Fund and Grants

Implementation Timeline: On-going

Action Item #2: Protect existing assets with the highest relative vulnerability to the effects of geological hazards. Continue efforts to develop local coastal plan and/or other coastal bluff policies to address bluff protection measures. Monitor existing protective measures taken to assure their continued effectiveness.

Coordinating Individual/Organization: Community Development

Potential Funding Source: General Fund, Grants and Private Funding

Implementation Timeline: On-going

Action Item #3: Coordinate with and support existing efforts to mitigate wildfire hazards (e.g., County or San Diego & State of California). Develop mitigation measures to enhance protection of homes along San Elijo Reserve. Work in conjunction and cooperation with San Elijo Lagoon Conservancy to achieve mitigation efforts. Coordinate with other agencies to ensure consistency among standards.

Coordinating Individual/Organization: Fire Department

Potential Funding Source: General Fund and Grants

Implementation Timeline: February 2004 to June 2006

Action Item #4: Develop a comprehensive approach to reducing the possibility of damage and losses due to wildfires. Annually review and update wildland pre-plans for firefighting forces. Maximize utilization of outside firefighting equipment and staff resources. Implement Fire Code enhancements for wildland-urban interface.

Coordinating Individual/Organization: Fire Department

Potential Funding Source: General Fund

Implementation Timeline: March 2004 to June 2006

Action Item #5: Develop a comprehensive approach to reducing the possibility of damage and losses due to other manmade hazards. Coordinate with other agencies on training and planning for terrorist related activities. Maintain communications links with regards to threat assessments and dissemination of information.

Coordinating Individual/Organization: Fire Department

Potential Funding Source: General Fund and Grants

Implementation Timeline: On-going

Action Item #6: Address identified data limitations regarding the lack of information about relative vulnerability of assets from floods. Work with regional agencies, (ODP, SanGis) to accurately map affected areas. Share and train with acquired information with all city department's and personnel. Coordinate with City of Del Mar joint training opportunities between staffs.

Coordinating Individual/Organization: Public Works

Potential Funding Source: General Fund

Implementation Timeline: On-going

Action Item #7: Protect existing assets with the highest relative vulnerability to the effects of other manmade hazards. Evaluate access levels to public facilities restrict access where necessary. Evaluate infrastructure and facilities for additional security measures as required.

Coordinating Individual/Organization: Assistant City Manager

Potential Funding Source: General Fund and Grants

Implementation Timeline: July 2004 to June 2006

Action Item #8: Monitor and publicize the effectiveness of mitigation actions implemented locally. Utilize City newsletter, press releases and public meetings. Train and review with staff implemented programs as part of regular training.

Coordinating Individual/Organization: Assistant City Manager

Potential Funding Source: General Fund

Implementation Timeline: July 2004 to June 2006

Action Item #9: Discourage activities that exacerbate hazardous conditions. Make hazard mitigation part of the planning and approval process. Stepped up Code Enforcement activities targeting these conditions.

Coordinating Individual/Organization: Community Development & Code Enforcement

Potential Funding Source: General Fund

Implementation Timeline: July 2003 to June 2006

Action Item #10: Improve the City's capability and efficiency at administering pre- and post-disaster mitigation. Find additional training opportunities for staff. Establish training schedule for tabletop exercises. Make this institutional for the staff.

Coordinating Individual/Organization: Fire Department

Potential Funding Source: General Fund and Grants

Implementation Timeline: July 2004 to June 2006

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5.20 CITY OF VISTA

The City of Vista (Vista) reviewed a set of jurisdictional-level hazard maps including detailed critical facility information and localized potential hazard exposure/loss estimates to help identify the top hazards threatening their jurisdiction. In addition, LPGs were supplied with exposure/loss estimates for Vista summarized in Table 5.20-1. See Section 4.0 for additional details.

Table 5.20-1
Summary of Potential Hazard-Related Exposure/Loss in Vista

		Residential		Commercial		Critical Facilities	
Hazard Type	**Exposed Population**	**Number of Residential Buildings**	**Potential Exposure/ Loss for Residential Buildings (x $1,000)**	**Number of Commercial Buildings**	**Potential Exposure/ Loss for Commercial Buildings (x $1,000)**	**Number of Critical Facilities**	**Potential Exposure for Critical Facilities (x $1,000)**
Coastal Storm / Erosion	0	0	0	0	0	0	0
Dam Failure	772	199	65,252	2	9,300	3	7,134
Earthquake (Annualized Loss - Includes shaking, liquefaction and landslide components)	89,926	20,725	1,848	210	527	66* / 66**	785* / 3,727**
Floods (Loss)							
100 Year	4,113	948	16,956	27	3,987	3	5,014
500 Year	6,173	1,423	28,397	40	10,110	7	12,458
Rain-Induced Landslide							
High Risk	889	280	61,655	1	10,892	0	138
Moderate Risk	5,217	1,473	324,566	10	64,936	2	5,444
Tsunami	0	0	0	0	0	0	0
Wildfire/ Structure Fire							
Extreme	0	0	0	0	0	0	0
Very High	50	17	4,571	10	44,306	0	0
High	852	292	70,352	0	15,584	0	0
Moderate	85,312	19,398	5,168,023	177	765,900	82	133,943

* Represents 100-year earthquake value under three earthquake scenarios (shake only, shake and liquefaction, and shake and landslide).

** Represents 500-year earthquake value under three earthquake scenarios (shake only, shake and liquefaction, and shake and landslide).

After reviewing the localized hazard maps and exposure/loss table above, the following hazards were identified by the Vista LPG as their top five. A brief rational for including each of these is included.

- **Wild Fire**: A significant amount of the community is exposed to the potential for loss secondary to extreme fire conditions in undeveloped core and interface areas.

- **Earthquake**: The potential exists for a large loss of life and property, as well as, prolonged disruption of governmental and commercial continuity.
- **Flooding**: The city contains several significant floodplains and is subject to wide spread flooding.
- **Hazardous Materials Release**: In addition to a major freeway the jurisdiction is home to a large industrial park with fixed facilities.
- **Terrorism or Other Manmade Events**: Components of government infrastructure including a Regional Court and Jail Detention Facility, as well as, domestic threat potential are in the jurisdiction.

5.20.1 Capabilities Assessment

The LPG identified current capabilities available for implementing hazard mitigation activities. The Capability Assessment (Assessment) portion of the jurisdictional mitigation plan identifies administrative, technical, legal and fiscal capabilities. This includes a summary of departments and their responsibilities associated to hazard mitigation planning as well as codes, ordinances, and plans already in place associated to hazard mitigation planning. The second part of the Assessment provides Vista's fiscal capabilities that may be applicable to providing financial resources to implement identified mitigation action items.

5.20.1.1 Existing Institutions, Plans, Policies and Ordinances

The following is a summary of existing departments in Vista and their responsibilities related to hazard mitigation planning and implementation, as well as existing planning documents and regulations related to mitigation efforts within the community. The administrative and technical capabilities of Vista, as shown in Table 5.20-2, provides an identification of the staff, personnel, and department resources available to implement the actions identified in the mitigation section of the Plan. Specific resources reviewed include those involving technical personnel such as planners/engineers with knowledge of land development and land management practices, engineers trained in construction practices related to building and infrastructure, planners and engineers with an understanding of natural or manmade hazards, floodplain managers, surveyors, personnel with GIS skills and scientists familiar with hazards in the community.

- City of Vista Community Development Department
  - Manage city development process from concept to completion.
  - Develop and maintain the city general plan, zoning ordinances and development standards.
  - Review construction projects to ensure compliance with land use regulations, community plans and environmental status, design review, public improvement plans and issuance of permits.
  - Coordinate the adoption of building codes. Develop Building ordinances.
  - Review site and building plans for compliance with building codes and ordinances.
  - Damage assessment of structures damaged by natural or man made causes.

- Develop, and ensure compliance with engineering ordinances for new and existing infrastructure.

- City of Vista Public Works Department
  - Maintain city infrastructure including streets, fleet vehicles, storm drain and wastewater systems.
  - Responds in support of city emergencies and disasters including hazardous materials mitigation, traffic control.
  - Ensure efficacy of wastewater systems including floodways.
  - Confined Space Response.
- City of Vista Fire Department
  - Develop policies to support emergency response, hazard prevention and disaster management.
  - Coordinate adoption of codes and ordinances in compliance with State and Local model codes.
  - Perform site and building plan review for code compliance and loss reduction.
  - Emergency response to all risk hazards.

Table 5.20-2
City of Vista: Administrative and Technical Capacity

Staff/Personnel Resources	Y/N	Department/Agency and Position
A. Planner(s) or engineer(s) with knowledge of land development and land management practices	Y	Community Development, Redevelopment & Housing
B. Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Y	Engineering, Community Development
C. Planners or Engineer(s) with an understanding of natural and/or manmade hazards	Y	Engineering, Community Development
D. Floodplain manager	Y	Engineering, Public Works
E. Surveyors	Y	Engineering
F. Staff with education or expertise to assess the community's vulnerability to hazards	Y	Fire Department, Engineering, Public Works
G. Personnel skilled in GIS and/or HAZUS	N	
H. Scientists familiar with the hazards of the community	N	
I. Emergency manager	Y	City Manager, Fire Department
J. Grant writers	Y	City Manager

The legal and regulatory capabilities of Vista are shown in Table 5.20-3, which presents the existing ordinances and codes that affect the physical or built environment of Vista. Examples of legal and/or regulatory capabilities can include: the City's building codes, zoning ordinances, subdivision ordnances, special purpose ordinances, growth management ordinances, site plan review, general plans, capital improvement plans, economic development plans, emergency response plans, and real estate disclosure plans.

Table 5.20-3
City of Vista: Legal and Regulatory Capability

Regulatory Tools (ordinances, codes, plans)	Local Authority (Y/N)	Does State Prohibit (Y/N)
A. Building code	Y	N
B. Zoning ordinance	Y	N
C. Subdivision ordinance or regulations	Y	N
D. Special purpose ordinances (floodplain management, storm water management, hillside or steep slope ordinances, wildfire ordinances, hazard setback requirements)	Y	N
E. Growth management ordinances (also called "smart growth" or anti-sprawl programs)	Y	N
F. Site plan review requirements	Y	N
G. General or comprehensive plan	Y	N
H. A capital improvements plan	Y	N
I. An economic development plan	Y	N
J. An emergency response plan	Y	N
K. A post-disaster recovery plan	N	N
L. A post-disaster recovery ordinance	N	N
M. Real estate disclosure requirements	TBD	TBD

5.20.1.2 Fiscal Resources

Table 5.20-4 shows specific financial and budgetary tools available to Vista such as community development block grants; capital improvements project funding; authority to levy taxes for specific purposes; fees for water, sewer, gas, or electric services; impact fees for homebuyers or developers for new development; ability to incur debt through general obligations bonds; and withholding spending in hazard-prone areas.

Table 5.20-4
City of Vista: Fiscal Capability

Financial Resources	Accessible or Eligible to Use (Yes/No)
A. Community Development Block Grants (CDBG)	Yes
B. Capital improvements project funding	Yes
C. Authority to levy taxes for specific purposes	Yes
D. Fees for water, sewer, gas, or electric service	Yes
E. Impact fees for homebuyers or developers for new developments/homes	Yes
F. Incur debt through general obligation bonds	Yes
G. Incur debt through special tax and revenue bonds	Yes
H. Incur debt through private activity bonds	UK
I. Withhold spending in hazard-prone areas	UK

5.20.2 Goals, Objectives and Actions

Listed below are Vista's specific hazard mitigation goals, objectives and related potential actions. For each goal, one or more objectives have been identified that provide strategies to attain the goal. Where appropriate, the City has identified a range of specific actions to achieve the objective and goal.

The goals and objectives were developed by considering the risk assessment findings, localized hazard identification and loss/exposure estimates, and an analysis of the jurisdiction's current capabilities assessment. These preliminary goals, objectives and actions were developed to represent a vision of long-term hazard reduction or enhancement of capabilities. To help in further development of these goals and objectives, the LPG compiled and reviewed current jurisdictional sources including the City's planning documents, codes, and ordinances. In addition, City representatives met with consultant staff and/or OES to specifically discuss these hazard-related goals, objectives and actions as they related to the overall Plan. Representatives of numerous City departments involved in hazard mitigation planning, including Fire, Police, and Public Works provided input to the Vista LPG. The Vista LPG members were:

- Patrick Richardson, Planning Department
- Rick Snider, Building Department
- Eric Dennis, Building Department
- Gary Fisher, Fire Department
- Jeff Berg, Fire Department

Once developed, City staff presented them to the City of Vista City Council for their approval.

Public meetings were held throughout the County to present these preliminary goals, objectives and actions to citizens and to receive public input. At these meetings, specific consideration was given to

hazard identification/profiles and the vulnerability assessment results. The following sections present the hazard-related goals, objectives and actions as prepared by Vista's LPG in conjunction with the Hazard Mitigation Working Group, locally elected officials, and local citizens.

5.20.2.1 Goals

The City of Vista has developed the following 8 Goals for their Hazard Mitigation Plan (See Attachment A for Goal 8).

Goal 1. Promote disaster-resistant future development.

Goal.2. Promote public understanding, support and demand for hazard mitigation.

Goal 3. Build and support local capacity and commitment to continuously become less vulnerable to hazards.

Goal 4. Improve hazard mitigation coordination and communication with federal, state, and local governments.

"Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to":

Goal 5. Floods and other forms of severe weather.

Goal 6. Structural Fire/Wildfires.

Goal 7. Geological Hazards.

Goal 8. Other Manmade Hazards.

5.20.2.2 Objectives and Actions

The City of Vista developed the following broad list of objectives and actions to assist in the implementation of each of their 8 identified goals. The City of Vista developed objectives to assist in achieving their hazard mitigation goals. For each of these objectives, specific actions were developed that would assist in their implementation. A discussion of the prioritization and implementation of the action items is provided in Section 5.20.2.3.

Goal 1: Promote disaster-resistant future development.	
Objective 1.A: Encourage and facilitate the development or update of general plans and zoning ordinances to limit development in hazard areas.	
Action 1.A.1	Update the Land Use, Community Facilities, and Safety Elements of the City's General Plan.

Goal 1: Promote disaster-resistant future development. (continued)	
Objective 1.B: Encourage and facilitate the adoption of building codes that protect existing assets and new development in hazard areas.	
Action 1.B.1	Establish an emergency review process for codes related to development in identified hazard areas.
Objective 1.C: Encourage consistent enforcement of general plans, zoning ordinances, and building codes.	
Action 1.C.1	Streamline permitting and plan review processes.
Action 1.C.2	Continue aggressive enforcement to ensure all projects are properly permitted and inspected to document compliance with all city standards.
Objective 1.D: Discourage future development that exacerbates hazardous conditions.	
Action 1.D.1	High fire hazard areas shall have adequate access for emergency vehicles.
Action 1.D.2	Establish and enforce minimum brush clearance requirements.
Objective 1.E: Address identified data limitations regarding the lack of information about new development and build-out potential in hazard areas.	
Action 1.E.1	Develop Geographic Information Systems (GIS) capabilities to identify hazards and general hazard areas.

Goal 2: Promote public understanding, support and demand for hazard mitigation.	
Objective 2.A: Educate the public to increase awareness of hazards and opportunities for mitigation actions.	
Action 2.A.1	Develop public education curriculum to increase awareness of disasters and pre-existing hazards.
Action 2.A.2	Identify hazard specific issues and needs.
Action 2.A.3	Provide timely information on City and Department websites.
Objective 2.B: Promote partnerships between the state, counties, and local governments to identify, prioritize, and implement mitigation actions.	
Action 2.B.1	Promote cooperative vegetation management programs that encompass hazard mitigation in the city and unincorporated areas that threaten the city.
Action 2.B.2	Support regional efforts to mitigate hazards.

Goal 2: Promote public understanding, support and demand for hazard mitigation. (continued)	
Objective 2.C: Promote hazard mitigation in the business community.	
Action 2.C.1	Identify hazard specific issues and needs.
Action 2.C.2	Utilize Fire Department's Fire Prevention Inspection Program to educate business owners and managers regarding hazard mitigation.

Goal 3: Build and support local capacity and commitment to continuously become less vulnerable to hazards.	
Objective 3.A: Increase awareness and knowledge of hazard mitigation principles and practice among local officials.	
Action 3.A.1	Update the City Emergency Plan.
Action 3.A.2	Continue Emergency Operations training with City Staff to highlight hazard existence, mitigation, and response.
Action 3.A.3	Build and support local partnerships, such as the Unified Disaster Council (UDC), and other regional efforts to become less vulnerable to identified hazards.
Action 3.A.4	Build a team of community volunteers to work with the community before, during, and after a disaster.

Goal 4: Improve hazard mitigation coordination and communication with federal, state, local governments.	
Objective 4.A: Establish and maintain closer working relationships with state agencies and local governments.	
Action 4.A.1	Establish a City Emergency Operations Center (EOC) and Department Operations Centers (DOC) to act as command and control coordination centers during disasters.
Action 4.A.2	Train employees and volunteers to operate the City EOC following the Standardized Emergency Management System (SEMS) and the Incident Command System (ICS).
Action 4.A.3	Update City Emergency Operations Plans to include coordination with County Wide Operations Plans.
Objective 4.B: Encourage other organizations to incorporate hazard mitigation activities.	

Goal 4: Improve hazard mitigation coordination and communication with federal, state, local governments. (continued)	
Action 4.B.1	Continue to support and assist local entities, including the chamber of commerce, local school districts, and trade associations in developing self reliant plans for hazard mitigation and post disaster continuity.
Objective 4.C: Improve the City's capability and efficiency at administering pre- and post-disaster mitigation.	
Action 4.C.1	Streamline policies to coordinate permitting activities
Action 4.C.2	Establish and staff a Disaster Preparedness Division within the City.

Goal 5: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to <u>floods and other forms of severe weather.</u>	
Objective 5.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to floods.	
Action 5.A.1	Review and compare existing flood control standards, zoning and building requirements.
Action 5.A.2	Identify flood-prone areas utilizing GIS.
Action 5.B.3	Develop pre-incident action plans for flood-prone areas.
Objective 5.B: Protect existing assets with the highest relative vulnerability to the effects of floods within the 100-year floodplain.	
Action 5.B.1	Develop project proposals to reduce flooding and improve control in flood-prone areas.
Action 5.B.2	Seek pre-disaster mitigation funding.

Goal 6: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to <u>structural fire/wildfires</u>.	
Objective 6.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to wildfires.	
Action 6.A.1	Identify and designate Wildland Urban Interface Zones (WUI).
Action 6.A.2	Develop Weed Abatement and Fuel Modification Ordinances.

Goal 6: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to structural fire/wildfires. (continued)	
Action 6.A.3	Study fuel management and resource allocation to allow for maximum proactive and response capability.
Objective 6.B: Protect existing assets with the highest relative vulnerability to the effects of wildfires.	
Action 6.B.1	Continue to support City Sprinkler Ordinance.
Action 6.B.2	Standardize Defensible Space Clearance distances.
Action 6.B.3	Research and support fuel modification techniques including mow/disc clearing and prescriptive burns.
Action 6.B.4	Implement public education program to address fire dangers and mitigation measures.
Objective 6.C: Coordinate with and support existing efforts to mitigate wildfire hazards (e.g., US Forest Service, Bureau of Land Management).	
Action 6.C.1	Coordinate with regional agencies, including California Department of Forestry and Fire Protection and US Forest Service, to minimize fire spread potential from areas outside city boundaries.
Action 6.C.2	Continue to support and participate in the California Fire Master Mutual Aid Agreement, The San Diego County Fire Master Mutual Aid Agreement, and the North Zone Automatic Aid Agreement.
Objective 6.D: Maintain adequate emergency response capability.	
Action 6.D.1	Continue to evaluate service level impacts and needs.

Goal 7: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to geological hazards.	
Objective 7.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to geological hazards.	
Action 7.A.1	Develop and implement a Public Education Program.
Action 7.A.2	Design critical facilities that will function after a major earthquake.
Action 7.A.3	Identify hazard prone structures through GIS modeling.
Action 7.A.4	Identify projects for pre-disaster mitigation funding.

Goal 7: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to geological hazards. (continued)	
Action 7.A.5	Develop a City Government Continuity Plan.

5.20.2.3 Prioritization and Implementation of Action Items

Once the comprehensive list of jurisdictional goals, objectives, and action items listed above was developed, the proposed mitigation actions were prioritized. This step resulted in a list of acceptable and realistic actions that address the hazards identified in each jurisdiction. This prioritized list of action items was formed by the LPG weighing STAPLEE criteria

The Disaster Mitigation Action of 2000 (at 44 CFR Parts 201 and 206) requires the development of an action plan that not only includes prioritized actions but one that includes information on how the prioritized actions will be implemented. Implementation consists of identifying who is responsible for which action, what kind of funding mechanisms and other resources are available or will be pursued, and when the action will be completed.

The top 10 prioritized mitigation actions as well as an implementation strategy for each are:

Action Item #1: Establish a City Emergency Operations Center (EOC) and Department Operations Centers to act as command and control coordination centers during disasters.

Coordinating Individual/Organization: Fire Department

Potential Funding Source: Operating Budget/Grants

Implementation Timeline: July 2004-July 2006 (in conjunction with other city facilities)

Action Item #2: Train city employees and volunteers to operate the City EOC following the Standardized Emergency Management System (SEMS) and the Incident Command System (ICS).

Coordinating Individual/Organization: Fire Department

Potential Funding Source: Operating Budget/Grants

Implementation Timeline: July 2004 – July 2005

Action Item #3: Update City Emergency Plan

Coordinating Individual/Organization: Fire Prevention/ Fire Department/Public Works

Potential Funding Source: Operating Budget

Implementation Timeline: November 2004 – July 2005

Action Item #4: Develop public education curriculum to increase awareness of disasters and pre-existing hazards.

Coordinating Individual/Organization: Fire Prevention

Potential Funding Source: Operating Budget/Grants

Implementation Timeline: November 2004 – November 2007

Action Item #5: Promote cooperative vegetation management programs that encompass hazard mitigation in the city and unincorporated areas that threaten the city.

Coordinating Individual/Organization: Code Compliance/Fire Prevention

Potential Funding Source: Operating Budget/Grants

Implementation Timeline: November 2004-November 2007

Action Item #6: Build a team of community volunteers to work with the community before, during, and after a disaster.

Coordinating Individual/Organization: Fire Department/Sheriff's Department/Parks and Community Services

Potential Funding Source: Outside funding sources/Grants

Implementation Timeline: December 2004-July 2006

Action Item #7: Ensure city personnel are properly equipped for emergency response and self-protection from incidents of terrorism.

Coordinating Individual/Organization: Fire Department/Risk Management

Potential Funding Source: Operating Budget/Grants

Implementation Timeline: November 2004 – July 2005

Action Item #8: Develop Geographic Information Systems (GIS) capabilities to identify hazards and general hazard areas.

Coordinating Individual/Organization: Community Development/Public Works/Information Systems

Potential Funding Source: Operating Budget/Grants

Implementation Timeline: November 2004 – July 2005

Action Item #9: Develop a City Government Continuity Plan.

Coordinating Individual/Organization: City Manager/Fire Department

Potential Funding Source: Operating Budget/Grants

Implementation Timeline: November 2004-November 2007

Action Item #10: Develop project proposals to reduce flooding and improve control of storm waters in flood-prone areas.

Coordinating Individual/Organization: Community Development/Public Works

Potential Funding Source: Operating Budget/Grants

Implementation Timeline: November 2004 – November 2007

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5.21 COUNTY OF SAN DIEGO

The Unincorporated portion of the County of San Diego (County) reviewed a set of jurisdictional-level hazard maps including detailed critical facility information and localized potential hazard exposure/loss estimates to help identify the top hazards threatening their jurisdiction. In addition, LPGs were supplied with exposure/loss estimates for the County summarized in Tables 5.21-1a and 5.21-1b. See Section 4.0 for additional details.

Table 5.21-1a
Summary of Potential Hazard-Related Exposure/Loss in the County (Urban)

		Residential		Commercial		Critical Facilities	
Hazard Type	Exposed Population	Number of Residential Buildings	Potential Exposure/ Loss for Residential Buildings (x $1,000)	Number of Commercial Buildings	Potential Exposure/ Loss for Commercial Buildings (x $1,000)	Number of Critical Facilities	Potential Exposure for Critical Facilities (x $1,000)
Coastal Storm/ Erosion	499	320	70,575	0	0	1	2,816
Dam Failure	38,004	8,824	2,536,977	135	508,858	269	1,113,282
Earthquake (Annualized Loss - Includes shaking, liquefaction and landslide components)	410,798	126,360	11,077	639	1,452	949* / 983**	304,940* / 906,594**
Floods (Loss)							
100 Year	19,807	6,093	141,472	61	29,437	121	829,862
500 Year	22,428	6,899	166,606	65	31,968	130	844,605
Rain-Induced Landslide							
High Risk	11,326	2,644	1,020,225	4	29,492	64	86,333
Moderate Risk	109,812	35,879	9,337,594	175	775,556	564	2,456,229
Tsunami	533	327	74,389	0	702	2	6,778
Wildfire/ Structure Fire							
Extreme	24,109	9,665	2,063,481	24	133,544	123	739,163
Very High	84,535	25,459	7,498,636	147	557,292	820	4,498,036
High	16,015	5,846	1,379,109	20	131,244	166	1,002,738
Moderate	252,430	72,814	17,721,767	409	1,706,920	688	4,751,094

* Represents 100-year earthquake value under three earthquake scenarios (shake only, shake and liquefaction, and shake and landslide).

** Represents 500-year earthquake value under three earthquake scenarios (shake only, shake and liquefaction, and shake and landslide).

Table 5.21-1b
Summary of Potential Hazard-Related Exposure/Loss in the County (Rural)

		Residential		Commercial		Critical Facilities	
Hazard Type	Exposed Population	Number of Residential Buildings	Potential Exposure/ Loss for Residential Buildings (x $1,000)	Number of Commercial Buildings	Potential Exposure/ Loss for Commercial Buildings (x $1,000)	Number of Critical Facilities	Potential Exposure for Critical Facilities (x $1,000)
Coastal Storm / Erosion	0	0	0	0	0	0	0
Dam Failure	3,420	2,144	576,336	6	34,534	35	117,827
Earthquake (Annualized Loss - Includes shaking, liquefaction and landslide components)	33,749	14,187	1038	107	192	73* / 74**	1,015* / 12,147**
Floods (Loss)							
100 Year	1,339	563	25,619	6	2,633	9	10,501
500 Year	1,623	683	28,828	7	2,833	9	10,501
Rain-Induced Landslide							
High Risk	3,308	1,562	445,494	64	202,478	11	14,788
Moderate Risk	6,243	2,449	614,584	2	25,342	17	30,413
Tsunami	0	0	0	0	0	0	0
Wildfire/ Structure Fire							
Extreme	235	96	26,517	1	2,312	1	2,000
Very High	3,642	1,468	408,587	18	68,774	14	28,531
High	2,533	1,218	331,493	1	18,510	2	5,433
Moderate	22,333	9,365	2,382,885	78	291,132	61	163,182

* Represents 100-year earthquake value under three earthquake scenarios (shake only, shake and liquefaction, and shake and landslide).
** Represents 500-year earthquake value under three earthquake scenarios (shake only, shake and liquefaction, and shake and landslide).

After reviewing the localized hazard maps and exposure/loss table above, the following hazards were identified by the County LPG as their top five.

- **Fire**
- **Hazardous Materials Release**
- **Flood**

- **Earthquake**
- **Manmade Hazards**

5.21.1 Capabilities Assessment

The LPG identified current capabilities available for implementing hazard mitigation activities. The Capability Assessment (Assessment) portion of the jurisdictional mitigation plan identifies administrative, technical, legal and fiscal capabilities. This includes a summary of departments and their responsibilities associated to hazard mitigation planning as well as codes, ordinances, and plans already in place associated to hazard mitigation planning. The second part of the Assessment provides the County's fiscal capabilities that may be applicable to providing financial resources to implement identified mitigation action items.

5.21.1.1 Existing Institutions, Plans, Policies and Ordinances

The following is a summary of existing departments in the County and their responsibilities related to hazard mitigation planning and implementation, as well as existing planning documents and regulations related to mitigation efforts within the community. The administrative and technical capabilities of the County, as shown in Table 5.21-2, provides an identification of the staff, personnel, and department resources available to implement the actions identified in the mitigation section of the Plan. Specific resources reviewed include those involving technical personnel such as planners/engineers with knowledge of land development and land management practices, engineers trained in construction practices related to building and infrastructure, planners and engineers with an understanding of natural or manmade hazards, floodplain managers, surveyors, personnel with GIS skills and scientists familiar with hazards in the community.

- San Diego County Department of Planning and Land Use
  - Maintain and protect public health, safety and well being. Preserve and enhance the quality of life for County residents by maintaining a comprehensive general plan and zoning ordinance, implementing habitat conservation programs, ensuring regulatory conformance and performing comprehensive community outreach.
  - Planning Services Division: Provides land use and environmental review, maintains a comprehensive general plan and zoning ordinance, issues land use and building permits, and enforces building and zoning regulations. It is also responsible for long-range planning through development and implementation of a comprehensive General Plan.
  - Development Services Division: Review site and building plans for compliance with all applicable codes. Code Enforcement enforces building, grading, zoning, brushing and clearing, junk, graffiti, signs, abandoned vehicle complaints and noise control. Resource Planning in the unincorporated areas of San Diego County is to ensure efficient use and protection of environmental resources through compliance with local, state and federal environmental regulations. Coordinates damage assessment of structures from multiple causes. Provides damage assessment in the EOC & supports other agencies in assessing damage from fire.

- San Diego County Department of Public Works
  - Ensure public safety through design, construction and maintenance of a safe and reliable infrastructure.
  - Land Development Division: Provides engineering and review services for construction and development projects throughout the unincorporated areas of San Diego County. Services such as Stormwater, Flood Control, Map Processing, Cartography, Surveys, the Geographic and Land Information Systems and dealing with land development issues are the daily job of this division. The division processes more than 5,000 permits each year.
  - Transportation Division: Roads Section is the most visible part of DPW, responding to requests for services ranging from pothole repair to tree trimming. Traffic Engineering provides traffic management and determines the need for stop signs and traffic lights. Route Locations updates the County's General Plan Circulation Element, provides transportation planning support and more. County Airports include eight unique facilities scattered throughout the area. McClellan-Palomar Airport provides commercial service to Los Angeles and Phoenix; Ramona Airport is home to the busiest aerial firefighting base in the USA; and, the County Sheriff's air force, ASTREA, is based at Gillespie Field.
  - Engineering Services Division: The division includes Wastewater, Flood Control, Design Engineering, Environmental Services, Construction Engineering, Materials Lab, Project Management and Flood Control Engineering and Hydrology. The Director of Public Works has assigned the Deputy Director of Engineering Services as the County Engineer and Flood Control Commissioner.
  - Management Services Division: This division provides a variety of services to department employees and the public. It includes Personnel, Financial Services, Communications, Recycling, Inactive Landfills and Management Support. Special Districts serve small areas in unincorporated areas providing a variety of services to residents in rural areas.
- San Diego County Housing & Community Development
  - Improve the quality of life in our communities – helping needy families find safe, decent and affordable housing and partnering with property owners to increase the supply and availability of affordable housing. The Department provides many valuable services to both property owners and tenants and strives to create more livable neighborhoods that residents are proud to call home. Provide a benefit to low and moderate-income persons, Prevent or eliminate slums and blight, or Meet needs having a particular urgency.
  - Community Development Division Manager: Our key service programs improve neighborhoods by assisting low-income residents, increasing the supply of affordable, save housing and rehabilitating both business and residential properties in San Diego County. We serve the communities of: Chula Vista, Coronado, Del Mar, El Cajon, Escondido, Imperial Beach, Lemon Grove, Poway, San Marcos, Santee, Solana Beach, Vista, and the unincorporated areas of San Diego County.
  - The Community Development Block Grant Program (CDBG) is a federal block grant program created by Congress in 1974. CDBG-funded projects must satisfy one of three national program objectives:

  - In addition to funding housing and shelter programs, the County also allocates CDBG funds toward various community improvements in the Urban County area. Participating cities, community residents, nonprofit organizations and other county departments may submit CDBG proposals.

- County of San Diego Emergency Preparedness & Disaster Medical Response
  - Mission: To coordinate the medical/health response to disasters within the County of San Diego to disasters.
  - Function: To protect life and property within the San Diego County Operational Area in the event of a major emergency or disaster by:1) requesting additional outside resources to responding to medical/health related disasters; 2) coordinating all medical/health assets within the Op Area; 3) developing plans and procedures for response to a bioterrorism event; 4) developing and providing preparedness materials for the public.
- Division of Emergency Medical Services
  - Mission: Serves to coordinate the activities of prehospital and trauma center service providers for all residents and visitors of San Diego.
  - Function: Its purpose is to ensure that the quality of emergency medical services, which includes 9-1-1 ambulance services, trauma care services, and non-emergency ambulance services, is of the highest quality.
- County of San Diego Office of Emergency Services
  - Mission**:** To coordinate San Diego County's response to disasters.
  - Function**:** To protect life and property within the San Diego County Operational Area in the event of a major emergency or disaster by: 1) Alerting and notifying appropriate agencies when disaster strikes; 2) Coordinating all Agencies that respond; 3) Ensuring resources are available and mobilized in times of disaster; 4) Developing plans and procedures for response to and recovery from disasters and 5) Developing and providing preparedness materials for the public
- County of San Diego Sheriff's Department
  - Mission: Provide Law Enforcement Services, including scene security, traffic control, crowd control, and crime scene investigation.
  - Function**:** To provide law enforcement services within the San Diego County Operational Area. San Diego Sheriff policies, programs, plans, and manuals include: 1) Policies and Procedures Manual, 2) Law Enforcement Response to Critical Incident Manual, 3) Emergency Operations Manual, 4) Community Oriented Policing Program, 5) Citizen Emergency Response Program, as well as the State of California's Law Enforcement Guide for Emergency Operations and the State Law Enforcement Mutual Aid Plan.

Table 5.21-2
County of San Diego: Administrative and Technical Capacity

Staff/Personnel Resources	Y/N	Department/Agency and Position
A. Planner(s) or engineer(s) with knowledge of land development and land management practices	Y	Department of Planning & Land Use (DPLU)/ Lead Planner
B. Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Y	DPLU/Building Inspectors
C. Planners or Engineer(s) with an understanding of natural and/or manmade hazards	N	
D. Floodplain manager	N	
E. Surveyors	Y	DPLU & Department of Public Works (DPW)/ Surveyor, Lead
F. Staff with education or expertise to assess the community's vulnerability to hazards	N	
G. Personnel skilled in GIS and/or HAZUS	Y	DPLU GIS Manger and DPW GIS Manager
H. Scientists familiar with the hazards of the community	Y	County Science Advisory Board
I. Emergency manager	Y	Office of Emergency Services / Emergency Services Coordinator
J. Grant writers	N	Departments determine their own level of service.

The legal and regulatory capabilities of the County are shown in Table 5.21-3, which presents the existing ordinances and codes that affect the physical or built environment of the County. Examples of legal and/or regulatory capabilities can include: the County's building codes, zoning ordinances, subdivision ordnances, special purpose ordinances, growth management ordinances, site plan review, general plans, capital improvement plans, economic development plans, emergency response plans, and real estate disclosure plans.

Table 5.21-3
County of San Diego: Legal and Regulatory Capability

Regulatory Tools (ordinances, codes, plans)	Local Authority (Y/N)	Does State Prohibit (Y/N)
A. Building code	Y	N
B. Zoning ordinance	Y	N
C. Subdivision ordinance or regulations	Y	N
D. Special purpose ordinances (floodplain management, storm water management, hillside or steep slope ordinances, wildfire ordinances, hazard setback requirements)	Y	N
E. Growth management ordinances (also called "smart growth" or anti-sprawl programs)	Y	N
F. Site plan review requirements	Y	N
G. General or comprehensive plan	Y	N
H. A capital improvements plan	Y	N
I. An economic development plan	Y	
J. An emergency response plan	Y	N
K. A post-disaster recovery plan	N	
L. A post-disaster recovery ordinance	N	
M. Real estate disclosure requirements	Y	N

5.21.1.2 Fiscal Resources

Table 5.21-4 shows specific financial and budgetary tools available to the County such as community development block grants; capital improvements project funding; authority to levy taxes for specific purposes; fees for water, sewer, gas, or electric services; impact fees for homebuyers or developers for new development; ability to incur debt through general obligations bonds; and withholding spending in hazard-prone areas.

Table 5.21-4
County of San Diego: Fiscal Capability

Financial Resources	Accessible or Eligible to Use (Yes/No)
A. Community Development Block Grants (CDBG)	Yes
B. Capital improvements project funding	UK
C. Authority to levy taxes for specific purposes	Yes
D. Fees for water, sewer, gas, or electric service	Yes
E. Impact fees for homebuyers or developers for new developments/homes	Yes
F. Incur debt through general obligation bonds	Yes
G. Incur debt through special tax and revenue bonds	Yes
H. Yes Incur debt through private activity bonds	Yes
I. Withhold spending in hazard-prone areas	Yes

5.21.2 Goals, Objectives and Actions

Listed below are the County's specific hazard mitigation goals, objectives and related potential actions. For each goal, one or more objectives have been identified that provide strategies to attain the goal. Where appropriate, the City has identified a range of specific actions to achieve the objective and goal.

The goals and objectives were developed by considering the risk assessment findings, localized hazard identification and loss/exposure estimates, and an analysis of the jurisdiction's current capabilities assessment. These preliminary goals, objectives and actions were developed to represent a vision of long-term hazard reduction or enhancement of capabilities. To help in further development of these goals and objectives, the LPG compiled and reviewed current jurisdictional sources including the City's planning documents, codes, and ordinances. In addition, City representatives met with consultant staff and/or OES to specifically discuss these hazard-related goals, objectives and actions as they related to the overall Plan. Representatives of numerous City departments involved in hazard mitigation planning, including Fire, Police, and Public Works provided input to the County LPG. The County LPG members were:

- Herman Reddick, County OES
- Nick Vent, DEH
- Ralph Steinhoff, DPLU
- Ken Miller, DPLU
- Lowell Grimaud, FireSafe Council
- Dan Papp, Sheriff
- Chuck Maner, CDF
- Bernice Bigelow, USFS

- Jim Yoke, ARC
- Gary Billick, Sheriff
- Tom Davis, DPW
- Joe Gonzales, Sheriff
- Bob Eisele, A,W & M
- Thom Porter, CDF
- Lisa Prus, Water Authority
- Brad Long, DEH
- Samuel Musgrave, State OES
- Gary Adams, Fire Districts' Association
- Karl Bauer, VFDs
- Joe Tash, M&PR
- Greg S Schumsky, Pennant Alliance, Technology Office
- Patrick Buttron, HHSA, EMS

Once developed, County staff presented them to the County Supervisors for their approval.

Public meetings were held throughout the County to present these preliminary goals, objectives and actions to citizens and to receive public input. At these meetings, specific consideration was given to hazard identification/profiles and the vulnerability assessment results. The following sections present the hazard-related goals, objectives and actions as prepared by County's LPG in conjunction with the Hazard Mitigation Working Group, locally elected officials, and local citizens.

5.21.2.1 Goals

The County of San Diego has developed the following 11 Goals for their Hazard Mitigation Plan (See Attachment A for Goal 11).

Goal 1. Promote Disaster-resistant future development.

Goal 2. Increase public understanding and support for effective hazard mitigation.

Goal 3. Build and support local capacity and commitment to become less vulnerable to hazards.

Goal 4. Enhance hazard mitigation coordination and communication with federal, state, local and tribal governments.

"Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and County-owned facilities, due to":

Goal 5. Dam Failure.

Goal 6. Earthquakes.

Goal 7. Coastal Storm/Erosion/Tsunami.

Goal 8. Landslides.

Goal 9. Floods.

Goal 10. Structural Fire/Wildfire.

Goal 11. Manmade Hazards.

5.21.2.2 Objectives and Actions

The County of San Diego developed the following broad list of objectives and actions to assist in the implementation of each of their 11 identified goals. The County of San Diego developed objectives to assist in achieving their hazard mitigation goals. For each of these objectives, specific actions were developed that would assist in their implementation. A discussion of the prioritization and implementation of the action items is provided in Section 5.21.2.3.

Goal 1: Promote disaster-resistant future development.	
Objective 1.A: Facilitate the development or updating of general plans and zoning ordinances to limit development in hazard areas.	
Action 1.A.1	Update General Plan every 10 years.
Action 1.A.2	Attract and retain qualified, professional and experienced staff.
Action 1.A.3	Identify high hazard areas.
Objective 1.B: Facilitate the adoption of building codes that protect existing assets and restrict new development in hazard areas.	
Action 1.B.1	Review Codes every 3 years.
Action 1.B.2	Establish emergency review procedures for codes.
Objective 1.C: Facilitate consistent enforcement of general plans, zoning ordinances, and building codes.	
Action 1.C.1	Staff enforcement personnel to a level to ensure compliance.
Action 1.C.2	Develop and coordinate permits for all agencies.
Action 1.C.3	Create a multi-agency permitting and enforcement team.

Goal 1: Promote disaster-resistant future development. (continued)	
Objective 1.D: Limit future development in hazardous areas	
Action 1.D.1	Development should be in harmony with existing topography.
Action 1.D.2	Development patterns should respect environmental characteristics.
Action 1.D.3	Clustering should be encouraged.
Action 1.D.4	Development should be limited in areas of known geologic hazards.
Action 1.D.5	Development in floodplains shall be limited to protect lives and property.
Action 1.D.6	High fire hazard areas shall have adequate access for emergency vehicles.
Objective 1.E: Address identified data limitations regarding the lack of information about new development and build-out potential in hazard areas.	
Action 1.E.1	Coordinate existing Geographic Information Systems (GIS) capabilities to identify hazards.
Action 1.E.2	Develop the data sets that are necessary to test hazard scenarios and mitigation tools.
Action 1.E.3	Utilize the Internet as a communication tool, as well as an educational tool.
Objective 1.F: Increase public understanding, support and demand for hazard mitigation for new developments.	
Action 1.F.1	Gain public acceptance for avoidance policies in high hazard areas.
Action 1.F.2	Publicize and adopt the appropriate hazard mitigation measures.
Action 1.F.3	Help create demand for hazard resistant construction and site planning.

Goal 2: Increase public understanding and support for effective hazard mitigation.	
Objective 2.A: Educate the public to increase awareness of hazards and opportunities for mitigation actions.	
Action 2.A.1	Publicize and encourage the adoption of appropriate hazard mitigation actions.
Action 2.A.2	Provide information to the public on the County website.
Action 2.A.3	Heighten public awareness of hazards by using the County Media & Public Relations Office.
Action 2.A.4	Gain public acceptance for avoidance policies in high hazard areas.

Goal 2: Increase public understanding and support for effective hazard mitigation. (continued)	
Action 2.A.5	Identify hazard specific issues and needs.
Action 2.A.6	Help create demand for hazard resistant construction and site planning.
Objective 2.B: Promote partnerships between the state, counties, local and tribal governments to identify, prioritize, and implement mitigation actions.	
Action 2.B.1	Develop, Maintain and improve lasting partnerships.
Action 2.B.2	Support the County FireSafe Council.
Action 2.B.3	Promote cooperative vegetation Management Programs that incorporate hazard mitigation.
Objective 2.C: Promote hazard mitigation in the business community.	
Action 2.C.1	Increase awareness and knowledge of hazard mitigation principles and practices.
Action 2.C.2	Encourage businesses to develop and implement hazard mitigation actions.
Action 2.C.3	Identify hazard-specific issues and needs.
Objective 2.D: Monitor and publicize the effectiveness of mitigation actions implemented countywide.	
Action 2.D.1	Use the County website to publicize mitigation actions.
Action 2.D.2	Create marketing campaign.
Action 2.D.3	Determine mitigation messages to convey.
Action 2.D.4	Establish budget and identify funding sources for mitigation outreach.
Action 2.D.5	Develop and distribute brochures, CDs and other publications.
Objective 2.E: Provide education on hazardous conditions.	
Action 2.E.1	Support public and private sector symposiums.
Action 2.E.2	Coordinate production of brochures, informational packets and other handouts.
Action 2.E.3	Develop partnerships with the media on hazard mitigation.

Goal 3: Build and support local capacity and commitment to become less vulnerable to hazards.	
Objective 3.A: Increase awareness and knowledge of hazard mitigation principles and practice among local officials.	
Action 3.A.1	Use Media & Public Relations to increase the number of news releases.
Action 3.A.2	Conduct meetings with key elected officials to determine local issues and concerns.
Action 2.A.3	Continuously demonstrate the importance of pre-disaster mitigation planning to the Board of Supervisors and other public officials.
Objective 3.B: Develop hazard mitigation plan and provide technical assistance to implement plan.	
Action 3.B.1	Coordinate the development of a multi-jurisdictional plan.
Action 3.B.2	Seek grant funding to develop countywide plan.
Action 3.B.3	Form County Working Group to update and monitor the plan.
Objective 3.C: Limit growth and development in hazardous areas.	
Action 3.C.1	Update GIS mapping to identify hazardous areas.
Action 3.C.2	Enforce trespassing regulations in high-risk areas.
Action 3.C.3	Update General Plan and zoning regulations to reflect hazardous areas.
Action 3.C.4	Support transfer of development rights in hazard prone areas.
Objective 3.D: Management of wildland vegetative communities to promote less hazardous conditions.	
Action 3.D.1	Use GIS to inventory by type and vegetation age class.
Action 3.D.2	Define target class ranges.
Action 3.D.3	Develop partnerships within the communities to fix age class ranges.

Goal 4: Enhance hazard mitigation coordination and communication with federal, state, local and tribal governments.	
Objective 4.A: Establish and maintain closer working relationships with state agencies, local and tribal governments.	
Action 4.A.1	Develop multi-jurisdictional/ multi-functional training and exercises to enhance hazard mitigation.

Goal 4: Enhance hazard mitigation coordination and communication with federal, state, local and tribal governments. (continued)	
Action 4.A.2	Leverage resources and expertise that will further hazard mitigation efforts.
Action 4.A.3	Update the multi-jurisdictional/multi-hazard mitigation plan to include tribal governments.
Objective 4.B: Encourage other organizations to incorporate hazard mitigation activities.	
Action 4.B.1	Encourage tribal governments to become part of the HIRT JPA.
Action 4.B.2	Establish and maintain lasting partnerships.
Action 4.B.3	Streamline policies to eliminate conflicts and duplication of effort.
Objective 4.C: Improve the County's capability and efficiency at administering pre- and post-disaster mitigation.	
Action 4.C.1	Maintain consistency with the State in administering recovery programs.
Action 4.C.2	Work to establish a requirement that all hazard mitigation projects submitted to the State must be reviewed by the County.
Action 4.C.3	Improve coordination with the State Hazard Mitigation Office in dealing with local issues.
Objective 4.D: Support a coordinated permitting activities process.	
Action 4.D.1	Develop notification procedures for all permits that supports affected agencies.
Action 4.D.2	Streamline policies to eliminate conflicts and duplication of effort.
Action 4.D.3	Continue to exchange resources and work with local and regional partners.
Objective 4.E: Coordinate recovery activities while restoring and maintaining public services.	
Action 4.E.1	Develop two Multi-hazard Assessment Teams (MAT).
Action 4.E.2	Develop activation and reporting procedures for the MAT.

Goal 5: Reduce the possibility of damage and losses to existing assets, including people, critical facilities/infrastructure, and public facilities due to dam failure.	
Objective 5.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to dam failure.	
Action 5.A.1	Update inundation maps every 10 years.

Goal 5: Reduce the possibility of damage and losses to existing assets, including people, critical facilities/infrastructure, and public facilities due to <u>dam failure</u>. (continued)	
Action 5.A.2	Participate in community awareness meetings.
Action 5.A.3	Develop and distribute printed publications to the communities concerning hazards.
Objective 5.B: Protect existing assets with the highest relative vulnerability to the effects of a dam failure.	
Action 5.B.1	Identify hazard-prone structures.
Action 5.B.2	Construct barriers around structures.
Action 5.B.3	Encourage structural retrofitting.
Objective 5.C: Coordinate with and support existing efforts to mitigate dam failure (e.g., US Army Corps of Engineers, US Bureau of Reclamation, California Department of Water Resources).	
Action 5.C.1	Revise development ordinances to mitigate effects of development on wetland areas.
Action 5.C.2	Incorporate and maintain valuable wetlands in open space preservation programs.
Action 5.C.3	Review and revise, if necessary, sediment and erosion control regulations.
Objective 5.D: Protect floodplains from inappropriate development.	
Action 5.D.1	Strengthen existing development regulations to discourage land uses and activities that create hazards.
Action 5.D.2	Plan and zone for open space, recreational, agricultural, or other low-intensity uses within floodway fringes.

Goal 6: Reduce the possibility of damage and losses to existing assets, including people, critical facilities/infrastructure, and public facilities due to <u>earthquakes</u>.	
Objective 6.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to earthquakes.	
Action 6.A.1	Update Building Codes to reflect current earthquake standards.
Action 6.A.2	Participate in community awareness meetings.
Action 6.A.3	Develop and distribute printed publications to the communities concerning hazards.

Goal 6: Reduce the possibility of damage and losses to existing assets, including people, critical facilities/infrastructure, and public facilities due to earthquakes. (continued)	
Objective 6.B: Protect existing assets with the highest relative vulnerability to the effects of earthquakes.	
Action 6.B.1	Identify hazard-prone structures through GIS modeling.
Action 6.B.2	Build critical facilities that function after a major earthquake.
Action 6.B.3	Study ground motion, landslide, and liquefaction.
Objective 6.C: Coordinate with and support existing efforts to mitigate earthquake hazards	
Action 6.C.1	Identify projects for pre-disaster mitigation funding.
Action 6.C.2	Design and implement an ongoing public seismic risk assessment program.
Action 6.C.3	Collaborate with Federal, State and local agencies' mapping efforts.
Objective 6.D: Address identified data limitations regarding the lack of information about the relative vulnerability of assets from earthquakes.	
Action 6.D.1	Assess countywide utility infrastructure with regard to earthquake risk, including public and private utilities.
Action 6.D.2	Develop and implement an incentive program for seismic retrofits.
Action 6.D.3	Encourage the public to prepare and maintain a 3-day preparedness kit for home and work.

Goal 7: Reduce the possibility of damage and losses to existing assets, including people, critical facilities/infrastructure, and public facilities due to coastal storm/erosion/tsunami.	
Objective 7.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to coastal storms/erosion.	
Action 7.A.1	Coordinate with coastal cities to develop a comprehensive plan.
Action 7.A.2	Participate in community awareness meetings.
Action 7.A.3	Develop and distribute printed publications to the communities concerning hazards.

Goal 7: Reduce the possibility of damage and losses to existing assets, including people, critical facilities/infrastructure, and public facilities due to coastal storm/erosion/tsunami. (continued)	
Objective 7.B: Protect existing assets with the highest relative vulnerability to the effects of coastal storms/erosion.	
Action 7.B.1	Retrofit structures to strengthen resistance to damage.
Action 7.B.2	Encourage the public to prepare and maintain a 3-day preparedness kit for home and work.
Action 7.B.3	Seek pre-disaster mitigation funding for coastal erosion projects.
Objective 7.C: Coordinate with and support existing efforts to mitigate severe coastal storms/erosion.	
Action 7.C.1	Review and update plans that would include coordination with cities, special districts and county departments.
Action 7.C.2	Streamline policies to eliminate conflicts and duplication of effort.
Action 7.C.3	Develop and publish evacuation procedures to the public.
Objective 7.D: Address identified data limitations regarding the lack of information about the relative vulnerability of assets from coastal storms/erosion.	
Action 7.D.1	Identify hazard-prone structures through GIS modeling.
Action 7.D.2	Incorporate information and recommendations from coastal cities into the hazard mitigation plan.

Goal 8: Reduce the possibility of damage and losses to existing assets, including people, critical facilities /infrastructure, and public facilities due to landslide.	
Objective 8.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to landslide.	
Action 8.A.1	Identify potential areas based upon historical data.
Action 8.A.2	Participate in community awareness meetings.
Action 8. A.3	Develop and distribute printed publications to the communities concerning hazards.

Goal 8: Reduce the possibility of damage and losses to existing assets, including people, critical facilities /infrastructure, and public facilities due to landslide. (continued)	
Objective 8.B: Protect existing assets with the highest relative vulnerability to the effects of landslide.	
Action 8.B.1	Study and improve storm drains for landslide prone areas.
Action 8.B.2	Develop, adopt and enforce effective bldg codes and standards.
Action 8.B.3	Seek pre-disaster mitigation funding for landsides prevention projects.
Objective 8.C: Coordinate with and support existing efforts to mitigate landslide.	
Action 8.C.1	Review and update plans that would include coordination with cities, special districts and county departments.
Action 8.C.2	Streamline policies to eliminate conflicts and duplication of effort.
Action 8.C.3	Develop and publish evacuation procedures to the public.
Objective 8.D: Address identified data limitations regarding the lack of information about the relative vulnerability of assets from landslide.	
Action 8.D.1	Identify hazard-prone structures through GIS modeling.
Action 8.D.2	Develop and implement hazard awareness program.

Goal 9: Reduce the possibility of damage and losses to existing assets, including people, critical facilities/infrastructure, and public facilities due to floods.	
Objective 9.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to floods.	
Action 9.A.1	Review and compare existing flood control standards, zoning and building requirements.
Action 9.A.2	Identify flood-prone areas by using GIS.
Action 9.A.3	Adopt policies that discourage growth in flood-prone areas.

Goal 9: Reduce the possibility of damage and losses to existing assets, including people, critical facilities/infrastructure, and public facilities due to floods. (continued)	
Objective 9.B: Protect existing assets with the highest relative vulnerability to the effects of floods within the 100-year floodplain.	
Action 9.B.1	Assure adequate funding to restore damaged facilities to 100-year flood design.
Action 9.B.2	Update storm water system plans and improve storm water facilities in high-risk areas.
Action 9.B.3	Ensure adequate evacuation time in case of major hazard event.
Objective 9.C: Coordinate with and support existing efforts to mitigate floods (e.g., US Army Corps of Engineers, US Bureau of Reclamation, California Department of Water Resources).	
Action 9.C.1	Develop a flood control strategy that ensures coordination with Federal, State and local agencies.
Action 9.C.2	Improve hazard warning and response planning.
Objective 9.D: Minimize repetitive losses caused by flooding.	
Action 9.D.1	Identify those communities that have recurring losses.
Action 9.D.2	Develop project proposals to reduce flooding and improve control in flood prone areas.
Action 9.D.3	Acquire properties on floodway to prevent development.
Action 9.D.4	Seek pre-disaster mitigation funding.
Objective 9.E: Address identified data limitations regarding the lack of information about the relative vulnerability of assets from flooding.	
Action 9.E.1	Encourage the public to prepare and maintain a 3-day preparedness kit for home and work.
Action 9.E.2	Increase participation and improve compliance with the National Flood Insurance Program (NFIP).
Action 9.E.3	Develop and implement hazard awareness program.

Goal 10: Reduce the possibility of damage and losses to existing assets, including people, critical facilities/infrastructure, and public facilities due to structural fire/wildfire.	
Objective 10.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to structural fire/wildfire.	
Action 10.A.1	Update the County Consolidated Fire Code every three years.
Action 10.A.2	Develop model Weed Abatement and Fuel Modification Ordinances.
Action 10.A.3	Utilize GIS and the Internet as information tools.
Objective 10.B: Protect existing assets with the highest relative vulnerability to the effects of structural fire/wildfire.	
Action 10.B.1	Standardize Defensible Space Clearance distances.
Action 10.B.2	Establish community-based groups to pilot chipping programs.
Action 10.B.3	Research options to provide low cost insurance to cover landowners who allow prescribed burning on their lands.
Objective 10.C: Coordinate with and support existing efforts to mitigate structural fire/wildfire.	
Action 10.C.1	Establish a continuing wildland fire technical working group.
Action 10.C.2	Develop partnerships for a countywide vegetation management program.
Action 10.C.3	Report annually to the Board of Supervisors on the progress of fire mitigation strategies.
Objective 10.D: Address identified data limitations regarding the lack of information about the relative vulnerability of assets from structural fire/wildfire.	
Action 10.D.1	Identify Urban/wildland fire interface areas.
Action 10.D.2	Use GIS to map fire risk areas.
Action 10.D.3	Implement public education program to address fire dangers and corrective measures.

5.21.2.3 Prioritization and Implementation of Action Items

Once the comprehensive list of jurisdictional goals, objectives, and action items listed above was developed, the proposed mitigation actions were prioritized. This step resulted in a list of acceptable and realistic actions that address the hazards identified in each jurisdiction. This prioritized list of action items was formed by the LPG weighing STAPLEE criteria

The Disaster Mitigation Action of 2000 (at 44 CFR Parts 201 and 206) requires the development of an action plan that not only includes prioritized actions but one that includes information on how the prioritized actions will be implemented. Implementation consists of identifying who is responsible for which action, what kind of funding mechanisms and other resources are available or will be pursued, and when the action will be completed.

The top 10 prioritized mitigation actions as well as an implementation strategy for each are:

Action Item #1: Coordinate the development of a multi-jurisdictional plan.

Coordinating Individual/Organization: Office of Emergency Services (OES) will work together with all 18 Cities to develop the Plan.

Potential Funding Source: FEMA Grants/ General Funds for County and Cities.

Implementation Timeline: 1 Year

Action Item #2: Develop two Multi-hazard Assessment Teams (MAT).

Coordinating Individual/Organization: Department of Planning and Land Use will coordinate and develop Damage Assessment teams.

Potential Funding Source: General Fund/Federal or State Grants.

Implementation Timeline: 1 year

Action Item #3: Update the County Consolidated Fire Code every three years.

Coordinating Individual/Organization: Department of Planning and Land Use (DPLU)

Potential Funding Source: General Fund/Federal or State Grants.

Implementation Timeline: 1 - 3 years

Action Item #4: Promote cooperative vegetation Management Programs that incorporate hazard mitigation.

Coordinating Individual/Organization: OES/ DPLU/ Ag, Weights & Measures (A,W&M) Watershed Management.

Potential Funding Source: General Fund/Federal or State grants

Implementation Timeline: 1 - 3 years

Action Item #5: Publicize and encourage the adoption of appropriate hazard mitigation actions.

Coordinating Individual/Organization: OES/ Media & Public Relations/Information Technology(IT)

Potential Funding Source: General Fund/Federal or State grants.

Implementation Timeline: 1 - 3 years

Action Item #6: Update Building Codes to reflect current earthquake standards.

Coordinating Individual/Organization: Department of Planning and Land Use (DPLU)

Potential Funding Source: General Fund/Federal or State Grants.

Implementation Timeline: 2 - 5 years

Action Item #7: Review and compare existing flood control standards, zoning and building requirements.

Coordinating Individual/Organization: Department of Public Works (DPW)/ DPLU

Potential Funding Source: General Fund/Federal or State Grants

Implementation Timeline: 1 - 3 years

Action Item #8: Develop a Business Continuity Plan for each county department.

Coordinating Individual/Organization: All five County General Management Groups

Potential Funding Source: General Fund/Federal or State Grants.

Implementation Timeline: 1 - 3 years

Action Item #9: Develop partnerships for a countywide vegetation management program.

Coordinating Individual/Organization: OES/ DPLU/ Ag, Weights & Measures (A,W&M) Watershed Management.

Potential Funding Source: General Fund/Federal or State grants.

Implementation Timeline: 1 - 3 years

Action Item #10: Encourage the public to prepare and maintain a 3-day preparedness kit for home and work.

Coordinating Individual/Organization: OES/ Media & Public Relations/IT

Potential Funding Source: General Fund/Federal or State grants

Implementation Timeline: 1 - 3 years

SECTION 6 PLAN MAINTENANCE

This section of the Plan describes the formal process that will ensure that the Plan remains an active and relevant document. The plan maintenance process includes a schedule for monitoring and evaluating the Plan annually and producing a plan revision every five years. This section describes how the county and cities will integrate public participation throughout the plan maintenance process. Finally, this section includes an explanation of how jurisdictions intend to incorporate the mitigation strategies outlined in this plan into existing planning mechanisms such as the County Comprehensive Land Use Plan, Capital Improvement Plans, and Building Codes.

6.1 MONITORING, EVALUATING AND UPDATING THE PLAN

6.1.1 Plan Monitoring

The HMWG participants will be responsible for monitoring the plan annually for updates to jurisdictional goals, objectives, and action items. If needed, these participants will coordinate through the County OES to integrate these updates into the Plan. County OES will be responsible for monitoring the overall Plan for updates on an annual basis.

6.1.2 Plan Evaluation

The Plan will be evaluated by County OES and by each participating jurisdiction at least every two years to determine the effectiveness of programs, and to reflect changes in land development or programs that may affect mitigation priorities. The Plan will also be re-evaluated by HMWG leads (or their select jurisdictional representative) based upon the initial STAPPLEE criteria used to draft goals, objectives, and action items for each jurisdiction. County OES and city representatives will also review the goals and action items to determine their relevance to changing situations in the county, as well as changes in State or Federal regulations and policy. County OES and jurisdictional representatives will also review the risk assessment portion of the Plan to determine if this information should be updated or modified, given any new available data. The coordinating organizations responsible for the various action items will report on the status of their projects, the success of various implementation processes, difficulties encountered, success of coordination efforts, and which strategies should be revised. Any updates or changes necessary will be forwarded to County OES for inclusion in further updates to the Plan. It is envisioned that the HMWG and each Local Mitigation Planning Team will meet annually to discus the status of the Plan.

6.1.3 Plan Updates

County OES is the responsible agency for updates to the Plan. All HMWG participants will be responsible to provide OES with jurisdictional-level updates to the Plan when/if necessary as described above. Every five years the updated plan will be submitted to COESS and FEMA for review.

6.1.4 Implementation Through Existing Programs

County and local jurisdictions will have the opportunity to implement recommended action items through existing programs and procedures that are deemed appropriate. Upon adoption of the Plan, the multi-jurisdictional participants can use the Plan as a baseline of information on the natural hazards that impact

their jurisdictions. They will also be able to refer to existing institutions, plans, policies and ordinances defined for each jurisdiction in Section 5 of the Plan (e.g., General Plan, Comprehensive Plan).

6.1.5 Continued Public Involvement

County OES is dedicated to involving the public directly in review and updates of the Plan. County OES and a representative from each participating jurisdiction will be responsible for monitoring, evaluating, and updating the Plan as described above. During all phases of plan maintenance the public will have the opportunity to provide feedback.

A copy of the Plan will be publicized and available for review on the County OES website. In addition, copies of the plan will be catalogued and kept at all of the appropriate agencies in the county. The existence and location of these copies will also be posted on the county website. The site will contain contact information for members of the HMWG to which people can direct their comments and concerns. All public feedback will be forwarded to the appropriate jurisdiction for review and incorporation (if deemed appropriate). This information will also be forwarded to County OES, responsible for keeping track of public comments on the plan.

A press release requesting public comments will also be issued after each evaluation or when deemed necessary by the HMWG. The press release will direct people to the website or appropriate local agency location where the public can review proposed updated versions of the Plan. This will provide the public an outlet for which they can express their concerns, opinions, or ideas about any updates/changes that are proposed to the Plan. The County Emergency Services Coordinator will be responsible for using county resources to publicize the press releases and maintain public involvement through public access channels, web pages, and newspapers as deemed appropriate.

SECTION 7 REFERENCES

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SECTION 1: HAZARD MITIGATION WORKING GROUP MEETING AGENDAS AND SUMMARIES

Group Meeting #1: Monday, June 23, 2003, 1:00 PM

Meeting Summary

Herman Reddick (HR) gave an introduction that discussed the working group goals and introduced David Marx (DM).

DM thanked HR and group for their participation and introduced the rest of the URS hazard mitigation team: Diane L Douglas (DLD) as Assistant PM, Brian Sands as Assistant PM for Maricopa County Hazard Mitigation Plan, and Chris Barkley from the Oakland office as FEMA mitigation expert.

DM gave a PowerPoint™ presentation discussing the goals of the San Diego County Multi-Jurisdiction Multi-Hazard Mitigation Plan (Plan), the objectives of DMA 2000, the hazard mitigation planning process and the steps involved in developing the Plan achieving the goals. The presentation included a discussion of the methodology that will be used to develop the Plan for San Diego County.

The presentation also entailed a review of GIS as a tool for identifying and mapping known hazards in SD County, and discussed the need for the working group to network with other people in their city as well as academics and other professionals who might have specialized knowledge on hazards in SD County and the incorporated cities. The presentation reviewed some potential mitigation measures—changing ordinances, building codes, structural retrofits, putting in flood protection/levees, barricades in front of buildings prone to terrorist attacks, etc. DM also discussed the roles of the working group emphasizing the importance of having members from a range of disciplines (e.g. planning, public works, general services, etc.) and the importance of them networking with other professionals in their cities.

A hazard risk identification exercise was conducted to familiarize the Work Group with the approach and concepts that will be utilized in the risk identification phase of the plan development.

The schedule of work group meeting was discussed. The work group will meet every 3 weeks and Monday afternoon was the time preferred by the majority of attendees. The preliminary meeting dates scheduled through December are:

7/14/03	10/6/03
8/4/03	10/27/03
8/25/03	11/17/03
9/15/03	12/8/03

Additional meetings may be scheduled as needed to for the project.

Action Items

URS indicated that a preliminary identification of risks would be developed and presented to the Work Group at the next meeting. It is envisioned that a number of GIS displays will be presented.

The following three action items were requested of the Work Group members:

1. Each Work Group member was requested to identify a jurisdiction-level Local Mitigation Planning Team. Members might include: decision-makers from police, fire, emergency services, community development/planning, public works, transportation, economic development, public works and emergency response/services personnel within their City. The jurisdiction-level Local Mitigation Planning Team will assist in identifying the specific hazards/risks that are of concern to each City and to prioritize hazard mitigation measures. The member of the Work Group would bring this information to future Work Group meetings. Each City should convene these jurisdiction-level Local Mitigation Planning Teams as soon as possible in order to provide City-specific input to the multi-jurisdictional planning effort and to assure that all aspects of each City's concerns are addressed. In the absence of input from an individual City, the Plan to be developed will utilize a consensus from the Work Group for risk and mitigation priorities for that City.

2. Work Group members were asked to identify potential meeting rooms in their City that could be used for a future Work Group/Public meet in their area.

3. Compile a preliminary list of major disaster/hazard events that have occurred in each jurisdiction in the recent past (at least 25 years, and longer if this information is available). The list should include at a minimum what the event was, when it happened and whether a state-of-emergency was declared (state or federal). If information is available regarding the level of response, costs to respond, and cost of damage caused by the event

Group Meeting #2: Monday, July 14, 2003, 1:00 PM

Agenda

Introductions
Local Mitigation Planning Team
Schedule
- Key Dates/Near-Term, Long-Term

GIS's Role in the Planning Process
- GIS – Definition
- Sources/Matrix
- Limitations of Data

Planning Process – Where Are We Now ?
- Assessing Risks – Steps 1-4
- List of Major Disaster/Hazard Events

GIS – Assessing Risks – Step 1/Identify Hazards

Coastal Storm/Erosion
Dam Failure
Drought
Earthquake
Flood
Hazardous Materials Release
House/Building Fires
Landslide
Nuclear Materials Release
Terrorism
Tsunami
Wildfire
Wind Storm

What's Next ?

Step 2: Profile Hazard Events
Step 3: Inventory Assets
Step 4: Estimate Losses

Next Meeting – Time and Location

Meeting Summary

Herman Reddick gave an introduction that discussed the working group goals and introduced David Marx. Several media representative were present at the meeting as a result of the press release that was issued for the Hazard Mitigation Planning effort on July 9, 2003.

David Marx gave a brief overview of the hazard mitigation planning process because a considerable number of representatives that were not at the first meeting attended this meeting. He explained that the project was in the hazard identification stage and that the focus of the Work Group meeting was to reach consensus as to what hazards should be included in the Plan. Angela Johnson, the URS GIS Coordinator for the project presented the general concept and information that was available for a list of potential hazards. URS presented GIS-generated graphics for each of the hazards identified in San Diego County and each of these hazards was discussed as follows:

Coastal Storm/Erosion: URS presented a map showing areas subject to high winds and surf during coastal storms and coastal areas prone to erosion. A representative from the City of Encinitas brought up the incident that occurred where the house fell down in Encinitas due to erosion and a coastal storm. It was also mentioned about the woman being killed in Encinitas during similar circumstances. The Work Group indicated that this hazard should be profiled for the Plan and that tsunamis should be consolidated into this category because the same communities in the County would be affected.

Dam Failure: URS presented a map showing the dams located in the County. It was mentioned that in addition to dams, some very large water storage tanks are being planned and/or installed in the region and that failure of these structures should be considered as well as dam failures. HR indicated that OES has dam inundation zones map. David Marx indicated that the OES maps would be used unless an individual city provided more current information that the city desired to

be used instead of the OES maps. It was mentioned that El Nino events can affect storm flows—not necessarily a disaster, but it could be. David Marx mentioned that it would be useful to find out at what point dam operators release water when storms are predicted (i.e. 90% or 95%). The Work Group indicated that this hazard should be profiled for the Plan.

Drought/Water Supply: It was mentioned that several jurisdictions have water conservation plans in place. One team member also mentioned that "water" as a resource is really more of the issue category than "drought". There was also a discussion of wells drying up due to excessive draw down. This was generally considered to be a resource management issue and not a hazard mitigation issue. The concept of mapping most "water dependent" resources (e.g. agriculture) was discussed. Some mitigation measures mentioned including covering canals, mandating low-flow faucets, and water conservation plans were also discussed. A concern was also expressed regarding water districts manipulating the water supply, or reallocation of Colorado River Water so less or none came to southern CA.

The Work Group did not reach consensus regarding whether or not drought should be included in the Plan. Work Group members were requested to discuss this with their local teams and report back their opinions at the August 4 meeting.

Earthquake: URS presented a map showing the earthquake zones in the County. The Work Group acknowledged that earthquakes are a major issue in the region and indicated that this hazard should be included in the plan.

Flooding: URS presented a map showing the 100-year and 500-year flood zones in the County. The Work Group acknowledged that floods are a major issue in the region and indicated that this hazard should be included in the plan.

Hazardous Materials: Concerns were express by Work Group members regarding showing maps with hazardous materials users to the public, especially acutely hazardous materials sites for which regulation prevent consolidating on a map for general distribution. URS emphasized that this information would be designated as "For Official Use Only" (FOUO) and would not be made available to the public. David Marx indicated that URS works on many projects for the Department of Homeland Security and FEMA and that URS regularly practices FOUO procedures, including executing confidentiality statements as necessary. The Work Group was reminded that a FOUO policy document was distributed at the June 23, 2003 Work Group meeting and URS requested that the Work Group revisit this policy and suggest any changes that would be necessary. The Work Group agreed that hazardous materials needs to be included in the Plan, but that a mechanism for how to do this without compromising sensitive information needs to be further developed.

House/Building Fire: A member of the Work Group mentioned that houses built before the fire codes went into effect should be considered in the Plan. It was also mentioned that a lack of water availability/pressure could be a factor in determining some areas as "high risk". One member suggested that household and wild fires should be considered together as one hazard category. There was discussion that a fire like the Chicago fire (one where involving extensive structures in an urban setting) would not likely occur except on canyon ridges, and this type of canyon fire

would really be considered a small wild fire. The Work Group concurred that wild fires and structural fires should be addressed in the Plan as one category.

Landslides: URS presented a map showing areas of steep slopes, liquefaction/slide prone areas, as well as known landslide areas in the County. The Work Group acknowledged that landslides should be included in the plan.

Nuclear Material Release: This topic was briefly discussed. The general consensus was that San Onofre and the Department of Defense have their own release prevention and response programs in place. The Plan would address this issue by identifying the mitigation and regulatory programs that are in place for these entities.

Terrorism: The issue of sensitive information was discussed for terrorism as it was for hazardous materials. Several members of the Work Group indicated that including this topic in the plan without compromising sensitive information was essential. This issue will be addressed in future meetings.

Wild Fires: URS presented a map showing open space areas and the location of historic fires in the County. The Work Group acknowledged that wild fires are a major issue in the region that should be included in the plan and that wild fires and structural fires should be consolidated in one category.

Windstorms: The issue of windstorms was discussed and the Work Group indicated that this hazard was not that significant in the County and did not need to be included as a separate category in the plan. Wind impacts related to Coastal Storms would be addressed in the Coastal Storms analysis.

The topic of public involvement was discussed after the potential hazards were compiled. Although several participants recognize the value of public involvement, there was considerable concern that the public would have access to confidential information. David and Herman assured the group that there will be tight control of information and that ultimately all-sensitive information would be handled in accordance with the FOUO policy distributed at the first Work Group meeting.

D.P. Lee expressed some concerns about the aggressive schedule and wanted to know why we were aiming for April 2004 when the plan isn't due until November 2004. David explained that the FEMA review process for mitigation plans was new, and therefore the plan needs to be submitted on a schedule that allows time for Plan review by FEMA and revisions so that the revised plan would be complete prior to November 2004.

Action Items

Public works department to provide flood data if desired.

1. Worksheets 1 and 2 (Inventory of Assets – Confidential/Non-Confidential). Members were also asked to go back to their jurisdictions and find out whether drought should be included in the program.

2. Individual jurisdictions may add a level of detail to the fire and hazard analyses to be included in the plan by providing City-specific information.

- **Fire** - Useful information would include areas predominantly containing structures built before fire code went into effect, areas that have a high concentration of structures that are considered "high risk", and areas without adequate water or water pressure to fight fires by local fire agencies.
- **Flood** - Public Works Department to provide flood data if desired.

Each City was requested to provide this information for their City if they desired it to be included in the Plan. URS requested that the Cities advise URS if this information would be forthcoming for each jurisdiction.

After meeting comments:

It was noted that some of the jurisdictional boundaries on the maps were incorrect. These will be updated with SanGIS data. Fire Chief Larry Webb requested 11x17s and .pdf versions of his jurisdictions hazards be sent to him. He also mentioned that his city and 4 others recently installed a new emergency response system. It has past incidents, areas that are targeted for future incidents and more. He indicated that the contact for this information is Charlie Knust.

A representative from the City of Chula Vista noted that the Division of Mines and Geology has recently updated fault line data for southern California. He also mentioned that liquefaction from earthquakes was a concern in Chula Vista. It should be noted the recent information from the California Division of Mines & Geology has already been incorporated into the GIS data layers for this project.

Group Meeting #3: Monday, August 4, 2003, 1:00 PM

A G E N D A

Introductions
Schedule
Key Dates/Near-Term, Long-Term
Collect Homework Assignments/Action Item Status
Planning Process – Where Are We Now?
Assessing Risks – Steps 1-4
Step 2 - Profiling Hazards
GIS – Assessing Risks – Step 2/Profile Hazards
Coastal Storm/Erosion/Tsunami
Dam Failure
Drought (Do we include?)
Earthquake
Flood
Fire – Wildfire/Structure Fire
Landslide
For Official Use Only Profiling
Hazardous Materials Release

Nuclear Materials Release
Terrorism

What's Next?

Step 3: Inventory Assets
Step 4: Estimate Losses

Homework Assignments

Next Meeting – Time and Location

Meeting Summary

Herman Reddick gave an introduction that discussed the working group goals and introduced David Marx, Angela Johnson, and Theresa Miller from the URS Team. Each of the present work group team members identified themselves and the jurisdictions/agencies they were representing.

David Marx gave a brief overview of the hazard mitigation planning process. He explained that the project is in the hazard profiling stage and that the focus of the Work Group meeting was to reach consensus as to methodologies utilized in profiling each of the identified hazards and to provide updated jurisdictional information where possible. Marx discussed the project schedule and key dates mentioning that the meeting on September 15th would be a half-day discussion from 11am-5pm. This meeting will break down into jurisdiction focus groups and the initial goals, objectives and mitigation strategy for each jurisdiction would be developed. In addition to the Point of Contact (POC), representatives from each jurisdiction's local planning team were encouraged to attend this meeting. A web address (www.fema.gov/fima/planhowto.shtm) was given out and members were encouraged to read FEMA's How-To-Guides 2 and 7 to help familiarize themselves with the project and their role in the process.

Marx discussed that the group was in the planning process, noting that the asset inventory and loss estimation phases of the risk assessment as well as the capabilities assessment and goals & objectives portions of the mitigation plan itself were upcoming. A display board was presented that identified all action items/homework assignments to date. This table will be updated and e-mailed by URS to the work group team members to help jurisdictions track their participation in the planning process.

Angela Johnson presented the profiling methodologies for each of the hazards, discussing the data used for analysis. URS presented GIS-generated display boards for each of the hazards identified in San Diego County and each of these hazards was discussed as follows:

> **Coastal Storm/Coastal Erosion/Tsunamis:** URS presented a map showing historic tsunami events, coastal erosion data, historic shoreline data, FEMA flood data, wind zone information, drain locations, and low-lying topographic areas that would be most susceptible to coastal flooding. A shoreline assessment study generated by SANDAG and the California Department of Boating and Waterways was discussed as it contained a breakdown of the entire coastline in shoreline risk assessment categories of high, moderate, and low risk. A GIS aerial of Moonlight Beach in Encinitas was shown and discussed in detail since a detailed erosion study had been conducted by the US Army Corps of Engineers (ACOE) for this area. Members were encouraged to forward any similar detailed studies to URS for inclusion in the profiling.

Marx requested that representatives form each city along the coast check to see if other coastal or wave run-up studies have been conducted (or data compiled) in their jurisdictions by their planning, public works departments or others. He requested that any studies that have been conducted and are available be provided. He also mentioned that if data is not available for a coastal jurisdiction, conducting a study to better understand wave run-up potential could be a good mitigation measure for some coastal jurisdictions to include in the mitigation plan. A consensus of the group was reached that URS will use the best available data for profiling this hazard category. A question was raised relating to evacuation plans and whether those would/could be considered mitigation measures. It was agreed that they should be included.

Dam Failure: URS presented a map showing dam locations, their inundation areas, their hazard ratings, and whether or not each dam location had an emergency plan in place. It was mentioned that Olivenhain Dam was added to the map and that URS was attempting to obtain the inundation areas associated with this new project. There was a question raised as to the hazard ratings and how they were determined. Johnson stated that this was a FEMA-defined category and gave FEMA's definitions for each including high/significant/and low rating definitions. It was discussed whether or not these ratings could be updated/changed. One local jurisdiction felt their hazard ratings were incorrect and mentioned that they would contact the state to resolve and report back to the work group their findings. Marx mentioned that it might be helpful to break this map into water district categories and have each district report back any inconsistencies. This was added to the action items list for the URS team.

It was mentioned that large water tanks were not added to the map for consideration in this category because a good county database was not available. Jurisdictions were therefore encouraged to add these tanks to their inventoried assets lists if they wished them to be considered in this hazard profiling. A question was raised as to what would be considered "large" for purposes of inclusion and Marx stated that "anything large enough to cause worry for collateral damage" should be included. This was added to the jurisdictional action items list as an optional task.

Drought/Water Supply: Drought was again discussed as a possible hazard category for inclusion. It was mentioned that although there is some data available relating to this category (e.g. average precipitation rates, climate zones, land use data, drought severity index maps, and crop moisture index maps); "drought" as a category was difficult to profile. It was again mentioned that the issue was "water" not "drought" and that there were several local water conservation plans already in place within the County. It was also mentioned that most of the water used in the County was imported and that individual jurisdictions have limited ability to influence this.

A question was raised as to whether or not FEMA money could cover interruption to business (e.g. agricultural fields dry up and lose money due to drought). Marx stated that he was not aware of FEMA funds being awarded to business interruption losses, but it was added to the URS action items list to be researched. It was concluded by the work group that if FEMA covers this, drought would be included as a hazard category; if not, drought would be dropped from the hazard list.

Earthquake: URS presented a map showing fault zones, peak ground acceleration rates, and landslide/liquefaction areas. Soil information was also included in the profiling but not shown on the map. US Geological Survey (USGS) Peak Ground Acceleration (PGA) ratings as well as local PGA ratings were discussed in detail. Marx explained that during an earthquake damage would occur via one of two mechanisms; (1) the ground shaking would cause damage directly to structures if the shaking is severe enough, and (2) groundshaking would cause landslides or liquefaction that would damage structures. He posed the question to the group whether or not to use as a mitigation planning level 0.4 PGA (a level where significant structural damage would be expected) for ground shaking or a more conservative 0.3 level. The issue of using the USGS zone boundaries or boundaries developed in local studies was also discussed. It was also mentioned that profiling for this category will be handled in the GIS loss estimation tool, HAZUS as recommended by FEMA. Miller mentioned that updated earthquake shaking potential maps were being released in hard copy format only. It was mentioned that this information, when obtained, would be incorporated into the profiling. The group indicated that the more conservative values and boundaries should be utilized as appropriate.

Flooding: URS presented a map showing the FEMA flood information for the county. FEMA breaks down the county into high, moderate, and low risk category areas utilizing the 100-yr and 500-yr flood zones as break points. It was noted that the FEMA flood information utilized in the profiling was obtained through SanGIS. The consensus of the work group was that the FEMA flood mapping was generally good and should be utilized. A question was raised that the date of this information could have been updated recently to include local updates. URS added this to their action items list to contact SanGIS and make sure the data being utilized is FEMA's most current available data.

Wildfire/Structure Fire: URS presented a map showing the wildfire hazard level threat for the entire county. This model, generated in January of 2003 by the California Department of Forestry - Fire and Resource Assessment Program (CDF-FRAP) incorporates fire frequency as well as potential fire behavior. Included in this modeling was a breakdown of the county by surface fuel categories. A fuel-ranking model was also an input data source for this overall "threat" model. The fuel ranking methodology included vegetation, topography, weather, wind speed, humidity, temperature, fuel moisture, and slope. It was determined that this was the most complete, accurate, and detailed information available for the entire county and thus would be utilized in the profiling. Historic fire information was also obtained from the USDA Forest Service as well as the Fire Sciences Laboratory. Local jurisdictions were again encouraged to provide jurisdiction-level fire information if they wished it to be included. It was noted that although the map targets "wildfire", structure information would be included in the next portion of the risk assessment and loss estimations would be inclusive of this information. Marx mentioned that a URS action-item was to create jurisdiction-level vulnerable resource and asset maps with this fire threat information included.

Landslides: URS presented a map showing zoned earthquake faults, soil-slip susceptibility information, geohazard information (e.g. landslide/liquefaction/ and slide prone formation areas), high and low liquefaction areas, steep slope areas, historic landslide events, and existing structural information. It was mentioned by a geologist in the work group that the information in

maps by Tan does not appear to be included. URS added to their action items to research this. Marx encouraged jurisdictions to identify any areas in their region that were susceptible to landslides if they were not already identified on the map.

FOUO Profiling: Marx discussed the three hazard categories that will be profiled separately. Hazardous Materials Release, Nuclear Materials Release, and Terrorism will be handled in a separate "For Official Use Only" appendix to the overall mitigation plan. Manmade hazards including modes of contamination, types of hazards, and extent of contamination will also be addressed in this separate appendix. It was also noted that there are several local plans that discuss these hazard categories in detail. They will be referenced in this appendix rather than duplicating efforts in this plan.

The meeting concluded with a discussion of what's upcoming in the planning process. It was mentioned that URS is in the process of receiving updated asset inventory lists for the county and will generate jurisdictional maps of this information as soon as it is incorporated into the URS GIS repository. When discussing asset inventory, it was mentioned that the City of San Diego have Unreinforced Masonry (URM) building maps and that the City of San Diego lead Ali Fattah should be contacted to obtain this information. URS added this to their action item list.

URS passed out 2 handouts, which will be emailed, to the workgroup. One is a capability assessment worksheet, the other an insert from the FEMA How-to Guide that describes the jurisdiction's role for this portion of the project (Capabilities Assessment/Goals & Objectives). The next meeting will be held at the OES office at 1:00pm on Monday, August 25, 2003.

Action Items

- URS will email to work group copies of the Action Items Worksheet. Jurisdictional representatives will review and update if necessary.
- Work Group members in areas along the coast were requested check with their jurisdiction's to identify if coastal erosion or wave run-up studies have been conducted. If available, these studies should be forwarded to URS for inclusion in the Coastal Storm/Coastal Erosion/Tsunami profiling.
- URS will breakdown dam information by water district for updates and inclusion in the dam failure profiling.
- URS to include Olivenhain Dam inundation areas if provided by the water district.
- Jurisdictions to provide URS with the size and location of any water storage tanks that are large enough to cause collateral damage that the jurisdiction is concerned about from a disaster perspective. These tanks will be included in the dam failure profiling.
- URS to research FEMA funding as it relates to losses due to drought.
- URS to obtain and incorporate latest USGS earthquake shaking potential mapping.
- URS to research FEMA data being utilized and update with the most current data for coastal and flood profiling.

- URS to create jurisdictional-level asset maps with overlays for flood, fire, earthquake, and landslide profile information.
- URS to research and incorporate "TAN" landslide information into landslide hazard profiling.
- Jurisdictions to identify areas susceptible to landslides that are not already identified on the profiled map and provide them if they would like them to be considered in the Plan.
- URS to receive and incorporate latest asset inventory information for jurisdictional-level mapping.
- URS to research URM building maps, obtain, and incorporate into landslide profiling if possible.
- Jurisdictions to complete and return Capability Assessment worksheet.

After meeting comments:

Several representatives requested copies of their local jurisdiction maps. Once the updated inventory of assets is received, URS will incorporate this information onto jurisdictional-level hazard profile maps and distribute to each of the jurisdictions.

Group Meeting #4: Monday, August 25, 2003, 1:00 PM

A G E N D A

Introductions
Schedule
- Key Dates/Near-Term, Long-Term

Collect Homework Assignments/Action Item Status
Assessing Risk
- Inventory Assets
- ArcExplorer Tool
- Estimate Loss

Developing the Mitigation Plan
- Assess Mitigation Capabilities
- Develop Goals and Objectives

What's Next?
- Identify and Prioritize Mitigation Measures
- Prepare an Implementation Strategy

Homework Assignments
Next Meeting – Time and Location

Meeting Summary

Herman Reddick gave an introduction that discussed the working group goals. David Marx, Angela Johnson, Theresa Miller and Diane Douglas were present from the URS Team. Each of the present work group team members identified themselves and the jurisdictions/agencies they were representing.

David Marx gave a brief overview of the hazard mitigation planning process. He explained that the project just passed the risk assessment stage and was in the beginnings of the capabilities assessment process. Loss estimation will begin shortly, once all the data needed for the model is acquired from the jurisdictions. Marx discussed the project schedule and key dates, and it was agreed upon by the Work Group that the meeting on September 15th would be a half-day plus discussion from 9am-3pm in Carlsbad. Each jurisdiction was again encouraged to have all of the members of their local planning teams attend. This meeting will break down into jurisdiction focus groups and the initial goals, objectives and mitigation strategy for each jurisdiction would be developed. In addition to the Point of Contact (POC), representatives from each jurisdiction's local planning team were encouraged to attend this meeting.

Risk assessment maps were distributed to each jurisdiction along with a CD that contained GIS files of the base features used to create the maps, critical facilities layer, and a tool to view the files (ArcExplorer). A short time was spent reviewing the maps, and a demonstration on using ArcExplorer was given by Angela Johnson. (It was reported that drought was removed from the plan as a hazard because it was determined that no FEMA funding has ever been allocated for drought-related disasters). Maps for each jurisdiction were distributed showing the hazards and critical facilities in each jurisdiction. The jurisdictions reviewed their maps and asked questions during approximately 30 minutes of the meeting that was allocated for this purpose. Members of the URS team circulated through the room during this period to answer any questions and to provide clarification related to the information/maps distributed.

Jurisdictions were asked to further review the maps in detail and notify URS of changes on any aspect of the maps as soon as possible especially if there were changes to critical facility information. It was discussed that for each jurisdiction, although it may not own certain critical facilities (i.e. post offices, schools, etc.), it is important to understand which facilities are located in the community and plans to minimize impacts related to disasters to facilities throughout the jurisdictions should be included. It was also noted that this plan should help jurisdictions develop coordination and communication with agencies that have facilities in their jurisdiction.

The meeting concluded with a discussion of what's upcoming in the planning process. It was mentioned that URS is in the process of updating hazards and critical facilities for input into HAZUS for the Loss Estimation step. Public workshops are upcoming and Marx opened the floor for requests/suggestions for format of the meetings. It was determined that the Work Group #1 meeting presentation would be tailored to a community workshop presentation.

URS passed out 2 handouts, which will be emailed, to the workgroup. One is the goals and objectives worksheet #4, and the other is an example of a Mitigation Plan, with an excerpt from the How-to Guide called Example of Goals and Objectives. The next meeting will be held in Carlsbad at 9:00am on September 15, 2003.

Action Items

- URS will email to work group copies of the Action Items Worksheet, and all Worksheets in excel or Word format. Jurisdictional representatives will review and update if necessary.
- URS will send the PowerPoint presentation from Work Group #1 to jurisdictions for their use in educating the City Councils about the Hazard Mitigation Plan.
- URS will send portions of results of preliminary loss estimations to jurisdictions before the next meeting as they become available.
- URS will tabularize critical facilities that fall within each hazard category (e.g. high, moderate, low); this will be sent to the Work Group when completed.
- URS to incorporate "TAN" landslide information into landslide hazard profiling.
- Jurisdictions to review profiling maps, including critical facility information, and contact URS with updates/changes.
- URS will incorporate jurisdictional information on critical facilities and include in profiling.
- Jurisdictions to complete and return Goals and Objectives worksheet.
- Jurisdictions to prepare preliminary list of mitigation measures for each hazard in their respective jurisdiction and bring with them to the upcoming meeting.

Group Meeting #5: Monday, September 15, 2003, 10:00 AM

A G E N D A

Schedule/Planning Process
Vulnerability Assessment/ Loss Estimation
Break
Workshop
Jurisdictional Vulnerabilities
Capability Assessment
Lunch
Goals and Objectives
Actions
Homework Assignment

Meeting Summary

Herman Reddick welcomed the group and introduced URS. David Marx, Angela Johnson and Diane Douglas were present from the URS Team. D. Marx asked how many were participating in the working group for the first time and several raised their hands. Because several members were new, David provided a brief review of the hazard mitigation planning process and gave overview of what we were trying to accomplish today. He noted that the Draft Risk Assessment and Introduction Section of the plan would be ready for submittal soon. David went over the overall organization of the plan, noting that the plan organization closely followed the hazard profile layers depicted on the GIS maps. The greatest concern expressed by the group seemed to be the final format for the plan—they wanted to know the level

of detail they were required to provide in their exercises/worksheets as well as on their map corrections. Evidently some critical facilities were incorrectly plotted, and were off by a few blocks. David stated that as long as the designation for the critical facilities was consistent the plan should be okay (i.e. fire stations plotted off by a few block but still in the appropriate hazard category (low hazard or high) was adequate). In other words, exact street address accuracy need not be considered when they are proofing GIS maps.

D. Marx went through the presentation on a step-by-step basis—stopping after he gave an introduction to each exercise to allow the group time to work through the exercise.

Much of the day was spent with the group actively working through the worksheets needed to complete the plan. For each exercise, David gave a brief presentation that explained the relevant worksheet and its intent. Then David, Diane and Angela roamed the room answering questions as the groups filled out their sheets. It was not anticipated the sheets would be completed today, but the workshop was designed to give the group a good handle on the type of data/information that what was expected so they could complete the worksheets in the upcoming weeks. The group took worksheets with them to complete by the end of October.

Action Items

- Hermann asked the working group to hand in the CDs with SANGIS data and delete any of their downloads
- October 31 – due date for worksheets handed out today
- User-friendly electronic copies of worksheets in .doc and .xls will be emailed to Herman for distribution to the group.

Group Meeting #6: Monday, December 8, 2003, 1:00 PM

A G E N D A

Jurisdictional Progress on Worksheets

Worksheet #1/Current Jurisdictional Vulnerabilities
Worksheet #2/Future Jurisdictional Vulnerabilities
Worksheet #3/Capabilitiy Assessment
Worksheet #4/Preliminary Goals & Objectives
Worksheet #5/Preliminary Actions
Worksheet #6/STAPLEE Criteria Worksheets

New Long-Term Key Dates

Changing Needs to the Plan as a Result of the Fires
Public Meeting Dates and Locations
Reminder to Complete Homework Assignments

Meeting Summary

Herman Reddick welcomed the group and introduced URS. David Marx and Angela Johnson were present from the URS Team. Herman then asked each member present to identify him/herself and the

jurisdiction they were here representing. After introductions were made, Herman went on to briefly explain where we were at in the overall planning process in light of the San Diego Firestorms in October. FEMA has issued a month reprieve on the document submittal, so Herman indicated that the worksheet due dates for the jurisdictions would be moved from November 25th to December 24th.

David then led a round-table discussion asking municipalities to comment on the items they had identified in their worksheets (specifically Goals, Objectives, and Action items) and whether, in light of the recent fires, these had been influenced. Several jurisdictions spoke up (including Poway, Solana Beach, the City of San Diego, and Escondido) explaining that their plans had actually identified measures that they had indeed run into during the Firestorms (e.g. brush management issues). Several agreed that, although the homework assignments given for this project have been tedious, they have been a big help in defining jurisdictional level goals, objectives and mitigation measures to include in the overall plan.

Several of the jurisdictions went on to explain that they have already contacted and met with their Board of Supervisors/City Managers to get them on-board with the project and the decisions that have been made by the planning team members up to this point. Poway, Escondido, and Solana Beach mentioned they already had scheduled dates to present their preliminary goals, objectives, and action items at scheduled City Board Meetings.

David reiterated that all jurisdictions need to run this information by their Boards and City Managers for approval and complimented those jurisdictions that had already done so. David went on to ask each jurisdiction where they were at in completing the six required homework assignments and mentioned the jurisdictions (Solana Beach, Escondido, and the City of San Diego) that received gold stars for completing all of their homework to date. The County of San Diego, National City, and Poway were also complimented for completing and handing in most of their homework assignments to URS.

Representatives from the City of Solana Beach, the City of San Diego, and the City of Poway addressed the room and gave examples of their completed work and offered help to others who might have questions. It was noted that neighboring jurisdictions should also, if possible, review each other's goals, objectives and action items so that they are aware of what each is doing. It was expressed that certain goals might be more geographic in nature and therefore could be addressed by neighboring jurisdictions in a similar manner in all plans for continuity.

David then led further discussion about the changes the plans will need to make as a result of the October Fires. Most jurisdictions agreed that the fires were of no real consequence to the more general action items that had been identified previous to the recent disasters and agreed that their goals, objectives, and action items would remain relatively unchanged. David did note that the hazard identification/risk assessment portions of the Hazard Mitigation Plan itself would have significant updates including changes to the mapping efforts for several hazard categories, including fire, flood, and landslide.

Public Meeting Dates were then discussed including the format, number of interested parties, locations and times of these meetings. Several jurisdictions offered up their facilities for meeting locations including San Marcos, Poway, Carlsbad, Chula Vista, and El Cajon. It was also suggested that a pre-briefing meeting be held for members of the press dating a couple of weeks before the public meetings to help get the right message across to the public. Mr. Marx asked that jurisdictions contact URS about the

dates of January 20-22nd (Tues-Thru) as well as the following week, January 27th-29th about possible public meeting dates locations/times. It was decided that the meetings would be held to cover geographic regions including (North County, East County, South Bay, San Diego North, and San Diego South). The meeting times would most likely be held in the evenings from 5-7pm or 6-8pm. Regional hazard maps without critical facilities would be shown as well as a PowerPoint presentation for prospective attendees.

The discussion of public meeting dates rolled into the overall plan Key Dates. Copies of the revised Key Dates were handed out to each participant.

The meeting was concluded with several jurisdictions asking for copies of blank homework assignments as well as a copy of the CD URS produced containing digital versions of all required homework assignments. Copies of the County of San Diego, Escondido, Solana Beach, as well as the City of San Diego's goals/objectives/action item homework assignments were passed out as examples for requesting jurisdictions.

Action Items

Hermann asked the working group to email digital versions of all homework assignments to URS by December 24th.
Jurisdictions were to respond back via email to Herman and URS about meeting location dates/times as well as location availabilities.

SAN DIEGO COUNTY OFFICE OF EMERGENCY SERVICES
Hazard Mitigation Working Group (HAZMITWG)
June 23, 2003

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SAN DIEGO COUNTY OFFICE OF EMERGENCY SERVICES
Hazard Mitigation Working Group (HAZMITWG)
June 23, 2003

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SAN DIEGO COUNTY OFFICE OF EMERGENCY SERVICES
Hazard Mitigation Working Group (HAZMITWG)
June 23, 2003

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SAN DIEGO COUNTY OFFICE OF EMERGENCY SERVICES
Hazard Mitigation Working Group (HAZMITWG)
June 23, 2003

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SAN DIEGO COUNTY OFFICE OF EMERGENCY SERVICES
Hazard Mitigation Working Group (HAZMITWG)
June 23, 2003

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SAN DIEGO COUNTY OFFICE OF EMERGENCY SERVICES
Hazard Mitigation Working Group (HAZMITWG)
July 14, 2003

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SAN DIEGO COUNTY OFFICE OF EMERGENCY SERVICES
Hazard Mitigation Working Group (HAZMITWG)
July 14, 2003

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please Herman so did not put this name in

SAN DIEGO COUNTY OFFICE OF EMERGENCY SERVICES
Hazard Mitigation Working Group (HAZMITWG)
July 14, 2003

SIGN-IN SHEET

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R 39	HOWARD RAYON	SANTEE FD	10601 MAGNOLIA	619 258-4100	
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SAN DIEGO COUNTY OFFICE OF EMERGENCY SERVICES
Hazard Mitigation Working Group (HAZMITWG)
August 4, 2003

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SAN DIEGO COUNTY OFFICE OF EMERGENCY SERVICES
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Michele Masterson	City of Carlsbad		760 602-4615	
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SAN DIEGO COUNTY OFFICE OF EMERGENCY SERVICES
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Hazard Mitigation Working Group (HAZMITWG)
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La Mesa	Greg McAlpine	Fire Department	gmcalpine@ci.la-mesa.ca.us	619-667-~~1355~~ 1474	GM already
Lemon Grove	Jon Torchia	Fire Department	jtorchi@smgfire.org	619-660-0533	
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Santee	Howard Rayon	Fire Department	HRAYON@CI.SANTEE.CA.US	619-258-4100	
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Hazard Mitigation Working Group (HAZMITWG)
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SAN DIEGO COUNTY OFFICE OF EMERGENCY SERVICES
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X	Jon Tonelitia	Lemon Grove	—	—	—
X	Larry Trame	San Diego	1010 2ND St Ste 300 SD CA 92101	619 533 4445	LTRAME@SANDIEGO.GOV
X	Tim Le Fev	San Miguel ✓	2850 Via Orange way S.V.	619-660-5353	
X	Dave Miller	Santee	10601 MAGNOLIA	619 258-4100	
X	Ralph Steinhoff	DPLU County	5201 Ruffin Rd	858 495-5092	ralph.steinhoff@sdcounty.ca.gov
already	Scott Hausen	San Marcos			
already	Michele Masterson	Carlsbad	1635 Faraday Ave	760 602-4615	
already	Kenny Prue	SDSO	1745 N. MARSHALL AVE. EL CAJON	619 956 4960	Ken.Prue@sdsheriff.org
X	AL KAYNE	SDSO	1745 N. MARSHALL AV EL CAJON	619 956 4960	
already	Brad Long	County of SD	1255 Imperial SD.	619 338-2216	—
X	GREG McALPINE	LA MESA	8054 ALLISON LM 91941	619 667-1474	gmcalpine@ci.la-mesa.ca.us
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SAN DIEGO COUNTY OFFICE OF EMERGENCY SERVICES
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	Kurt Mussell	City of Carlsbad	5950 El Camino Real	760 438 2722	kmuss@ci.carlsbad.ca.us
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already	Jim Yoke	Red Cross	3650 Fifth Ave. S.D. 92103	619-542-7608	yoke@sdarc.org
already	Rob Dunkin	Oceanside	300 N. Coast Hwy		
	~~Carlos Bejar~~	~~City of CV~~	~~447 EST~~		
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SAN DIEGO COUNTY OFFICE OF EMERGENCY SERVICES
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SAN DIEGO COUNTY OFFICE OF EMERGENCY SERVICES
Hazard Mitigation Working Group (HAZMITWG)
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Group Front Table A/B

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Hazard Mitigation Working Group (HAZMITWG)
September 15, 2003

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SAN DIEGO COUNTY OFFICE OF EMERGENCY SERVICES
Hazard Mitigation Working Group (HAZMITWG)
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SAN DIEGO COUNTY OFFICE OF EMERGENCY SERVICES
Hazard Mitigation Working Group (HAZMITWG)
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SAN DIEGO COUNTY OFFICE OF EMERGENCY SERVICES
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SAN DIEGO COUNTY OFFICE OF EMERGENCY SERVICES
Hazard Mitigation Working Group (HAZMITWG)
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SAN DIEGO COUNTY OFFICE OF EMERGENCY SERVICES
Hazard Mitigation Working Group (HAZMITWG)
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SAN DIEGO COUNTY OFFICE OF EMERGENCY SERVICES
Hazard Mitigation Working Group (HAZMITWG)
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SAN DIEGO COUNTY OFFICE OF EMERGENCY SERVICES
Hazard Mitigation Working Group (HAZMITWG)
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SAN DIEGO COUNTY OFFICE OF EMERGENCY SERVICES
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SAN DIEGO COUNTY OFFICE OF EMERGENCY SERVICES
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SAN DIEGO COUNTY OFFICE OF EMERGENCY SERVICES
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Paul Smith	Imperial Beach Fire Dept.	865 I.B. Blvd.	619 423-8223	psmith@cityofib.org

SAN DIEGO COUNTY OFFICE OF EMERGENCY SERVICES
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SAN DIEGO COUNTY OFFICE OF EMERGENCY SERVICES
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SIGN-IN SHEET

NAME	AGENCY	ADDRESS	PHONE	E-MAIL
KURT MUSSER	CITY OF CARLSBAD	5950 EL CAMINO REAL	760 438-2722	kmuss@ci.carlsbad.ca.us
Joe Garuba	City of Carlsbad	1200 Carlsbad Village DR.	760 434 2893	
Michele Masterson	City of Carlsbad	1635 Faraday Ave Carlsbad, CA 92008	760-602-4615	mmaster@ci.carlsbad.ca.us
KARL von Schlieder	CITY of CARLSBAD	"	760 602 2434	Kvons@ci.carlsbad.ca.us

SAN DIEGO COUNTY OFFICE OF EMERGENCY SERVICES
Hazard Mitigation Working Group (HAZMITWG)
September 15, 2003

SIGN-IN SHEET

NAME	AGENCY	ADDRESS	PHONE	E-MAIL
Dave Scherer	Del Mar	1050 Camino Del Mar	858 755-3294	dscherer@delmar.ca.u
Tim Laff	Chief of Lemon Grove	2850 Via Orange Way	619 660-5353	tlaff@smgfire.org
VIC REED	CITY OF ESCONDIDO	201 N BROADWAY ESC. CA 92025	760 839-5400	Vreed@ci.escondido.ca.us
Kirk Ammerman	CITY OF CHULA VISTA			
Carlos Began	✓			
Michele Masterson	Carlsbad	1635 Faraday	602-4615	
TOM EVANS	SHERIFF	845 IMPERIAL BEACH BL. IMPERIAL BEACH 91932	619 498-2423	TOM.EVANS @ SDSHERIFF.ORG
R. DeBoo	"	"	(619) 498-2419	
JON BRINDLE	CITY OF Escondido	201 N BROADWAY	760 8394543	jbrindle@ci.escondido.ca.us
JOE RUSSO	" " "	"	760 839-6372	jarusso@ci.escondido.ca.us
Angela Froelich	" "	"	760 839-4038	afroelich@ci.escondido.ca.us
Cary Stewart	City of Santee	10601 Magnolia Ave 92071	6192584100	cstewart@ci.santee.ca.us
Dave Miller	City of Santee	10601 Magnolia 92071	619-258-4100	Dave.Miller@ci.santee.ca.us

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SAN DIEGO COUNTY OFFICE OF EMERGENCY SERVICES
Hazard Mitigation Working Group (HAZMITWG)
February 23, 2004

SIGN-IN SHEET

NAME	AGENCY	ADDRESS	PHONE	E-MAIL
Dennis Quillen	City of Poway	14467 Lake Poway Rd Poway CA 92064	(858) 679 5405	DQuillen@ci.poway.ca.us
Liz Dean	City Poway	" " "	858 679-5403	edean@ci.poway.ca.us
PAUL SMITH	IMPERIAL BEACH	825 IMPERIAL BCH BLVD I.B. CA 91932	619-628-1488	psmith@cityofib.org
JOE GONZALES	SHERIFF	1745 N. MARSHAL E.C. 92020	619 956-4996	JOE.GONZALES@ SDSHERIFF.ORG
TOM DAVIS	CO. DPW	5469 KEARNY VILLA RD SDCA	858 874-4059	TOM.DAVIS@ SDCOUNTY.CA.GOV
EUGENE RUZZINI	CITY SD	9192 TOPAZ WAY SD 92123	619 980 5357	ERUZZINI@SANDIEGO.GOV
TOM NIKZAD	CITY OF CHULA VISTA	272 F STREET CHULA VISTA	619_6919272	TNIKZAD@ci.chula-vista.ca.us.
Gary Buchholz	City of EL CAJON	100 E. Lexington EL CAJON CA. 92020	619-441-1612	gbuchholz@ci.el-cajon.ca.us
KIRK AMMERMAN	CITY OF CHULA VISTA	1800 MAXWELL RD. CHULA VISTA, CA 91910	619-397-6121	kammerman@ci.chula-vista.ca.u
Dismas Abelman	City of Coronado	1001 Sixth, St. Coronado CA 92118	619.522.7378	Dabelman@coronado.ca.us
ROB DUNHAM	CITY OF OCEANSIDE	OSIDE, CA 300 N. COAST HWY 92054	760-435-4101	RDUNHAM@ci.OCEANSIDE.CA.US
HERMAN REDDICK	COUNTY OES	5555 OVERLAND AVE SAN DIEGO, CA 92123	858 565-3490	Herman.Reddick@SDCOUNTY.CA.GO

SAN DIEGO COUNTY OFFICE OF EMERGENCY SERVICES
Hazard Mitigation Working Group (HAZMITWG)
February 23, 2004

SIGN-IN SHEET

NAME	AGENCY	ADDRESS	PHONE	E-MAIL
DAVID HOLMBERG	DEL MAR & SOLANA BEACH	500 LOMAS SANTA FE	858-720-2410	dholmberg@cosb.org
TED KAKURIS	EL CAJON	100 E. LEXINGTON 92020	619 441-1600	SIXDAYTK@HOTMAIL.COM
Dave Miller	Santee	10601 MAGNOLIA AVE	619-258-4100	davemiller@ci.santee.ca.us
VIC REED	ESCONDIDO	201 N. BROADWAY	760-839-5400	vreed@ci.escondido.ca.us
John Twyman	SAN MARCOS	1 CIVIC CENTER DR	760 744 1050	LWEBB@CI.SAN-MARCOS.CA.US
Lowell GRIMALD	Fire Safe Council	1524 A Graves Ave El Cajon 92021	619 562 0096	Lowell@RCDSANDIEGO.org
Angela Johnson	NRS	1615 Murray Canyon Rd	619.294.9400	ajohnson@nrscorp.com

SECTION 2: PRESS RELEASES AND PUBLIC NOTICES

Public Notice:

COUNTY OF SAN DIEGO

NEWS RELEASE

FOR IMMEDIATE RELEASE
January 12, 2004
Contact: Herman Reddick (858) 565-3490

COUNTY PREPARES HAZARD MITIGATION PLANNING DOCUMENT

Countywide Plan to Cover Natural and Man-made Disasters

A countywide plan that identifies risks posed by natural and man-made disasters – and ways to minimize damage before those disasters occur is currently being prepared by the County of San Diego and representatives from the region's 18 cities (Hazard Mitigation Working Group). The federal Disaster Mitigation Act of 2000 requires all local governments to create such a disaster plan in order to qualify for funding in the future. A grant from the Federal Emergency Management Agency has allowed the County to hire a consultant, URS Corp., to assist in the creation of San Diego County's plan.

The County, assisted by its consultant, is holding a series of workshops to solicit input from the public. The workshops will include a presentation of the risk analysis prepared for the potential hazards that were identified as regionally important to the Hazard Mitigation Working Group. These public workshops will be held at various locations throughout the County over a three-week period as follows:

NORTH COUNTY: Thursday, January 22nd - 5-8 pm
San Marcos Civic Center, 1 Civic Center Drive, San Marcos, 92069

EAST COUNTY: Tuesday, January 27th - 5-8 pm
El Cajon Community Center, 195 E. Douglas Ave., El Cajon, 92020

SAN DIEGO CITY (South): Wednesday, January 28th - 5-8 pm
Valencia Park/Malcolm X Branch Library, Community Room
5148 Market Street, San Diego, 92114

SOUTH COUNTY: Thursday, January 29th - 5-8 pm
Public Works Corporate Yard Lunch Room
1800 Maxwell Road, Chula Vista, CA 91911

SAN DIEGO CITY (North): Wednesday, February 4th - 5-8 pm
Scripps Ranch Branch Library, Community Room
10301 Scripps Lake Drive, San Diego, 92131

"Public input into this process is very important and residents are encouraged to attend the workshops, make comments and ask questions. Without ideas from the public, the plan will not be nearly as effective; we are counting on a high degree of public participation to help shape this plan," said Deborah Steffen, Director of the Office of Emergency Services.

The planning document will focus on potential impacts of disasters such as earthquakes, fires and floods, along with human-caused hazards including terrorist attacks. The plan, once complete must go to the County Board of Supervisors and the respective City Councils for adoption.

San Diego County is one of the first in the State to tackle this planning effort on a regionwide basis, and the County's plan will likely be considered a model for other agencies to follow. Contact Herman Reddick at the Office of Emergency Services [(858) 565-3490] or go to the OES Website: http://www.co.san-diego.ca.us/oes/resources/hazardmit/index.html for more information.

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MEDIA & PUBLIC RELATIONS
1600 PACIFIC HIGHWAY, ROOM 208 • SAN DIEGO, CA 92101

Public Meeting Schedule:

MULTI-JURISDICTIONAL/MULTI-HAZARD MITIGATION PLAN PUBLIC MEETING SCHEDULE

The County of San Diego and all 18 Cities, assisted by its consultant, URS, are holding a series of workshops to solicit input from the public. The workshops will include a presentation of the risk analysis prepared for the potential hazards that were identified as regionally important to the Hazard Mitigation Working Group. These public workshops will be held at various locations throughout the County over a three-week period as follows:

NORTH COUNTY: Thursday, January 22nd - 5-8 pm
San Marcos Civic Center, 1 Civic Center Drive, San Marcos, 92069

EAST COUNTY: Tuesday, January 27th - 5-8 pm
El Cajon Community Center,
195 E. Douglas Avenue, El Cajon, 92020

SAN DIEGO CITY (South): Wednesday, January 28th - 5-8 pm
Valencia Park/Malcolm X Branch Library, Community Room
5148 Market Street, San Diego, 92114

SOUTH COUNTY: Thursday, January 29th - 5-8 pm
Public Works Corporate Yard Lunch Room
1800 Maxwell Road, Chula Vista, CA 91911

SAN DIEGO CITY (North): Wednesday, February 4th - 5-8 pm
Scripps Ranch Branch Library, Community Room
10301 Scripps Lake Drive, San Diego, 92131

"Public input into this process is very important and residents are encouraged to attend the workshops, make comments and ask questions. Without ideas from the public, the plan will not be nearly as effective; we are counting on a high degree of public participation to help shape this plan," said Deborah Steffen, Director of the Office of Emergency Services.

> The planning document will focus on potential impacts of disasters such as earthquakes, fires and floods, along with manmade hazards including terrorist attacks. The plan, once complete must go to the County Board of Supervisors and the respective City Councils for adoption.

San Diego County is one of the first in the State to tackle this planning effort on a region-wide basis, and the County's plan will likely be considered a model for other agencies to follow.

Second Public Notice:

COUNTY OF SAN DIEGO

NEWS RELEASE

FOR IMMEDIATE RELEASE
January 21, 2004
Contact: Herman Reddick (858) 565-3490

COUNTY PREPARES DISASTER PLANNING DOCUMENT

Countywide Plan to Cover Natural and Man-made Disasters

A countywide plan that identifies risks posed by natural and man-made disasters – and ways to minimize potential damage before those disasters occur – is currently being prepared by the County of San Diego and representatives from the region's 18 cities (Hazard Mitigation Working Group). The federal Disaster Mitigation Act of 2000 requires all local governments to create such a disaster plan in order to qualify for funding in the future. A grant from the Federal Emergency Management Agency has allowed the County to hire a consultant, URS Corp., to assist in the creation of San Diego County's plan.

The County, assisted by its consultant, is holding a series of workshops to gather suggestions from the public. The workshops will include a presentation of the risk analysis prepared for the potential hazards that were identified as regionally important to the Hazard Mitigation Working Group. These public workshops will be held at various locations throughout the County over a three-week period as follows:

NORTH COUNTY: Thursday, January 22nd - 5-8 pm
San Marcos Civic Center, 1 Civic Center Drive, San Marcos

EAST COUNTY: Tuesday, January 27th - 5-8 pm
El Cajon Community Center, 195 E. Douglas Ave., El Cajon

SAN DIEGO CITY (South): Wednesday, January 28th - 5-8 pm
Valencia Park/Malcolm X Branch Library, Community Room
5148 Market St., San Diego

SOUTH COUNTY: Thursday, January 29th - 5-8 pm
Public Works Corporate Yard Lunch Room
1800 Maxwell Road, Chula Vista

SAN DIEGO CITY (North): Wednesday, February 4th - 5-8 pm
Scripps Ranch Branch Library, Community Room
10301 Scripps Lake Drive, San Diego

"Public input into this process is very important and residents are encouraged to attend the workshops, make comments and ask questions. Without ideas from the public, the plan will not be nearly as effective; we are counting on a high degree of public participation to help shape this plan," said Deborah Steffen, Director of the Office of Emergency Services.

The planning document will focus on potential impacts of disasters such as earthquakes, fires and floods, along with human-caused hazards including terrorist attacks. The plan, once complete, must be approved by the County Board of Supervisors and the respective City Councils.

San Diego County is one of the first in the state to tackle this planning effort on a regionwide basis, and the County's plan will likely be considered a model for other agencies to follow. Contact Herman Reddick at the Office of Emergency Services at (858) 565-3490 or go to the OES Website: http://www.co.san-diego.ca.us/oes/resources/hazardmit/index.html for more information.

###

MEDIA & PUBLIC RELATIONS
1600 PACIFIC HIGHWAY, ROOM 208 • SAN DIEGO, CA 92101

Report Posted on SignOnSanDiego.com:
http://www.signonsandiego.com/news/uniontrib/sun/metro/news_1m18disaster.html

Disaster plan meetings open to the public

City, County to hold workshop series

UNION-TRIBUNE

January 18, 2004

San Diego County and city officials are holding a series of workshops to ask the public how to guard against damage from a variety of disasters – earthquakes, fires, and floods as well as terrorist attacks.

The ideas are being collected so the county can prepare a written disaster plan and seek federal emergency funding.

"Public input into this process is very important and residents are encouraged to attend the workshops, make comments and ask questions," said Deborah Steffen, director of the county Office of Emergency Services.

“We are counting on a high degree of public participation to help shape this plan,” she said.

The workshops will take place from 5 to 8 p.m. at the following locations:

- North County – Thursday at the San Marcos Civic Center, 1 Civic Center Drive.
- East County – Tuesday, Jan. 27 at the El Cajon Community Center, 195 E. Douglas Ave.
- San Diego City South – Wednesday, Jan. 28 at the Valencia Park/Malcolm X Branch Library Community Room, 5148 Market St.
- South County – Thursday, Jan. 29 at the Public Works Corporate Yard lunchroom, 1800 Maxwell Road, Chula Vista.
- San Diego City North – Wednesday, Feb. 4 at the Scripps Ranch Branch Library Community Room, 10301 Scripps Lake Drive.

Disaster preparedness officials say San Diego County is one of the first in the state to tackle a region wide plan they hope will become a model for other agencies. For more information, visit the Office of Emergency Services Web site at www.co.san-diego.ca.us/oes/ resources/hazardmit/index. html.

Press Release Recipients:

Press releases were sent to the following television stations and newspapers:
City News Service
Fox 6
KBNT
KFMB TV
KGTV
KNSD
KOGO
Telemundo
KSWB
KUSI
Union Tribune
La Prensa San Diego (Bi-lingual newspaper)
North County Times Oceanside
Union Tribune East County
www.Ramona.com
Sign-On San Diego

Individuals associated with the above agencies and other news sources that received copies of public notices:
Cheryl Clark, City News Service
John Culea,
Dan McSwain
David Ogul
Deb Welsh, KOGO
Gig Conaughton
Hannah Hui, Union Tribune
Helen Gao
Jenny Vigil
Joe Hughes
Karen Kucher
Pamela O'Neil
Geoff Patnoe
Paul Krueger
Pauline Repard
Darren Pudgil
Beverly Ragsdale, Ramona.com
Ray Huard, Union Tribune
Roberto Gonzales, Telemundo
Jennifer Stone
Susan Gembrowski
John Weil Joan Wonsley

Section 2: Copy of Comment Sheet/Questionnaire Handed out at Public Meetings:
(See proceeding page.)

County of San Diego Multi-Jurisdictional
Multi-Hazard Mitigation Plan Workshop
Comment Sheet

In an effort to receive your input, please answer the following questions and place sheet in comment box.

1) What City or Jurisdiction do you represent or live in? _____

2) The Hazard Mitigation Working Group (HMWG) identified a number of hazards that are presented in this workshop. Do you agree with this list? If not, why?

_____

_____

_____

_____

_____

3) Natural hazards can have a significant impact on a community, but planning for these events can help lessen the impacts. The following statements will help determine citizen priorities for natural hazard planning. Please tell us how important each one is to you.

Statements	Very Important	Somewhat Important	Neutral	Not Important
A. Protecting private property	❑	❑	❑	❑
B. Protecting critical facilities (e.g. transportation networks, hospitals, fire stations)	❑	❑	❑	❑
C. Preventing development in hazard areas	❑	❑	❑	❑
D. Enhancing the function of natural features (e.g. streams, wetlands)	❑	❑	❑	❑
E. Protecting historical and cultural landmarks	❑	❑	❑	❑
F. Promoting cooperation among public agencies, citizens, non-profit organizations, and businesses	❑	❑	❑	❑
G. Protecting and reducing damage to utilities	❑	❑	❑	❑
H. Strengthening emergency services (e.g. – police, fire, ambulance)	❑	❑	❑	❑

(over)

County of San Diego Multi-Jurisdictional

Multi-Hazard Mitigation Plan Workshop

Comment Sheet (continued)

4) Please check the box that best represents you opinion of the following strategies to reduce the risk and loss associated with natural disasters.

Community-wide strategies	Agree	Neutral	Disagree	Not Sure
A. I support funding public education programs that demonstrate how to reduce risks from potential hazards.	❑	❑	❑	❑
B. I support policies to prohibit development in areas subject to natural hazards.	❑	❑	❑	❑
C. I support the use of tax dollars (federal and/or local) to compensate land owners for not developing in areas subject to natural hazards.	❑	❑	❑	❑
D. I support the use of local tax dollars to reduce the risks and losses from natural disasters.	❑	❑	❑	❑
E. I support protecting historical and cultural structures.	❑	❑	❑	❑
F. I would be willing to make my home more disaster-resistant.	❑	❑	❑	❑
G. I support steps to safeguard the local economy following a disaster event.	❑	❑	❑	❑
H. I support improving the disaster preparedness of local schools.	❑	❑	❑	❑
I. I support developing and maintaining a local inventory of at-risk buildings and infrastructure.	❑	❑	❑	❑

Please write additional comments below. Attach additional sheets if necessary. Your comments are very much appreciated.

_____

_____

_____

_____

_____

_____

_____

_____

County of San Diego Multi-Jurisdictional
Multi-Hazard Mitigation Plan Workshop
January 22, 2004
5:00-8:00 pm
Location: City of San Marcos

SIGN-IN SHEET

Name	City
Mimi Rehwer	San Marcos 92078
Bill Eade	" "
RANDY TERUYA	VISTA
Joanne Mettrick	San Marcos
Joe Garuba	city of Carlsbad
BOB CAMPBELL	COUNCIL - CITY OF VISTA
Michele Masterson	City of Carlsbad
John Berhman	S.D. Union-Tribune
ANNA MARZOUK	BERNARDO HTS EPP
LOWELL GRIMAUD	4517 Cove Rd #2 CARLSBAD CA 92008
KURT MUSSER	CITY OF CARLSBAD
LARRY WEBB	CITY of SAN MARCOS
SCOTT HANSEN	CITY OF SAN MARCOS
KATHRY MARKS	NO COUNTY TIMES
MATTHEW ERNAU	CITY OF SAN MARCOS

County of San Diego Multi-Jurisdictional
Multi-Hazard Mitigation Plan Workshop
January 22, 2004
5:00-8:00 pm
Location: City of San Marcos

SIGN-IN SHEET

Name	City / Agency
Betty M. Rule	San Marcos
Susan Fowler	Julian
Mitch Smith	San Marcos
Jeff Essig	San Marcos
Tom Gallop	Encinitas
Neil Hobbs	Escondido (Fire Dept.)
Dennis Quillen	City of Poway
Nancy Ogrod	Hidden Meadows (unincorporated county)
Robert Frey	Hidden Meadows (County)
Bill Hoffman	Escondido
Tom Doyle	Encinitas
Herman Redick	OES
David Marx	URS
Angela Johnson	URS
Theresa Miller	URS

County of San Diego Multi-Jurisdictional
Multi-Hazard Mitigation Plan Workshop
January 27, 2004
Location: El Cajon Community Center

SIGN-IN SHEET

Name	City
CALVIN J TYLER	EL CAJON (DEHESA)
RUTH D. TYLER	" " "
JERRY BARBER	JESCANSO CA
DAVE SOMES	"
Sue Sizemore	Santee
Royal Magnus	Alpine
Carolyn Kunick	LAKESIDE
GARY BUXHOLZ	City of EL CAJON
ED JARREL	" " " "
Kathy Holmes-Hardy	Unincorporated El Cajon - Rancho San Diego
RON JIMENEZ	LA MESA
Mariella Lassaline	El Cajon
Angela Johnson	URS
Theresa Miller	URS
David Murx	URS

County of San Diego Multi-Jurisdictional
Multi-Hazard Mitigation Plan Workshop
January 27, 2004
Location: El Cajon Community Center

SIGN-IN SHEET

Name	City
Carol Kuske	Santee
Anita Reith	La Mesa
HERMAN REDDICK	COUNTY OF SAN DIEGO
MARK CLARK	" " "
Judy White	EAMESIDE
Nancy Brock	El Cajon
Lora Cafe	County of SD – Wildfire Keenan Project
Barbara LINDI	Jenuel

County of San Diego Multi-Jurisdictional
Multi-Hazard Mitigation Plan Workshop
January 27, 2004
Location: El Cajon Community Center

SIGN-IN SHEET

Name	City
Jill Eifert	Lakeside
DIANE LOWREY	EL CAJON, CA
Randy Ledmare	La Mesa CA

County of San Diego Multi-Jurisdictional
Multi-Hazard Mitigation Plan Workshop
January 28, 2004
Location: Valencia Park / Malcolm X Branch Library

SIGN-IN SHEET

Name	City
Melody Steyer	San Diego
Orelia DeBraal	San Diego
Beth Famiglietti	San Diego - URS
Theresa Miller	URS - San Diego
Angela Johnson	URS
HERMAN REDDICK	COUNTY OF SD - OES
Eugene Kuzzini	CITY SD
D.P. Lee	City of SD

S

County of San Diego Multi-Jurisdictional
Multi-Hazard Mitigation Plan Workshop
January 29, 2004
Location: City of Chula Vista, Public Works Corporate Yard lunchroom

SIGN-IN SHEET

Name	City
Mike Booth	Point Loma
VICTOR MAGALLANES	CHULA VISTA
Barry M. Edwards	Chula Vista
BOB McSEVENEY	CHULA VISTA
PAUL SMITH	IMPERIAL BEACH
Carlos C. Bejan	Chula Vista
Kirk Ammerman	CITY OF CHULA VISTA.
Angela Johnson	LRS
Herman Reddick	County OES

County of San Diego Multi-Jurisdictional
Multi-Hazard Mitigation Plan Workshop
January 29, 2004
Location: City of Chula Vista, Public Works Corporate Yard lunchroom

SIGN-IN SHEET

Name	City
JAMES R. QUINN	CHULA VISTA
Dismas Abelman	Coronado
Theresa Miller	URS
David Marx	URS

County of San Diego Multi-Jurisdictional
Multi-Hazard Mitigation Plan Workshop
February 4, 2004
Location: Scripps Ranch Branch Library

SIGN-IN SHEET

Name	City
Dan Olsen KUSI	SD. CA
EUGENE RUZZINI	CITY SD
Angela Johnson	SD, CA
Theresa Miller	SD, CA
DAVE JOHNSON	SD, CA
Eleonora Barson	Scripps Ranch, S.D.
John Barson	" " , S.D.

County of San Diego Multi-Jurisdictional
Multi-Hazard Mitigation Plan Workshop
February 4, 2004
Location: Scripps Ranch Branch Library

SIGN-IN SHEET

Name	City
Tom Amabile	OES
JANET CHRISTIANSEN	SAN DIEGO
Jim HARMON	" (Rancho Bernardo)
Ralph Stewart	" " "
Dave Haseemyer	SDU-T
Glenda Erdman	San Diego
Dennis Quillen	City of Poway
David Marx	SD / URS

County of San Diego Multi-Jurisdictional
Multi-Hazard Mitigation Plan Workshop
February 4, 2004
Location: Scripps Ranch Branch Library

SIGN-IN SHEET

Name	City
DAVID Ferguson	SAN Diego
Kathy Walsh	San Diego
Susan Pratt	Poway
D.P. Lee	City of SD

APPENDIX B: SAN DIEGO COUNTY HAZARD MITIGATION DATA MATRIX

CATEGORY	Data Layer	Source	Path to in-house data	Aquired (Y/N)	Limitations	Notes
Coastal Storm/Erosion						
	Aerial - 2002	AirPhoto USA	g:\gis\photomapper	y	2 meter pixels - will zoom to 200 scale before degrading	URS owned/2003 coverage available for county for $3,000
	Shoreline Erosion Assessment and Atlas of the San Diego Region Volumes I and II	CA Dept of Boating and Waterways and SANDAG 1994	books	y		
	transportation	HAZUS 99	g:\gis\projects\1577\27653042\support\hazus-99\ca	y		
	utilities	HAZUS 99	g:\gis\projects\1577\27653042\support\hazus-99\ca	y		
	census population	HAZUS 99	g:\gis\projects\1577\27653042\support\hazus-99\ca	y		
	census tracts	HAZUS 99	g:\gis\projects\1577\27653042\support\hazus-99\ca	y		
	windspeed	FEMA	www.fema.gov/mit/bpat/bpn_tsfs.htm			
	Historic shoreline (1914,1916,1934,1960,1972)	NOAA	G:\gis\data\CA\base\NOAA-SD_County_Shoreline	y		
Dam Failure						
	historical data	Sweetwater Authority				Data received from George Silva at the Sweetwater Authority
	Aerial - 2002	AirPhoto USA	g:\gis\photomapper	y	2 meter pixels - will zoom to 200 scale before degrading	URS owned/2003 coverage available for county for $3,000
	dam locations	HAZUS 99	g:\gis\projects\1577\27653042\support\hazus-99\ca	y		
	transportation	HAZUS 99	g:\gis\projects\1577\27653042\support\hazus-99\ca	y		
	utilities	HAZUS 99	g:\gis\projects\1577\27653042\support\hazus-99\ca	y		
	census population	HAZUS 99	g:\gis\projects\1577\27653042\support\hazus-99\ca	y		
	census tracts	HAZUS 99	g:\gis\projects\1577\27653042\support\hazus-99\ca	y		
	dam failure risk levels	HAZUS-MH	g:\gis\projects\1577\27653042\support\hazus-99\ca			
Drought						
	Aerial - 2002	AirPhoto USA	g:\gis\photomapper	y	2 meter pixels - will zoom to 200 scale before degrading	URS owned/2003 coverage available for county for $3,000
	census population	HAZUS 99	g:\gis\projects\1577\27653042\support\hazus-99\ca	y		
	census tracts	HAZUS 99	g:\gis\projects\1577\27653042\support\hazus-99\ca	y		
	average annual precipitation (1961-1990)	CDFG	g:\gis\projects\1577\27653042\support\sd_ann_precip_spn83ftz6.shp	y		
	Climate	SANDAG	g:\gis\data\ca\env\sandag	y		
	AVHRR NDVI Greenness Maps	USFS	http://www.fs.fed.us/land/wfas/wfas11.html	n	online map; not gis data	
	Dead Fuel Moisture Map	USFS	http://www.fs.fed.us/land/wfas/wfas10.html	n	online map; not gis data	
	Keetch-Byram Drought Index	USFS	http://www.fs.fed.us/land/wfas/wfas12.html	n	online map; not gis data	
	Palmer Drought Index	USFS	http://www.fs.fed.us/land/wfas/wfas13.html	n	online map; not gis data	
Earthquakes						
	faults	Woodward Clyde - 1995	g:\gis\data\ca\env\faults_digitized	y	1995 Woodward-Clyde layer - needs to be updated (doing that currently)	faults for all of san diego county
	liquefaction	Woodward Clyde - 1995	g:\gis\data\ca\env\faults_digitized	y	1995 Woodward-Clyde layer - needs to be updated (doing that currently)	liquefaction for western portion of SD County
	landslide	Woodward Clyde - 1995	g:\gis\data\ca\env\faults_digitized	y	1995 Woodward-Clyde layer - needs to be updated (doing that currently)	landslides for western portion of SD County
	Alquist-Priolo Earthquake Fault Zones (EFZ)	Ca Div of Mines & Geology	CDs	y	Only portions of SD - includes only active faults	
	Geology	Ca Div of Mines & Geology	CDs	y	Quad scale/not detailed project level	
	faults layer	SanGIS	g:\gis\data\ca\env\faults_geohazards_SanGIS	y	Covers City of SD only/Accuracy questionable	
	alquist	SanGIS	g:\gis\data\ca\env\faults_geohazards_SanGIS	y	Covers City of SD only/Accuracy questionable	
	geohazards	SanGIS	g:\gis\data\ca\env\faults_geohazards_SanGIS	y	Covers City of SD only/Accuracy questionable	
	Ca faults	FEMA	hazardmaps.gov	n	250:000 scale/national scale	
	Slope	SANDAG	g:\gis\data\ca\base\sandag	y	Only shows above/below 25% slope	
	Soils	SANDAG	g:\gis\data\ca\env\sandag	y		
	Topography (40-ft contours)	SANDAG digitized off USGS	g:\gis\data\ca\base\sandag	y	USGS quad based	
	Aerial - 2002	AirPhoto USA	g:\gis\photomapper	y	2 meter pixels - will zoom to 200 scale before degrading	URS owned/2003 coverage available for county for $3,000
	transportation	HAZUS 99	g:\gis\projects\1577\27653042\support\hazus-99\ca	y		
	utilities	HAZUS 99	g:\gis\projects\1577\27653042\support\hazus-99\ca	y		
	census population	HAZUS 99	g:\gis\projects\1577\27653042\support\hazus-99\ca	y		
	census tracts	HAZUS 99	g:\gis\projects\1577\27653042\support\hazus-99\ca	y		
	essential facilities	HAZUS 99	g:\gis\projects\1577\27653042\support\hazus-99\ca	y		
	Peak Ground Acceleration	USGS	g:\gis\projects\1577\27653042\support\geohazards_website	y	national-level model	http://geohazards.cr.usgs.gov/eq/html/ftpbrow.html
	Deterministic groundmotion	Woodward Clyde - 1995	g:\gis\data\ca\env\faults_digitized	y	model done in 1995; model will most likely be re-run for this project	
	Rose Canyon Scenario Earthquake Peak Ground Acceleration	California Integrated Seismic Network, 2003	g:\gis\data\ca\env\earthquake shakemaps\rosecanyon	y		
Flood						
	floodway	SanGIS from FEMA-FIRM	g:\gis\data\ca\env\FEMA_Flood _Data\San Diego\SanGIS FEMA June 1997	y	Only covers western half of county	
	flood panels	SanGIS from FEMA-FIRM	g:\gis\data\ca\env\FEMA_Flood _Data\San Diego\SanGIS FEMA June 1997	y	covers entire county	
	flood base flood elevations (BFE)	SanGIS from FEMA-FIRM	g:\gis\data\ca\env\FEMA_Flood _Data\San Diego\SanGIS FEMA June 1997	y	Only covers western half of county (could be entire county)	
	flood - 100-yr	SanGIS from FEMA-FIRM	g:\gis\data\ca\env\FEMA_Flood _Data\San Diego\SanGIS FEMA June 1997	y	covers entire county	
	flood - 500-yr	SanGIS from FEMA-FIRM	g:\gis\data\ca\env\FEMA_Flood _Data\San Diego\SanGIS FEMA June 1997	y	covers entire county	
	flood	SanGIS from FEMA-FIRM	g:\gis\data\ca\env\FEMA_Flood _Data\San Diego\SanGIS FEMA June 1997	y	covers entire county	
	Slope	SANDAG	g:\gis\data\ca\base\sandag	y	Only shows above/below 25% slope	
	Soils	SANDAG	g:\gis\data\ca\env\sandag	y		
	Topography (40-ft contours)	SANDAG digitized off USGS	g:\gis\data\ca\base\sandag	y	USGS quad based	
	Vegetation - 1995	SANDAG	g:\gis\data\ca\env\sandag	y	old data - 1995	
	hydrography	TIGER	g:\gis\data\ca\base\san_diego_tiger\hydrography	y		
	hydrology	CDFG	g:\gis\data\ca\cdfg\hydrography	y	albers projection	
	hydrography	CDFG	g:\gis\data\ca\cdfg\hydrography	y	albers projection	
	national wetlands inventory	NWI	g:\gis\data\ca\env\sandag\nwi_wetlands	y		
	lakes	SANDAG	g:\gis\data\ca\base\sandag	y		
	major streams	SANDAG	g:\gis\data\ca\base\sandag	y	does not include any minor streams/tributaries	
	Aerial - 2002	AirPhoto USA	g:\gis\photomapper	y	2 meter pixels - will zoom to 200 scale before degrading	URS owned/2003 coverage available for county for $3,000
	average annual precipitation (1961-1990)	CDFG	g:\gis\projects\1577\27653042\support\sd_ann_precip_spn83ftz6.shp	y		
	Federal water districts	CDFG	g:\gis\projects\58\F0161104\urs\	y		
	Groundwater basins	CDFG	g:\gis\projects\58\F0161104\urs\	y		
	Water tanks	U.S. Border Patrol	g:\gis\projects\58\F0161104\bpatrol	y		
	USGS DEM	USGS	various	y		
	watersheds/subwatersheds	CDFG	g:\gis\data\ca\cdfg\hydrography	y		
	303D Listed Waters	RWQCB	g:\gis\data\ca\env\303d_listed_waters\region9_san_diego	y		
	Existing Land Use - 2000	SANDAG	g:\gis\data\ca\base\sandag\00_land_use	y		
	Proposed Land Use - 2020	SANDAG	g:\gis\data\ca\base\sandag\pllu	y		
	census population	HAZUS 99	g:\gis\projects\1577\27653042\support\hazus-99\ca	y		
	census tracts	HAZUS 99	g:\gis\projects\1577\27653042\support\hazus-99\ca	y		
	transportation	HAZUS 99	g:\gis\projects\1577\27653042\support\hazus-99\ca	y		
	Climate	SANDAG	g:\gis\data\ca\env\sandag	y		
	City of Chula Vista Flood updates	City of Chula Vista				
	City of Carlsbad flood data	City of Carlsbad				
HAZMAT						
	county haz mat sites	County of SD		n	coverage of plumes/impact area only, no sensitive data included	
	Parcel coverage	SanGIS	g:\gis\data\ca\base\sanGIS\landbase\april03\north_county\data	y	covers most of county/only gives owner info	
	Existing Land Use - 2000	SANDAG	g:\gis\data\ca\base\sandag\00_land_use	y		
	Proposed Land Use - 2020	SANDAG	g:\gis\data\ca\base\sandag\pllu	y		
	Aerial - 2002	AirPhoto USA	g:\gis\photomapper	y	2 meter pixels - will zoom to 200 scale before degrading	URS owned/2003 coverage available for county for $3,000
	essential facilities	HAZUS 99	g:\gis\projects\1577\27653042\support\hazus-99\ca	y		
	hazmat	HAZUS 99	g:\gis\projects\1577\27653042\support\hazus-99\ca	y		
	transportation	HAZUS 99	g:\gis\projects\1577\27653042\support\hazus-99\ca	y		
	utilities	HAZUS 99	g:\gis\projects\1577\27653042\support\hazus-99\ca	y		
	census population	HAZUS 99	g:\gis\projects\1577\27653042\support\hazus-99\ca	y		
	census tracts	HAZUS 99	g:\gis\projects\1577\27653042\support\hazus-99\ca	y		
	HIRT response table	County of SD		y		
House/Building Fires						
	Existing Land Use - 2000	SANDAG	g:\gis\data\ca\base\sandag\00_landuse	y		
	Historic SD County Fires	CDF-FRAP	g:\gis\projects\1577\27653042\support\fire_history_spn83fz6.shp	y		
	census population	HAZUS 99	g:\gis\projects\1577\27653042\support\hazus-99\ca			
	census tracts	HAZUS 99	g:\gis\projects\1577\27653042\support\hazus-99\ca			
	essential facilities	HAZUS 99	g:\gis\projects\1577\27653042\support\hazus-99\ca	y		
	Climate	SANDAG	g:\gis\data\ca\env\sandag	y		
	Current Fire Danger Layer	USFS	website	n	a "high" zone	http://www.fs.fed.us/land/wfas/fd_class.gif
	Fire Declared Disaters	FEMA	website	n		
	Wildfire Fuel Model Map	USDA	http://www.fs.fed.us/land/wfas/nfdr_map.htm	y		http://www.fs.fed.us/land/wfas/nfdr_map.htm
	wind conditions	FEMA	www.fema.gov/mit/bpat/bpn_tsfs.htm			
	Federal fire occurrence database	USFS	g:\gis\projects\1577\27653042\support\fires_federal_sdcounty_sp83ft.shp	y	1986-1996 data	
	State fire occurrence database	USFS	g:\gis\projects\1577\27653042\support\fires_statepts_sdcounty_sp83ft.shp	y	1986-1996 data	
	MODIS Active Fire Detections 2001-2003	USFS	g:\gis\projects\1577\27653042\support\activefire_2001(2002,2003)_sp83ft.shp			
	Fire Threat	CDF-FRAP	g:\gis\projects\1577\27653042\support\fire_threat_sdcounty_sp83ft.shp	y	2002 data	
	Fuels: Fuel Rank	CDF-FRAP	g:\gis\projects\1577\27653042\support\fuel_rank_sdcounty_sp83ft.shp	y	2002 data	
	Fuels: Surface Fuels	CDF-FRAP	g:\gis\projects\1577\27653042\support\surfacefuels_sdcounty_sp83ft.shp	y	2002 data	
Landslides/Liquefaction						
	City of Chula Vista liquifaction layer					
	faults	Woodward Clyde - 1995	g:\gis\data\ca\env\faults_digitized	y	1995 Woodward-Clyde layer - needs to be updated (doing that currently)	faults for all of san diego county
	liquefaction	Woodward Clyde - 1995	g:\gis\data\ca\env\faults_digitized	y	1995 Woodward-Clyde layer - needs to be updated (doing that currently)	liquefaction for western portion of SD County
	landslide	Woodward Clyde - 1995	g:\gis\data\ca\env\faults_digitized	y	1995 Woodward-Clyde layer - needs to be updated (doing that currently)	landslides for western portion of SD County
	Alquist-Priolo Earthquake Fault Zones (EFZ)	Ca Div of Mines & Geology	CDs	y	Only portions of SD - includes only active faults	
	Geology	Ca Div of Mines & Geology	CDs	y	Quad scale/not detailed project level	
	faults layer	SanGIS	g:\gis\data\ca\env\faults_geohazards_SanGIS	y	Covers City of SD only/Accuracy questionable	
	alquist	SanGIS	g:\gis\data\ca\env\faults_geohazards_SanGIS	y	Covers City of SD only/Accuracy questionable	
	geohazards	SanGIS	g:\gis\data\ca\env\faults_geohazards_SanGIS	y	Covers City of SD only/Accuracy questionable	
	Ca faults	FEMA	hazardmaps.gov	n	250:000 scale/national scale	
	Slope	SANDAG	g:\gis\data\ca\base\sandag	y	Only shows above/below 25% slope	
	Soils	SANDAG	g:\gis\data\ca\env\sandag	y		
	Topography (40-ft contours)	SANDAG digitized off USGS	g:\gis\data\ca\base\sandag	y	USGS quad based	
	average annual precipitation (1961-1990)	CDFG	g:\gis\projects\1577\27653042\support\sd_ann_precip_spn83ftz6.shp	y		
	Aerial - 2002	AirPhoto USA	g:\gis\photomapper	y	2 meter pixels - will zoom to 200 scale before degrading	URS owned/2003 coverage available for county for $3,000
	census population	HAZUS 99	g:\gis\projects\1577\27653042\support\hazus-99\ca			
	census tracts	HAZUS 99	g:\gis\projects\1577\27653042\support\hazus-99\ca			
	essential facilities	HAZUS 99	g:\gis\projects\1577\27653042\support\hazus-99\ca	y		
	Soil-slip Susceptibility Model	USGS	g:\gis\projects\1577/27653042\support\soil_slip_sp83ftz6.shp	y	Modeled in June 2003	
	landslide-prone areas	URS/PBSJ model	G:\gis\projects\1577\27653042\support\pbsj_modeling\nov_2003\landslide_region.shp			
	Tan Landslide Maps, San Diego County	Tan	hard copy	y	Not entire County, certain quads mostly in urban area; partially digitized into GIS	
	City of Carlsbad liquefaction updates	City of Carlsbad				
Nuclear Materials Release						
	census population	HAZUS 99	g:\gis\projects\1577\27653042\support\hazus-99\ca			
	census tracts	HAZUS 99	g:\gis\projects\1577\27653042\support\hazus-99\ca			
	essential facilities	HAZUS 99	g:\gis\projects\1577\27653042\support\hazus-99\ca	y		
	transportation	HAZUS 99	g:\gis\projects\1577\27653042\support\hazus-99\ca	y		
Tsunami						
	Aerial - 2002	AirPhoto USA	g:\gis\photomapper	y	2 meter pixels - will zoom to 200 scale before degrading	URS owned/2003 coverage available for county for $3,000
	census population	HAZUS 99	g:\gis\projects\1577\27653042\support\hazus-99\ca	y		
	census tracts	HAZUS 99	g:\gis\projects\1577\27653042\support\hazus-99\ca	y		
	transportation	HAZUS 99	g:\gis\projects\1577\27653042\support\hazus-99\ca	y		
	historical tsunami event locations	NOAA	g:\gis\projects\1577\27653042\support\tsuev	y		
	historical tsunami event effects locations	NOAA	g:\gis\projects\1577\27653042\support\tsurun	y		
	Tsunami Maximum Runup and Inundation	CA OES/CSU	G:\gis\data\CA\base\tsunami_runup_data	y		
Wildfire						
	Historic SD County Fires	CDF-FRAP	g:\gis\projects\1577\27653042\support\fire_history_spn83fz6.shp	y		
	Current Fire Danger Layer	USFS	website	n	a "high" zone	http://www.fs.fed.us/land/wfas/fd_class.gif
	Fire Declared Disaters	FEMA	website	n		
	Wildfire Fuel Model Map	USDA	http://www.fs.fed.us/land/wfas/nfdr_map.htm	y		http://www.fs.fed.us/land/wfas/nfdr_map.htm
	SD County Fuel Model	URS	can be generated	n	incorporate and weighting)	
	Vegetation - 1995	SANDAG	g:\gis\data\ca\env\sandag	y	old data - 1995	
	Soils	SANDAG	g:\gis\data\ca\env\sandag	y		
	Topography (40-ft contours)	SANDAG digitized off USGS	g:\gis\data\ca\base\sandag	y	USGS quad based	
	Weather Conditions					
	Climate	SANDAG	g:\gis\data\ca\env\sandag	y		
	wind conditions	FEMA	www.fema.gov/mit/bpat/bpn_tsfs.htm			
	narrow roadways	SanGIS	g:\gis\data\ca\base\sangis	n/y	could be extracted from parcel coverage	
	Existing Land Use - 2000	SANDAG	g:\gis\data\ca\base\sandag\00_landuse	y		
	Wildland Fire Assessment Map	USFS	http://www.fs.fed.us/land/wfas/fd_class.gif	y		
	Fire Potential Index (FPI)	USFS	http://www.fs.fed.us/land/wfas/	y		
	Aerial - 2002	AirPhoto USA	g:\gis\photomapper	y	2 meter pixels - will zoom to 200 scale before degrading	URS owned/2003 coverage available for county for $3,000
	essential facilities	HAZUS 99	g:\gis\projects\1577\27653042\support\hazus-99\ca	y		
	transportation	HAZUS 99	g:\gis\projects\1577\27653042\support\hazus-99\ca	y		
	utilities	HAZUS 99	g:\gis\projects\1577\27653042\support\hazus-99\ca	y		
	census population	HAZUS 99	g:\gis\projects\1577\27653042\support\hazus-99\ca	y		
	census tracts	HAZUS 99	g:\gis\projects\1577\27653042\support\hazus-99\ca	y		
	Federal fire occurrence database	USFS	g:\gis\projects\1577\27653042\support\fires_federal_sdcounty_sp83ft.shp	y	1986-1996 data	
	State fire occurrence database	USFS	g:\gis\projects\1577\27653042\support\fires_statepts_sdcounty_sp83ft.shp	y	1986-1996 data	
	Fire Threat	CDF-FRAP	g:\gis\projects\1577\27653042\support\fire_threat_sdcounty_sp83ft.shp	y	2002 data	
	Fuels: Fuel Rank	CDF-FRAP	g:\gis\projects\1577\27653042\support\fuel_rank_sdcounty_sp83ft.shp	y	2002 data	
	Fuels: Surface Fuels	CDF-FRAP	g:\gis\projects\1577\27653042\support\surfacefuels_sdcounty_sp83ft.shp	y	2002 data	
	City of San Marcos Fire threat updates	City of San Marcos Fire Dept.	G:\gis\projects\1577\27653042\support\jurisdiction_maps\escondido	y	2003 updates/pre-and post October Firestorm	
	City of Escondido Fire Threat updates	City of Escondido	G:\gis\projects\1577\27653042\support\jurisdiction_maps\san_marcos		2003 updates/pre-and post October Firestorm	
	October-November 2003 Fire Perimeters	CDF	G:\gis\data\CA\env\fire_data_sd_2003\merged_perimeters	y		
Windstorm						
	essential facilities	HAZUS 99	g:\gis\projects\1577\27653042\support\hazus-99\ca	y		
	windspeed	FEMA	www.fema.gov/mit/bpat/bpn_tsfs.htm			
	wind conditions	FEMA	www.fema.gov/mit/bpat/bpn_tsfs.htm			

WARNING
KEEP OUT