FINAL DRAFT

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

JANUARY 2010

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Appendices

Appendix A HMWG/Public Meeting Information
Appendix B Data Matrix
Appendix C Letters of Participation
Appendix D Action Item Status 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
CalEMA	California Emergency Management Agency
CAMEO	Computer-Aided Management of Emergency Operations
Carlsbad	City of Carlsbad
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
FEMA	Federal Emergency Management Agency
FPD	Fire Protection District
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	Joint Powers Agreement
JTTF	Joint Terrorism Task Force
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
OES	San Diego County Office of Emergency Services
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
RSFFPD	Rancho Santa Fe Fire Protection District
RTR	Railroad Tracks
RTTAC	Regional terrorism Threat Assessment Center
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 four presidential disaster declarations, three gubernatorial proclamations and thirteen local proclamations of emergency since 1999 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, the Water Authority, the Rancho Santa Fe Fire protection District, the California Emergency Management Agency (Cal EMA) 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 2009 was approximately 3.17 million with a median age of 35 years (California Department of Finance Report E-1: City/County Population Estimates). 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 Association of Governments (SanDAG), San Diego's Gross Regional Product (GRP)–an estimate of the total output of goods and services in the county–was estimated to reach $170.4 billion in 2008, and was forecast to increase 5.4% to $179.6 billion in 2009. The forecast for the consumer price index showed inflation increasing slightly to 1.8% in 2009.

San Diego's abundant and diverse supply of labor at competitive rates is one of the area's greatest assets. As of August 2009, the total civilian labor force was estimated at 1.58 million, which includes self-employed individuals and wage and salary employment. Unemployment for 2008 was 10.3% or 162,400 persons. This is higher than the national rate of 10.0% but significantly lower than the state's rate of 12.3% (Source: Bureau of Labor Statistics)

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 augment the region's steady influx of qualified labor. Each year San Diego's educational institutions graduate approximately 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 biotech industry. 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 over 25 commercial products on the market and approximately 75 products in late-phase clinical trials. The general services industry is the second largest employment sector in the County, totaling nearly 30% 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 about 15% of total industry employment. The state and local government is the largest employer with over 160,000 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 San Diego County Water Authority is a public agency serving the San Diego region as a wholesale supplier of water. The Water Authority works through its 24 member agencies to provide a safe, reliable water supply to support the region's $171 billion economy and the quality of life of 3 million residents or 967 percent of the county's population. The 24 member agencies are comprised of six cities, five water districts, three irrigation districts, eight municipal water districts, one public utility district and one federal agency (military base) and cover a service area of 920,000 acres. In 2008, Metropolitan Water District of Southern California supplied 71% of the water while 29% came from local and other supplies. Metropolitan imports the water from two sources, the Colorado River and the state Water Project (Bay-Delta) in northern California. Traveling hundreds of miles over aqueduct systems that include pump stations, treatment plants and reservoirs, approximately 700,000 acre-feet of water is transported annually through the Water Authority's five pipelines and then distributed to the member agencies for delivery to the public. Residents place the highest demand on water, consuming roughly 59% of all water in San Diego County. Industrial/commercial use is the second largest consumer of water at 17%, followed by the public sector at 13% and agriculture at 12% of the total water demand.

1.3.2 Local Jurisdictions

1.3.2.1 Carlsbad (Population: 103,811)

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: 231,305)

Chula Vista is San Diego County's second largest municipality, covers over 50 square miles and is bordered by the Pacific Ocean on the west and mountains on the east. Located seven miles from downtown San Diego and seven miles from the busiest international border crossing in the world, Chula Vista is the crossroads of the San Diego/Baja region. Resident population increased over 34% between 2000 and 2009, and also witnessed a healthy growth in commercial and industrial development. Home to one of the nation's few year-round U.S. Olympic Training centers, Goodrich Aerospace Aero structures, Raytheon, a global technology firm serving the defense industry, Leviton, an international leader in the electronic products industry, DNP Electronics America LLC, Hitachi Home Electronics (America), Inc., Cricket Wireless Amphitheatre and Knott's Soak City USA.

1.3.2.3 Coronado (Population: 23,101)

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: 4,580)

Del Mar is the smallest city in the County with only 4,580 residents in the year 2009. 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: 97,934)

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 97,934 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: 63,684)

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: 143,389)

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: 28,200)

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 28,200, 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: 56,666)

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: (25,611)

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: 61,194)

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: 178,806)

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 178,806 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: 51,013)

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 1,336,865)

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 1,336,865, 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: 82,743)

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: 56,068)

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: 95,770)

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: 491,764)

The unincorporated County consists of approximately 34 Community Planning and Sub-regional 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 Sub-regional Planning Areas are Central Mountain, County Islands, Mountain Empire, North County Metro, and North Mountain. Communities within the Central Mountain Sub-region 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 Sub-region is mostly rural and includes Santa Ysabel, Warner Springs, Palomar Mountain, Mesa Grande, Sunshine Summit, Ranchita and Oak Grove. The Mountain Empire Sub-region 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 incorporated cities 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 cities. The one Fire Protection Districts that participated in the revision of the plan was the Rancho Santa Fe Fire Protection District. 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

A Hazard Mitigation Working Group (HMWG) was established to facilitate the development of the Plan. Representatives from each incorporated city, special district and the unincorporated county were 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 OES 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. 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 updated hazard-related data are:

- City of Chula Vista - provided additional GIS/infrastructure data.
- City of Encinitas - provided critical infrastructure data.
- City of Escondido - provided updated local fire threat and geo-hazard data

All 18 incorporated cities, the Water Authority and the Rancho Santa Fe Fire Protection District all provided OES 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) was the lead County agency in the revision of this plan. Thomas Amabile, 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 special district to attend a meeting to develop an approach to the planning process and to help form the HMWG Committee (See Appendix A). OES 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 interested 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, David Harrison, Fire Department
City of Chula Vista, Justin Gipson, Fire Department
City of Coronado, Ed Hadfield, Fire Department
City of Del Mar, David Scherer, Public Works Director
City of El Cajon, Rick Sitta, Fire Department.
City of Encinitas, Tom Gallup, Fire Department.
City of Escondido, Don Rawson, Fire Department
City of Imperial Beach, Leticia Hernandez, Fire Department
City of La Mesa, Greg McAlpine, Fire Dept.
City of Lemon Grove, Tim Smith, Fire Department
City of National City, Walter Amadee, Fire Department
City of Oceanside, Ken Matsumoto, Fire Department
City of Poway, Jon Canavan, Fire Department
City of San Diego, Eugene Ruzzini, Office of Homeland Security
City of San Marcos, Scott McClintock, Fire Department
City of Santee, Dave Miller, Fire Department

City of Solana Beach, Dismas Abelman, Fire Department
City of Vista, Jeff Berg, Fire Department
County of San Diego, Thomas Amabile, OES
County of San Diego, Cynthia Lerma, OES GIS
Rancho Santa Fe FPD, Mike Scott

In addition to members of the public, representatives of the following agencies/organizations provided input to and feedback on the plan:

California Emergency Management Agency (Cal E.M.A.)
Emergency Preparedness and Disaster Medical Response Personnel
San Diego County Hazardous Materials Division
San Diego Data Processing Center
San Diego Resource Conservation District
San Diego County Department of Planning and Land Use

Finally, the Unified Disaster Council's (UDC) Operations Section members were kept updated on the plan. The UDC Operations Section is an advisory group whose members represent:

American Red Cross
Chambers of Commerce
Federal Agencies (USN, USMC, USCG, DHS)
Hospitals
Port of San Diego
State Agencies (CalEMA, DMV, CalTrans)
School Districts
Universities and colleges
Utilities (Power- SDG&E, Water – County Water Authority and Water Districts, Cable, telephone and internet – Cox Communications)

3.3 HAZARD MITIGATION WORKING GROUP MEETINGS

The Hazard Mitigation Working Group met regularly. 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: 4/1/09 - Kickoff and Formation of HMWG
HMWG Meeting 2: 5/28/09 - Overview of Planning Process/Assessing Risks
HMWG Meeting 3: 6/25/09 - Overview of Planning Process/Profiling Hazards
HMWG Meeting 4: 7/30/09 - Review Risk Assessment/Development of Mitigation Plan
HMWG Meeting 5: 11/04/09 - Capabilities Assessment/Goals, Objectives, and Actions

The distribution of the draft and final plans was accomplished electronically. Other meetings included individual meeting with jurisdictions and meetings with GIS staff.

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 (April, 2009 – August. 2009)* - The HMWG used the list of hazards from the current Multi-jurisdictional Hazard Mitigation Plan determine if they were still applicable to the region and if there were any new threats identified that should be added to the plan. 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 jurisdiction and participating special district; 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. The same process used during the completion of the initial plan was utilized for the update.

  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. Again, this was a similar process to that used in the original plan.

- *Goals, Objectives and Alternative Mitigation Actions (August, 2009- November, 2009)* – Based on this understanding of the hazards faced by the County, the goals and objectives identified in the current plan were reviewed to see what had been completed and could be removed and which were not able to be completed due to funding or other roadblocks. Members then added those goals, objectives or actions as required tocomplete the update. This was done by the members working with their local planning groups and in a series of one an one meetings with OES staff.

- *Mitigation Plan and Implementation Strategy (October-December, 2009)* – each jurisdiction reviewed their priorities for action from among their goals, objectives and actions, developing 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 April, 2009 – November, 2009)* - 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 month or two (depending on the progress made) starting May 28th and continued through November 2009. 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 posted the draft plan online. The public was invited to review and comment on the plan. Press releases from the County of San Diego as well as links from various emergency management as well as the websites for the individual cities/agencies, pointed the public the plan. .

- Public Response Questions where provided on the website in order to develop lists of potential mitigation actions by soliciting community input regarding vulnerabilities and potential solutions. Citizens participated by answering the questions and emailing their input to the County of San Diego (see Appendix A for a copy of the questions).
- Press Releases were prepared and released to solicit public review and comment (see Appendix A for copies of press releases and public notices).
- A Hazard Mitigation Plan Web Site was developed to provide the public with information. Items posed on the web site included the current plan, and draft updates, by jurisdiction or agency.

Public involvement was valuable in the development of the Plan. Feedback given during the public meetings led to the addition of a topic for discussion during the next update process.

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
- Local Mitigation Planning Guidance, FEMA July 1, 2008
- State and Local Mitigation Planning How to Guide FEMA 386-1 September 2002
- State and Local Mitigation Planning How to Guide FEMA 386-2 August 2001

- State and Local Mitigation Planning How to Guide FEMA 386-3 April 2003
- State and Local Mitigation Planning How to Guide FEMA 386-4 August 2003
- State and Local Mitigation Planning How to Guide FEMA 386-6 May 2005
- State and Local Mitigation Planning How to Guide FEMA 386-7 September 2003
- 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 dated September 2006

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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. Building upon the original hazard profiles OES used the existing hazard data tables (created for the original Hazard Mitigation Plan) and updated them using current data. The revised 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. The inventory of existing and proposed assets within the County was updated. 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 Repetitive Loss

Disaster records were reviewed for repetitive losses. No repetitive losses were found for Coastal storms, erosion and Tsunamis, Dam Failures, Earthquakes, landslides, or liquefaction. The Firestorm of 2007 burned over some of the same ground as the 2003 Firestorm, resulting in repetitive loss to several families. Review of the flooding hazard in the unincorporated area identified seven addresses suffering damage in two or more flood events. A complete listing of repetitive losses is found below:

Jurisdiction	Number of Repetitive Losses	Jurisdiction	Number of Repetitive Losses	Jurisdiction	Number of Repetitive Losses	Jurisdiction	Number of Repetitive Losses
Carlsbad		Encinitas		National City		Santee	
Chula Vista		Escondido		Oceanside		Solana Beach	
Coronado		Imperial Beach		Poway		Vista	
Del Mar		La Mesa		City of San Diego		County of San Diego	
El Cajon		Lemon Grove		San Marcos		Rancho Santa Fe FPD	
Total Repetitive Loss							

4.1.6 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 the hazards identified in the original Hazard Mitigation Plan and evaluated each to see if they still posed a risk to the region. In addition, the hazards listed in the How-to Guide were also reviewed to determine if they should be added to the list of hazards to include in the plan revision. 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.

As part of the public input portion of the plan's development the HMWG was requested to incorporate global warming as a hazard. It was the consensus of the group that global warming in and of itself was not a hazard, but that the results of the ensuing climate change could be. It was determined that the impacts of global warming would be considered during the next update cycle, when additional data on the impacts of climate change is available.

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, The HMWG determined 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, special districts, fire agencies and law enforcement agencies, Red Cross, the California Emergency Management Agency, local businesses, community groups, the 2006 Unified San Diego County Emergency Services Organization Operational Area Emergency Plan, and the general public.

OES, with assistance of GIS experts from the County of San Diego's Department of Planning and Land Use used information from FEMA and other nationally and locally available databases to map the County's hazards, infrastructure, critical facilities, and land uses. This 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. In the development of the initial plan, the HMWG indicated that based on the fact that the majority of the development in San Diego is relatively recent (within the last 65 years), an urban type of fire that destroys multiple city blocks is not likely to occur alone, without a wildfire in the urban/wild-land interface occurring first. Therefore, it was determined that house/building fire and wildfire should be addressed as one hazard category in the plan. This revised plan continues to discuss structure fire and wildfire together. Similarly, the original addressed earthquake and liquefaction as one category because liquefaction does not occur unless an adequate level of ground shaking from an earthquake occurs 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) (Olivenhain Dam) • 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 • CISN • SanGIS • SANDAG • FEMA-HAZUS • 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 1950-2009 for floods in San Diego County
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	• Steep slopes within earthquake zones characterize San Diego County, which creates

Hazard	Data Collected for Hazard Identification	Justification for Inclusion
	• Tan Map Series • Steep slope data (SANDAG) • Soil Series Data (SANDAG) • FEMA-HAZUS • FEMA Hazards website • NEH	landslide risk. • There have been 3 Proclaimed Local 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 • 8 States of Emergency were declared for wildfires between 1950-2009 • 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 B. 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, the available data was collected, 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 those hazards that were not included in the original plan's 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 had not changed and would not be included in the revision. 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
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.

Hazard	Description	Reason for Exclusion
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 re-deposited 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 (10) Proclaimed States of Emergency for Weather/Storms in San Diego County between 1950 and 2005. 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 and 2003-2004.

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 2.1 feet; March 27, 1964 with a wave height of 3.7 feet and September 29, 2009 with a wave height of 0.5 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 1960 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 over-saturated 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 then California Office of Emergency Services (now the California Emergency Management Agency) 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.

Tsunami Maps 1- 4

Figure 4.3.1

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. OES obtained 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.. 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, 2006).

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Figure 4.3.2
Dam Failure Map

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.
IX.	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.
X.			Rails bent greatly. Underground pipelines completely out of services.
XI.			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, 2006).

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 of San Diego. 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). The most recent significant earthquake activity occurred on June 15, 2004 with a M5.3 on the San Diego Trough Fault Zone approximately 50 miles SW of San Diego. It was reported as a IV on the MMI (Southern California Seismic Network).

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 Map

Figure 4.3.3

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, 2006).

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 Map

Figure 4.3.4

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 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 B 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.

Landslide Map

Figure 4.3.5

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

Figure 4.3.6

Liquefaction Map

Figure 4.3.6

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 consists of a semi-arid coastal plain and rolling highlands which, 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 three (3) Proclaimed States of Emergency in the County of San Diego between 1950-2007. In October of 2003 the second-worse wild-land fire in the history of San Diego County destroyed 332,766 acres

of land, 3,239 structures and 17 deaths at a cost of $450M. San Diego County's worst wildfire occurred in October 2007. At the height of the firestorm there were seven fires burning within the County. The fires destroyed 369,000 acres (13% of the County), 2,670 structures, 239 vehicles, and two commercial properties. There were 10 civilian deaths, 23 civilian injuries and 10 firefighter injuries. The cost of fire exceeded $1.5 billion. San Diego County's third 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.

Fire	Date	Acres Burned	Structures Destroyed	Structures Damaged	Deaths
Conejos Fire	July 1950	62,000	Not Available	Not Available	0
Laguna Fire	October 1970	190,000	382	Not Available	5
Harmony Fire (Carlsbad, Elfin Forest, San Marcos)	October 1996	8,600	122	142	1
La Jolla Fire (Palomar Mtn)	September 1999	7,800	2	2	1
Viejas Fire	January 2001	10,353	23	6	0
Gavilan Fire (Fallbrook)	February 2002	6,000	43	13	0
Pines Fire (Julian, Ranchita)	July 2002	61,690	45	121	0
Cedar Fire	October 2003	280,278	5,171	63	14
Paradise Fire	October 2003	57,000	415	15	2
Otay Fire	October 2003	46,291	6	0	0
Roblar (Pendleton)	October 2003	8,592	0	0	0
Mataguay Fire*	July 2004	8,867	2	0	0
Horse Fire*	July 2006	16,681	Not Available	Not Available	0
Witch Creek Fire*	October 2007	197,990	1,125	77	2
Harris Fire*	October 2007	90,440	255	12	5
Poomacha Fire*	October 2007	49,410	139	Not Available	0
Ammo Fire*	October 2007	21,004	Not Available	Not Available	0
Rice Fire*	October 2007	9,472	208	Not Available	0

Table 4.3-3
Major Wildfires in San Diego County
Larger than 5,000 acres

** Information gathered from the California Department of Forestry and Fire Protection website*

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.

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Wildfire Map

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 2006 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 2009

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 2009	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 A).

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 624 miles 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 (a loss estimation software) integrates with 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 current 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 facilities map

Figure 4.4.1

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	2	1	7	5	2	153	0	2	0	33	239
	Exposure (x$1000)	200,000	6,323	0	4,000	10,000	14,000	10,000	200,000	247	0	200,000	0	33,000	677,570
Chula Vista	Number	0	44	2	2	1	13	9	7	119	1	1	0	75	274
	Exposure (x$1000)	0	8,430	4,000	4,000	10,000	26,000	18,000	700,000	255	20,000	100,000	0	75,000	965,686
Coronado	Number	0	2	0	1	0	3	4	1	28	0	0	0	9	48
	Exposure (x$1000)	0	383	0	2,000	0	6,000	8,000	100,000	51	0	0	0	9,000	125,434
Del Mar	Number	0	5	0	0	0	1	2	0	14	0	0	0	2	24
	Exposure (x$1000)	0	958	0	0	0	2,000	4,000	0	10	0	0	0	2,000	8,968
El Cajon	Number	1	37	1	2	1	8	7	6	64	0	0	0	47	174
	Exposure (x$1000)	200,000	7,089	2,000	4,000	10,000	16,000	14,000	600,000	161	0	0	0	47,000	900,250
Encinitas	Number	0	16	0	1	0	6	3	3	85	0	1	7	25	147
	Exposure (x$1000)	0	3,066	0	2,000	0	12,000	6,000	300,000	145	0	100,000	14,000	25,000	462,211
Escondido	Number	0	74	1	4	0	8	8	8	83	0	1	1	46	234
	Exposure (x$1000)	0	14,178	2,000	8,000	0	16,000	16,000	800,000	211	0	100,000	2,000	46,000	1,004,389
Imperial Beach	Number	0	1	0	0	0	2	2	2	4	0	0	0	8	19
	Exposure (x$1000)	0	192	0	0	0	4,000	4,000	200,000	2	0	0	0	8,000	216,194
La Mesa	Number	0	36	0	1	0	4	4	2	53	0	0	0	25	125
	Exposure (x$1000)	0	6,898	0	2,000	0	8,000	8,000	200,000	113	0	0	0	25,000	250,011
Lemon Grove	Number	0	8	0	0	0	2	3	0	24	0	0	0	10	47
	Exposure (x$1000)	0	1,533	0	0	0	4,000	6,000	0	60	0	0	0	10,000	21,593
National City	Number	0	47	1	1	2	4	4	7	37	5	1	3	20	132
	Exposure (x$1000)	0	9,005	2,000	2,000	20,000	8,000	8,000	700,000	88	100,000	100,000	6,000	20,000	975,093
Oceanside	Number	1	43	2	4	0	10	12	11	124	0	1	8	43	259
	Exposure (x$1000)	200,000	8,239	4,000	8,000	0	20,000	24,000	1,100,000	250	0	100,000	16,000	43,000	1,523,489
Poway	Number	0	45	1	0	0	4	2	1	34	0	0	0	25	112
	Exposure (x$1000)	0	8,622	2,000	0	0	8,000	4,000	100,000	98	0	0	0	25,000	147,720
San Diego (City)	Number	4	498	12	33	9	89	98	50	959	62	2	5	361	2,182
	Exposure (x$1000)	800,000	95,417	24,000	66,000	90,000	178,000	196,000	5,000,000	2,168	1,240,000	200,000	10,000	361,000	8,262,585
San Marcos	Number	0	12	0	2	0	8	3	2	59	0	0	2	28	116
	Exposure (x$1000)	0	2,299	0	4,000	0	16,000	6,000	200,000	149	0	0	4,000	28,000	260,448
Santee	Number	0	15	1	4	0	4	3	0	33	0	1	0	15	76
	Exposure (x$1000)	0	2,874	2,000	8,000	0	8,000	6,000	0	72	0	100,000	0	15,000	141,946
Solana Beach	Number	0	5	0	0	0	1	2	0	28	0	0	1	9	46
	Exposure (x$1000)	0	958	0	0	0	2,000	4,000	0	46	0	0	2,000	9,000	18,004
Unincorporated -	Number	33	227	2	44	3	100	3	15	1,334	0	0	0	86	1,847
Rural	Exposure (x$1000)	6,600,000	43,493	4,000	88,000	30,000	200,000	6,000	1,500,000	4,402	0	0	0	86,000	8,561,895
Unincorporated -	Number	0	117	0	12	0	40	7	10	320.3	0	1	2	115	624
Urban Core	Exposure (x$1000)	0	22417.2	0	24000	0	80000	14000	1000000	597.25	0	100000	4000	115000	1,360,014
Vista	Number	0	12	0	0	0	9	4	3	53	0	0	10	40	131
	Exposure (x$1000)	0	2,299	0	0	0	18,000	8,000	300,000	101	0	0	20,000	40,000	388,400
Total Number		40	1,277	23	113	17	323	185	130	12,749	68	11	39	1,022	15,997
Total Exposure (x$1000)		8,000,000	244,673	46,000	226,000	170,000	646,000	370,000	13,000,000	42,540	1,360,000	1,100,000	78,000	1,022,000	26,305,213

Table 4.4-3
Inventory of Exposure for Infrastructure

Jurisdiction	Data	HWY	Replacen	RR	Total
Carlsbad	Number	55	87	11	153
	Exposure (x$1000)	212	26	9	247
Chula Vista	Number	61	52	6	119
	Exposure (x$1000)	234	15	6	255
Coronado	Number	12	16	0	28
	Exposure (x$1000)	46	5	0	51
Del Mar	Number	1	8	5	14
	Exposure (x$1000)	3	3	4	10
El Cajon	Number	39	19	7	64
	Oil/Gas Pipeplines	150	6	6	161
Encinitas	Railroad Tracks	32	43	10	85
	Exposure (x$1000)	124	13	8	145
Escondido	Number	52	27	3	83
	Exposure (x$1000)	200	8	3	211
Imperial Beach	Number	0	4	0	4
	Exposure (x$1000)	1	1	0	2
La Mesa	Number	26	16	12	53
	Exposure (x$1000)	99	5	10	113
Lemon Grove	Number	14	6	4	24
	Exposure (x$1000)	54	2	4	60
National City	Number	21	12	4	37
	Exposure (x$1000)	81	4	4	88
Oceanside	Number	57	49	18	124
	Exposure (x$1000)	220	15	15	250
Poway	Number	25	9	0	34
	Exposure (x$1000)	95	3	0	98
San Diego (City)	Number	514	354	92	959
	Exposure (x$1000)	1,983	106	79	2,168
San Marcos	Number	35	15	9	59
	Exposure (x$1000)	136	4	8	149
Santee	Number	17	15	1	33
	Exposure (x$1000)	67	4	1	72
Solana Beach	Number	10	15	3	28
	Exposure (x$1000)	40	4	2	46
Unicorporated - Rural	Number	1,107	117	110	1,334
	Exposure (x$1000)	4,272	35	94	4,402
Unicorporated - Urban Core	Number	136	152	33	320
	Exposure (x$1000)	523	46	28	597
Vista	Number	23	24	7	53
	Exposure (x$1000)	88	7	6	101
Total Number		10,777	1,352	620	12,749
Total Exposure (x$1000)		41,601	405	533	42,540

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

		Residential Buildings at Risk		Commercial Buildings at Risk	
Jurisdiction	Exposed Population	Building Count	Potential Exposure (x$1000)	Building Count	Potential Exposure (x$1000)
Carlsbad	104,707	43,723	$12,308,025	1,559	$6,986,970
Chula Vista	232,095	77,457	$21,804,146	2,184	$9,788,033
Coronado	23,009	9,541	$2,685,792	470	$2,106,399
Del Mar	4,591	2,537	$714,166	220	$985,974
El Cajon	98,205	35,656	$10,037,164	1,360	$6,095,112
Encinitas	64,145	24,848	$6,994,712	1,268	$5,682,796
Escondido	143,071	47,044	$13,242,886	1,835	$8,223,920
Imperial Beach	28,243	9,859	$2,775,309	346	$1,550,668
La Mesa	56,880	25,333	$7,131,240	952	$4,266,578
Lemon Grove	25,650	8,824	$2,483,956	365	$1,635,821
National City	56,522	15,776	$4,440,944	892	$3,997,676
Oceanside	179,626	64,642	$18,196,723	1,964	$8,802,059
Poway	51,126	16,339	$4,599,429	732	$3,280,604
San Diego (City)	1,354,013	510,740	$143,773,310	18,862	$84,533,825
San Marcos	83,149	27,726	$7,804,869	812	$3,639,140
Santee	56,848	19,681	$5,540,202	582	$2,608,349
Solana Beach	13,547	6,512	$1,833,128	322	$1,443,107
Unincorporated - Rural	168,254	60,561	$17,047,922	2,177	$9,756,661
Unincorporated - Urban Core	333,626	108,042	$30,413,823	3,560	$15,954,852
Vista	96,100	30,707	$8,644,021	1,163	$5,212,217
Total	3,173,407	1,145,548	$322,471,762	41,625	$186,550,763

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 1500 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: 108 low-income households and 265 elderly persons.

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

		Residential Buildings at Risk		Commercial Buildings at Risk	
Jurisdiction	Exposed Population	Building Count	Potential Exposure (x$1000)	Building Count	Potential Exposure (x$1000)
Carlsbad	14	8	$2,252	0	$0
Chula Vista	0	0	$0	0	$0
Coronado	580	261	$73,472	1	$4,482
Del Mar	17	10	$2,815	0	$0
El Cajon	0	0	$0	0	$0
Encinitas	94	42	$11,823	0	$0
Escondido	0	0	$0	0	$0
Imperial Beach	157	64	$18,016	0	$0
La Mesa	0	0	$0	0	$0
Lemon Grove	0	0	$0	0	$0
National City	0	0	$0	0	$0
Oceanside	76	54	$15,201	3	$13,445
Poway	0	0	$0	0	$0
San Diego (City)	199	128	$36,032	1	$4,482
San Marcos	0	0	$0	0	$0
Santee	0	0	$0	0	$0
Solana Beach	402	167	$47,011	2	$8,963
Unincorporated - Rural	0	0	$0	0	$0
Unincorporated - Urban Core	0	0	$0	0	$0
Vista	0	0	$0	0	$0
Total	1,539	734	$206,621	7	$31,372

4.4.2.2 Tsunami

Tsunami maximum run-up projections were modeled for the entire San Diego County coastline in 2009 by the University of Southern California, and distributed by the CA Emergency Management Agency. 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 35,600 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: 2,461 low income households and 3,516 elderly persons.

Table 4.4-6
Potential Exposure from Tsunami Hazard by Jurisdiction

		Residential Buildings at Risk		Commercial Buildings at Risk	
Jurisdiction	Exposed Population	Building Count	Potential Exposure (x$1000)	Building Count	Potential Exposure (x$1000)
Carlsbad	1,165	535	$150,603	23	$103,079
Chula Vista	83	26	$7,319	1	$4,482
Coronado	8,523	3,367	$947,811	98	$439,207
Del Mar	1,023	542	$152,573	35	$156,860
El Cajon	0	0	$0	0	$0
Encinitas	388	178	$50,107	9	$40,335
Escondido	0	0	$0	0	$0
Imperial Beach	5,225	2,138	$601,847	97	$434,725
La Mesa	0	0	$0	0	$0
Lemon Grove	0	0	$0	0	$0
National City	1,306	0	$0	5	$22,409
Oceanside	2,108	1,059	$298,109	46	$206,158
Poway	0	0	$0	0	$0
San Diego (City)	10,294	6,490	$1,826,935	393	$1,761,308
San Marcos	0	0	$0	0	$0
Santee	0	0	$0	0	$0
Solana Beach	324	135	$38,003	3	$13,445
Unincorporated - Rural	5,154	95	$26,743	0	$0
Unincorporated - Urban Core	35	11	$3,097	1	$4,482
Vista	0	0	$0	0	$0
Total	35,628	14,576	$4,103,144	711	$3,186,489

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	WWTR	RAIL	SCH	Total
Carlsbad	Number	0	2	0	0	0	0	0	0	4	0	0	0	0	0	6
	Exposure (x$1000)	0	383	0	0	0	0	0	0	3	0	0	0	0	0	386
Chula Vista	Number	0	1	0	0	0	0	0	0	0	1	0	0	0	0	2
	Exposure (x$1000)	0	192	0	0	0	0	0	0	0	20,000	0	0	0	0	20,192
Coronado	Number	0	1	0	0	0	1	2	0	18	0	0	0	0	1	23
	Exposure (x$1000)	0	192	0	0	0	2,000	4,000	0	36	0	0	0	0	1,000	7,227
Del Mar	Number	0	2	0	0	0	1	0	0	3	0	0	0	0	0	6
	Exposure (x$1000)	0	383	0	0	0	2,000	0	0	2	0	0	0	0	0	2,385
El Cajon	Number	0	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	0
Encinitas	Number	0	1	0	0	0	0	0	0	3	0	1	0	0	0	5
	Exposure (x$1000)	0	192	0	0	0	0	0	0	1	0	100,000	0	0	0	100,193
Escondido	Number	0	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	0
Imperial Beach	Number	0	0	0	0	0	0	0	0	1	0	0	0	0	1	2
	Exposure (x$1000)	0	0	0	0	0	0	0	0	1	0	0	0	0	1,000	1,001
La Mesa	Number	0	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	0
Lemon Grove	Number	0	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	0
National City	Number	0	2	0	0	0	0	0	0	0	3	0	0	0	0	5
	Exposure (x$1000)	0	383	0	0	0	0	0	0	1	60,000	0	0	0	0	60,384
Oceanside	Number	0	3	0	0	0	0	0	0	2	0	0	0	0	0	5
	Exposure (x$1000)	0	575	0	0	0	0	0	0	3	0	0	0	0	0	578
Poway	Number	0	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	0
San Diego (City)	Number	0	7	0	0	0	0	1	1	10	49	0	0	0	0	68
	Exposure (x$1000)	0	1,341	0	0	0	0	2,000	100,000	5	980,000	0	0	0	0	1,083,347
San Marcos	Number	0	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	0
Santee	Number	0	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	0
Solana Beach	Number	0	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	0
Unincorporated	Number	0	4	0	0	0	0	0	0	1	0	0	0	0	0	5
Rural	Exposure (x$1000)	0	766	0	0	0	0	0	0	1	0	0	0	0	0	768
Unincorporated	Number	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
Urban Core	Exposure (x$1000)	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2
Vista	Number	0	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	0
Total Number		0	23	0	0	0	2	3	1	42	53	1	0	0	2	127
Total Exposure (x$1000)		0	4,407	0	0	0	4,000	6,000	100,000	55	1,060,000	100,000	0	0	2,000	1,276,462

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 241,700 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 8,900 low-income households and 15,970 elderly persons.

Table 4.4.8
Potential Exposure from Dam Failure Hazard by Jurisdiction

		Residential Buildings at Risk		Commercial Buildings at Risk	
Jurisdiction	Exposed Population	Building Count	Potential Exposure (x$1000)	Building Count	Potential Exposure (x$1000)
Carlsbad	4,113	1,951	$549,207	49	$219,603
Chula Vista	8,635	2,973	$836,900	190	$851,523
Coronado	0	0	$0	0	$0
Del Mar	1,139	612	$172,278	47	$210,640
El Cajon	0	0	$0	0	$0
Encinitas	1,204	425	$119,638	35	$156,860
Escondido	47,700	14,323	$4,031,925	766	$3,432,982
Imperial Beach	5,526	1,880	$529,220	42	$188,231
La Mesa	1,701	731	$205,777	19	$85,152
Lemon Grove	0	0	$0	0	$0
National City	1,998	496	$139,624	184	$824,633
Oceanside	33,755	11,437	$3,219,516	285	$1,277,285
Poway	47	16	$4,504	1	$4,482
San Diego (City)	75,686	28,036	$7,892,134	1,206	$5,404,930
San Marcos	2,481	829	$233,364	59	$264,420
Santee	20,815	6,968	$1,961,492	267	$1,196,614
Solana Beach	40	17	$4,786	2	$8,963
Unincorporated - Rural	14,512	3,686	$1,037,609	135	$605,030
Unincorporated - Urban Core	21,862	7,304	$2,056,076	277	$1,241,431
Vista	553	215	$60,523	16	$71,707
Total	241,767	81,899	$23,054,569	3,580	$16,044,486

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	WWTR	RAIL	SCH	Total
Carlsbad	Number	0	4	0	0	0	0	0	0	7	0	0	0	0	1	12
	Exposure (x$1000)	0	766	0	0	0	0	0	0	9	0	0	0	0	1,000	1,775
Chula Vista	Number	0	16	0	0	1	1	1	2	23	0	0	0	0	1	45
	Exposure (x$1000)	0	3,066	0	0	10,000	2,000	2,000	200,000	60	0	0	0	0	1,000	218,126
Coronado	Number	0	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	0
Del Mar	Number	0	3	0	0	0	1	0	0	9	0	0	0	0	0	13
	Exposure (x$1000)	0	575	0	0	0	2,000	0	0	5	0	0	0	0	0	2,579
El Cajon	Number	0	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	0
Encinitas	Number	0	5	0	0	0	0	0	0	19	0	1	0	0	3	28
	Exposure (x$1000)	0	958	0	0	0	0	0	0	13	0	100,000	0	0	3,000	103,971
Escondido	Number	0	33	1	1	0	4	8	6	48	0	0	1	1	15	118
	Exposure (x$1000)	0	6,323	2,000	2,000	0	8,000	16,000	600,000	149	0	0	100,000	2,000	15,000	751,472
Imperial Beach	Number	0	1	0	0	0	0	1	0	3	0	0	0	0	1	6
	Exposure (x$1000)	0	192	0	0	0	0	2,000	0	1	0	0	0	0	1,000	3,192
La Mesa	Number	0	2	0	0	0	0	0	0	9	0	0	0	0	0	11
	Exposure (x$1000)	0	383	0	0	0	0	0	0	12	0	0	0	0	0	395
Lemon Grove	Number	0	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	0
National City	Number	0	26	0	0	0	0	1	0	22	1	0	0	1	2	53
	Exposure (x$1000)	0	4,982	0	0	0	0	2,000	0	63	20,000	0	0	2,000	2,000	31,044
Oceanside	Number	1	17	0	1	0	3	2	0	25	0	0	0	0	7	56
	Exposure (x$1000)	200,000	3,257	0	2,000	0	6,000	4,000	0	62	0	0	0	0	7,000	222,319
Poway	Number	0	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	0
San Diego (City)	Number	0	120	0	1	1	8	12	2	286	0	1	0	1	12	444
	Exposure (x$1000)	0	22,992	0	2,000	10,000	16,000	24,000	200,000	605	0	100,000	0	2,000	12,000	389,597
San Marcos	Number	0	1	0	0	0	0	0	0	3	0	0	0	0	2	6
	Exposure (x$1000)	0	192	0	0	0	0	0	0	4	0	0	0	0	2,000	2,196
Santee	Number	0	12	1	3	0	4	2	0	67	0	1	0	0	6	96
	Exposure (x$1000)	0	2,299	2,000	6,000	0	8,000	4,000	0	130	0	100,000	0	0	6,000	128,429
Solana Beach	Number	0	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	0
Unincorporated Rural	Number	1	42	0	1	0	5	0	0	68	0	0	1	0	5	123
	Exposure (x$1000)	200,000	8,047	0	2,000	0	10,000	0	0	211	0	0	100,000	0	5,000	325,258
Unincorporated Urban Core	Number	0	22	0	0	0	6	2	2	76	0	0	0	0	15	123
	Exposure (x$1000)	0	4,215	0	0	0	12,000	4,000	200,000	140	0	0	0	0	15,000	235,356
Vista	Number	0	2	0	0	0	1	0	0	1	0	0	0	0	0	4
	Exposure (x$1000)	0	383	0	0	0	2,000	0	0	0	0	0	0	0	0	2,384
Total Number		2	306	2	7	2	33	29	12	664	1	3	2	3	70	1,136
Total Exposure (x$1000)		400,000	58,630	4,000	14,000	20,000	66,000	58,000	1,200,000	1,465	20,000	300,000	200,000	6,000	70,000	2,418,094

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 3,100,000 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 15,155 low-income households and 26,921 elderly persons.

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

		Residential Buildings at Risk					Commercial Buildings at Risk				
Jurisdiction	Exposed Population	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	104,707	43,723	2,649	0	524	12,308,025	1,559	998	0	352	6,986,970
Chula Vista	232,095	77,457	3,086	332	586	21,804,146	2,184	772	50	262	9,788,033
Coronado	23,009	9,541	1,309	156	208	2,685,792	470	224	0	75	2,106,399
Del Mar	4,591	2,537	235	0	46	714,166	220	110	0	27	985,974
El Cajon	98,205	35,656	1,739	0	319	10,037,164	1,360	726	0	218	6,095,112
Encinitas	64,145	24,848	1,962	0	536	6,994,712	1,268	659	0	209	5,682,796
Escondido	143,071	47,044	2,743	0	399	13,242,886	1,835	1,149	0	339	8,223,920
Imperial Beach	28,243	9,859	680	149	94	2,775,309	346	87	8	34	1,550,668
La Mesa	56,880	25,333	1,026	0	121	7,131,240	952	318	0	82	4,266,578
Lemon Grove	25,650	8,824	454	0	56	2,483,956	365	95	0	32	1,635,821
National City	56,522	15,776	874	56	203	4,440,944	892	420	0	132	3,997,676
Oceanside	179,626	64,642	4,336	646	1,156	18,196,723	1,964	849	34	293	8,802,059
Poway	51,126	16,339	776	0	141	4,599,429	732	257	0	82	3,280,604
San Diego (City)	1,354,013	510,740	32,046	1,648	8,721	143,773,310	18,862	12,428	725	4,231	84,533,825
San Marcos	83,149	27,726	934	0	113	7,804,869	812	518	0	153	3,639,140
Santee	56,848	19,681	1,076	0	279	5,540,202	582	252	0	108	2,608,349
Solana Beach	13,547	6,512	573	62	108	1,833,128	322	312	15	84	1,443,107
Unincorporated-Rural	168,254	60,561	886	0	152	17,047,922	2,177	149	0	43	9,756,661
Unincorporated-Urban Core	333,626	108,042	8,963	1	2,113	30,413,823	3,560	1,123	0	329	15,954,852
Vista	96,100	30,707	1,597	0	251	8,644,021	1,163	411	0	116	5,212,217
Total	3,173,407	1,145,548	$67,943	$3,050	$16,126	$322,471,762	$41,625	$21,860	$832	$7,202	$186,550,763

**Same numbers as in 2004, no additional information available at this time

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	WWTR	RAIL	SCH	TOTAL
Carlsbad	Number	0	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	0
Chula Vista	Number	0	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	0
Coronado	Number	0	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	0
Del Mar	Number	0	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	0
El Cajon	Number	0	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	0
Encinitas	Number	0	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	0
Escondido	Number	0	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	0
Imperial Beach	Number	0	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	0
La Mesa	Number	0	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	0
Lemon Grove	Number	0	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	0
National City	Number	0	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	0
Oceanside	Number	0	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	0
Poway	Number	0	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	0
San Diego (City)	Number	0	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	0
San Marcos	Number	0	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	0
Santee	Number	0	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	0
Solana Beach	Number	0	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	0
Unincorporated -	Number	15	30	1	19	0	26	0	8	437	0	0	1	0	28	565
Rural	Exposure (x$1000)	3,000,000	5,748	2,000	38,000	0	52,000	0	800,000	1,647	0	0	100,000	0	28,000	4,027,395
Unincorporated -	Number	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Urban Core	Exposure (x$1000)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vista	Number	0	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	0
Total Number		15	30	1	19	0	26	0	8	437	0	0	1	0	28	565
Total Exposure (x$1000)		3,000,000	5,748	2,000	38,000	0	52,000	0	800,000	1,647	0	0	100,000	0	28,000	4,027,395

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	WWTR	RAIL	SCH	TOTAL
Carlsbad	Number	1	33	0	2	1	7	5	2	153	0	2	0	0	33	239
	Exposure (x$1000)	200,000	6,323	0	4,000	10,000	14,000	10,000	200,000	247	0	200,000	0	0	33,000	677,570
Chula Vista	Number	0	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	0
Coronado	Number	0	1	0	1	0	2	4	1	19	0	0	0	0	9	37
	Exposure (x$1000)	0	192	0	2,000	0	4,000	8,000	100,000	30	0	0	0	0	9,000	123,222
Del Mar	Number	0	5	0	0	0	1	2	0	14	0	0	0	0	2	24
	Exposure (x$1000)	0	958	0	0	0	2,000	4,000	0	10	0	0	0	0	2,000	8,968
El Cajon	Number	0	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	0
Encinitas	Number	0	16	0	1	0	6	3	3	85	0	1	0	7	25	147
	Exposure (x$1000)	0	3,066	0	2,000	0	12,000	6,000	300,000	145	0	100,000	0	14,000	25,000	462,211
Escondido	Number	0	71	1	4	0	8	8	8	83	0	1	1	1	46	232
	Exposure (x$1000)	0	13,604	2,000	8,000	0	16,000	16,000	800,000	211	0	100,000	100,000	2,000	46,000	1,103,815
Imperial Beach	Number	0	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	0
La Mesa	Number	0	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	0
Lemon Grove	Number	0	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	0
National City	Number	0	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	0
Oceanside	Number	1	43	2	4	0	10	12	11	124	0	1	0	8	43	259
	Exposure (x$1000)	200,000	8,239	4,000	8,000	0	20,000	24,000	1,100,000	250	0	100,000	0	16,000	43,000	1,523,489
Poway	Number	0	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	0
San Diego (City)	Number	2	115	3	15	4	24	35	4	239	47	1	0	5	68	562
	Exposure (x$1000)	400,000	22,034	6,000	30,000	40,000	48,000	70,000	400,000	421	940,000	100,000	0	10,000	68,000	2,134,455
San Marcos	Number	0	12	0	2	0	8	3	2	59	0	0	0	2	28	116
	Exposure (x$1000)	0	2,299	0	4,000	0	16,000	6,000	200,000	149	0	0	0	4,000	28,000	260,448
Santee	Number	0	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	0
Solana Beach	Number	0	5	0	0	0	1	2	0	28	0	0	0	1	9	46
	Exposure (x$1000)	0	958	0	0	0	2,000	4,000	0	47	0	0	0	2,000	9,000	18,005
Unincorporated - Rural	Number	30	188	2	31	2	76	1	12	1,145	0	0	4	0	63	1,554
	Exposure (x$1000)	6,000,000	36,021	4,000	62,000	20,000	152,000	2,000	1,200,000	3,818	0	0	400,000	0	63,000	7,942,838
Unincorporated - Urban Core	Number	0	39	0	9	0	20	3	6	165	0	1	0	2	45	290
	Exposure (x$1000)	0	7472.4	0	18000	0	40000	6000	600000	252	0	100000	0	4000	45000	820,725
Vista	Number	0	12	0	0	0	9	4	3	53	0	0	0	10	40	131
	Exposure (x$1000)	0	2,299	0	0	0	18,000	8,000	300,000	101	0	0	0	20,000	40,000	388,400
Total Number		34	540	8	69	7	172	82	52	2,167	47	7	5	36	411	3,637
Total Exposure (x$1000)		6,800,000	103,464	16,000	138,000	70,000	344,000	164,000	5,200,000	5,681	940,000	700,000	500,000	72,000	411,000	15,464,145

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 8,416 low-income households and 15,131 elderly persons. Approximately 260,000 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 16,554 low-income households and 29,405 elderly persons.

4.4.2.5.1 Participation in the National Flood Insurance Program

Most jurisdictions within San Diego County participate in the National Flood Insurance program. Specific details for each participating jurisdiction are listed below.

City of Carlsbad

The City of Carlsbad does not participate in the National Flood Insurance program.

City of Chula Vista

The City of Chula Vista participates in the National Flood Insurance Program, allowing FEMA to authorize the sale of flood insurance (up to program limits) for businesses and residents within the appropriate flood risk zones. FEMA provides Flood Insurance Rate Maps delineating base flood elevations and flood risk zones and provides requirements to be adopted by the City. The Chula Vista Municipal Code has been amended to include the language required by FEMA.

City of Coronado

City of Del Mar

City of El Cajon

The City of El Cajon is a participant in FEMA's National Flood Insurance Program (NFIP). This program provides flood insurance for structures located within the floodplain areas in the City and as designated by FEMA. The City of El Cajon manages the permitting of any proposed developments and improvements within the floodplain areas per the FEMA guidelines and requirements and keeps up to date copies of the Flood Insurance Rate Maps (FIRM). These maps are used to assist constituents in answering their questions regarding the 100-year flood elevations and boundaries within the floodplain areas.

City of Encinitas

Encinitas participates in the National Flood Insurance Program (NFIP) and is required to adopt and enforce floodplain ordinances that meet FEMA's requirements. In return the NFIP makes federally backed flood insurance available in areas that are prone to flooding (have at least 1% chance of flooding annually). Without Federally backed insurance for flooding, homeowners either can't find flood insurance or the rate is very high. The NFIP is a Federal program administered by FEMA that provides flood insurance, floodplain management, and flood hazard mapping. The City of Encinitas Engineering Department manages the permitting of any proposed developments and improvements within the floodplain areas per the FEMA guidelines and requirements and keeps up to date copies of the Flood Insurance Rate Maps (FIRM). These maps are used to address questions regarding the

100-year flood elevations and boundaries within the floodplain areas. Encinitas received updated maps last year. Any proposed changes to these maps are processed by the City through FEMA. The Floodplain Management Regulations in Chapter 23.40 of the Encinitas Municipal Code meet or exceed FEMA guidelines and requirements.

City of Escondido

The City of Escondido does not participate in the National Flood Insurance Program (NFIP). As part of our property insurance policy the City does purchase flood coverage. The City has a $30,000,000 limit with a deductible of either $250,000 or $100,000 depending upon the specific flood zone.

City of Imperial Beach

The City of Imperial Beach participates in the NFIP. The staff member with the key role in the program is the Floodplain Administrator. The Administrator determines if a proposed structure would be situated within an area of special flood hazard (usually a 100-year floodplain or floodway) as shown on the FEMA Flood Insurance Rate Map (FIRM). They are usually along the oceanfront, bay-front, or river valley. It is rare if the City receives a building permit application to build within a floodplain. When that occurs, the Administrator requires the finish floor elevation to be above the base flood elevation. In addition there would be a requirement for the applicant's engineer to submit a hydrology study that would show the proposed structure would not raise the base flood elevation. The requirements in the City of Imperial beach follow the rules, regulations and guidelines of the National Flood Insurance Program.

City of La Mesa

The City of La Mesa is a participant in FEMA's National Flood Insurance Program (NFIP). This program provides flood insurance for structures located within the floodplain areas in the City and as designated by FEMA. The City of La Mesa manages the permitting of any proposed developments and improvements within the floodplain areas per the FEMA guidelines and requirements and keeps up to date copies of the Flood Insurance Rate Maps (FIRM). These maps are used to assist constituents in answering their questions regarding the 100-year flood elevations and boundaries within the floodplain areas.

City of Lemon Grove

The City of Lemon Grove is a participant in FEMA's National Flood Insurance Program (NFIP). This program provides flood insurance for structures located within the floodplain areas in the City and as designated by FEMA. The City of Lemon Grove manages the permitting of any proposed developments and improvements within the floodplain areas per the FEMA guidelines and requirements and keeps up to date copies of the Flood Insurance Rate Maps (FIRM). These maps are used to assist constituents in answering their questions regarding the 100-year flood elevations and boundaries within the floodplain areas.

City of National City

The City of National City is a participant in FEMA's National Flood Insurance Program (NFIP). This program provides flood insurance for structures located within the floodplain areas in the city and as designated by FEMA. The City of National City manages the permitting of any proposed developments and improvements within the floodplain areas per the FEMA guidelines and requirements, State of California Department of Water Resources Model Floodplain

Management Ordinance and the City of National City Floodplain Ordinance, and keeps up to date copies of the Flood Insurance Rate Maps (FIRM). These maps are used to assist constituents in answering their questions regarding the 100-year flood elevations and boundaries within the floodplain areas. Any proposed changes to these maps are processed by the City through FEMA.

City of Oceanside

The City of Oceanside participates in FEMA's National Flood Insurance Program. The program is monitored through our City Engineering Department which manages the permitting of developments and improvements in the floodplain areas. These areas are identified by Flood Maps that are updated by FEMA. The City has been part of this program since 1991 with our last assessment in 1996.

City of Poway

City of San Diego

City of San Marcos

The City of San Marcos is a participant in FEMA's National Flood Insurance Program (NFIP). This program provides flood insurance for structures located within the floodplain areas in the city and as designated by FEMA. The City of San Marcos has adopted a floodplain management ordinance in accordance with the FEMA's rules and regulations. The City manages the permitting of any proposed developments and improvements within the floodplain areas per the guidelines and requirements provided in said ordinance and keeps up to date copies of the Flood Insurance Rate Maps (FIRM). These maps are used to assist constituents in answering their questions regarding the 100-year flood elevations and boundaries within the floodplain areas. Any proposed changes to these maps are processed by the City through FEMA.

City of Santee

The City of Santee is a participant in FEMA's National Flood Insurance Program (NFIP). This program provides flood insurance for structures located within the floodplain areas in the city and as designated by FEMA. The City of Santee manages the permitting of any proposed developments and improvements within the floodplain areas per the City's Flood Damage Prevention Ordinance that meets or exceeds FEMA guidelines and requirements. The City of Santee keeps up to date copies of the Flood Insurance Rate Maps (FIRM) that are used to assist constituents in answering their questions regarding the 100-year flood elevations and boundaries within the floodplain areas. Any proposed changes to these maps are processed by the City through FEMA.

City of Solana Beach

City of Vista

County of San Diego

Rancho Santa Fe Fire Protection District

Rancho Santa Fe FPD does not directly participate in the National Flood Insurance Program. Being part of the unincorporated portion of the County of San Diego, residents of Rancho Santa Fe participate in the NFIP through the County's process.

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

		Residential Buildings at Risk		Commercial Buildings at Risk	
Jurisdiction	**Exposed Population**	**Building Count**	**Potential Exposure (x$1000)**	**Building Count**	**Potential Exposure (x$1000)**
Carlsbad	6,906	3,045	$857,168	102	$457,133
Chula Vista	5,947	2,395	$674,193	153	$685,700
Coronado	2,853	1,227	$345,401	30	$134,451
Del Mar	813	435	$122,453	42	$188,231
El Cajon	1,870	657	$184,946	36	$161,341
Encinitas	653	234	$65,871	22	$98,597
Escondido	8,367	2,599	$731,619	101	$452,652
Imperial Beach	1,206	408	$114,852	14	$62,744
La Mesa	0	0	$0	0	$0
Lemon Grove	105	34	$9,571	2	$8,963
National City	2,854	893	$251,380	118	$528,841
Oceanside	19,007	6,715	$1,890,273	217	$972,529
Poway	2,518	814	$229,141	47	$210,640
San Diego (City	36,042	12,191	$3,431,767	523	$2,343,929
San Marcos	2,377	794	$223,511	70	$313,719
Santee	1,873	572	$161,018	46	$206,158
Solana Beach	1,124	574	$161,581	13	$58,262
Unincorporated - Rural	7,276	3,661	$1,030,572	137	$613,993
Unincorporated - Urban Core	10,125	3,358	$945,277	195	$873,932
Vista	1,988	635	$178,753	94	$421,280
Total	**113,904**	**41,241**	**$11,609,342**	**1,962**	**$8,793,095**

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	WWTR	RAIL	SCH	Total
Carlsbad	Number	0	6	0	0	0	0	0	0	20	0	0	0	0	1	27
	Exposure (x$1000)	0	1,150	0	0	0	0	0	0	20	0	0	0	0	1,000	2,169
Chula Vista	Number	0	12	0	0	0	1	1	1	13	0	0	0	0	1	29
	Exposure (x$1000)	0	2,299	0	0	0	2,000	2,000	100,000	25	0	0	0	0	1,000	107,324
Coronado	Number	0	1	0	0	0	0	1	0	2	0	0	0	0	0	4
	Exposure (x$1000)	0	192	0	0	0	0	2,000	0	7	0	0	0	0	0	2,198
Del Mar	Number	0	3	0	0	0	0	0	0	4	0	0	0	0	0	7
	Exposure (x$1000)	0	575	0	0	0	0	0	0	3	0	0	0	0	0	578
El Cajon	Number	0	2	0	0	0	0	0	0	3	0	0	0	0	5	10
	Exposure (x$1000)	0	383	0	0	0	0	0	0	4	0	0	0	0	5,000	5,387
Encinitas	Number	0	4	0	0	0	0	0	0	5	0	1	0	0	0	10
	Exposure (x$1000)	0	766	0	0	0	0	0	0	4	0	100,000	0	0	0	100,771
Escondido	Number	0	4	0	0	0	0	0	0	6	0	0	0	0	5	15
	Exposure (x$1000)	0	766	0	0	0	0	0	0	15	0	0	0	0	5,000	5,781
Imperial Beach	Number	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
	Exposure (x$1000)	0	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	0
	Exposure (x$1000)	0	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	1	0	0	0	0	0	1
	Exposure (x$1000)	0	0	0	0	0	0	0	0	3	0	0	0	0	0	3
National City	Number	0	8	0	0	0	0	1	0	9	1	0	0	0	1	20
	Exposure (x$1000)	0	1,533	0	0	0	0	2,000	0	24	20,000	0	0	0	1,000	24,557
Oceanside	Number	1	17	0	1	0	2	3	0	28	0	0	0	0	5	57
	Exposure (x$1000)	200,000	3,257	0	2,000	0	4,000	6,000	0	53	0	0	0	0	5,000	220,310
Poway	Number	0	7	0	0	0	1	0	0	1	0	0	0	0	0	9
	Exposure (x$1000)	0	1,341	0	0	0	2,000	0	0	2	0	0	0	0	0	3,343
San Diego (City)	Number	0	74	1	3	0	0	2	1	66	49	0	0	1	3	200
	Exposure (x$1000)	0	14,178	2,000	6,000	0	0	4,000	100,000	99	980,000	0	0	2,000	3,000	1,111,278
San Marcos	Number	0	3	0	0	0	0	0	2	6	0	0	0	0	2	13
	Exposure (x$1000)	0	575	0	0	0	0	0	200,000	14	0	0	0	0	2,000	202,589
Santee	Number	0	9	0	0	0	0	0	0	3	0	0	0	0	0	12
	Exposure (x$1000)	0	1,724	0	0	0	0	0	0	1	0	0	0	0	0	1,726
Solana Beach	Number	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
	Exposure (x$1000)	0	192	0	0	0	0	0	0	0	0	0	0	0	0	192
Unincorporated	Number	3	36	0	1	0	4	0	0	51	0	0	0	0	12	107
Rural	Exposure (x$1000)	600,000	6,898	0	2,000	0	8,000	0	0	175	0	0	0	0	12,000	629,073
Unincorporated	Number	0	14	0	0	0	1	1	0	18	0	0	0	0	0	34
Urban Core	Exposure (x$1000)	0	2,682	0	0	0	2,000	2,000	0	50	0	0	0	0	0	6,733
Vista	Number	0	0	0	0	0	1	1	0	2	0	0	0	1	0	5
	Exposure (x$1000)	0	0	0	0	0	2,000	2,000	0	5	0	0	0	2,000	0	6,005
Total Number		4	201	1	5	0	10	10	4	239	50	1	0	2	35	562
Total Exposure (x$1000)		800,000	38,512	2,000	10,000	0	20,000	20,000	400,000	504	1,000,000	100,000	0	4,000	35,000	2,430,016

Refer to Table 4.4-1 for abbreviation definition

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

		Residential Buildings at Risk		Commercial Buildings at Risk	
Jurisdiction	**Exposed Population**	**Building Count**	**Potential Exposure (x$1000)**	**Building Count**	**Potential Exposure (x$1000)**
Carlsbad	6,996	3,086	$868,709	104	$466,097
Chula Vista	25,564	9,180	$2,584,170	405	$1,815,089
Coronado	3,868	1,715	$482,773	46	$206,158
Del Mar	1,062	567	$159,611	47	$210,640
El Cajon	17,608	6,457	$1,817,646	278	$1,245,913
Encinitas	678	243	$68,405	23	$103,079
Escondido	32,516	9,994	$2,813,311	336	$1,505,851
Imperial Beach	3,408	1,178	$331,607	35	$156,860
La Mesa	0	0	$0	0	$0
Lemon Grove	131	41	$11,542	2	$8,963
National City	8,584	2,735	$769,903	259	$1,160,760
Oceanside	37,323	12,878	$3,625,157	368	$1,649,266
Poway	4,690	1,540	$433,510	79	$354,054
San Diego (City	85,289	28,438	$8,005,297	1,126	$5,046,394
San Marcos	2,609	875	$246,313	77	$345,091
Santee	2,994	967	$272,211	60	$268,902
Solana Beach	1,250	648	$182,412	16	$71,707
Unincorporated - Rural	8,950	4,426	$1,245,919	151	$676,737
Unincorporated - Urban Core	11,357	3,785	$1,065,478	213	$954,602
Vista	4,639	1,553	$437,170	144	$645,365
Total	**259,516**	**90,306**	**$25,421,139**	**3,769**	**$16,891,527**

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

Jurisdiction	Data	AIR	BRDG	BUS	COM	ELEC	EMER	GOVT	HOSP	INFR	PORT	POT	WWTR	RAIL	SCH	Total
Carlsbad	Number	0	6	0	0	0	0	0	0	20	0	0	0	0	1	27
	Exposure (x$1000)	0	1,150	0	0	0	0	0	0	20	0	0	0	0	1,000	2,169
Chula Vista	Number	0	18	0	0	1	1	1	1	30	1	0	0	0	3	56
	Exposure (x$1000)	0	3,449	0	0	10,000	2,000	2,000	100,000	48	20,000	0	0	0	3,000	140,497
Coronado	Number	0	1	0	0	0	0	1	0	2	0	0	0	0	0	4
	Exposure (x$1000)	0	192	0	0	0	0	2,000	0	7	0	0	0	0	0	2,198
Del Mar	Number	0	3	0	0	0	1	0	0	4	0	0	0	0	0	8
	Exposure (x$1000)	0	575	0	0	0	2,000	0	0	4	0	0	0	0	0	2,578
El Cajon	Number	0	13	1	0	1	2	3	3	9	0	0	0	0	8	40
	Exposure (x$1000)	0	2,491	2,000	0	10,000	4,000	6,000	300,000	19	0	0	0	0	8,000	332,510
Encinitas	Number	0	4	0	0	0	0	0	0	6	0	1	0	0	0	11
	Exposure (x$1000)	0	766	0	0	0	0	0	0	5	0	100,000	0	0	0	100,771
Escondido	Number	0	20	0	0	0	2	5	2	14	0	0	0	0	11	54
	Exposure (x$1000)	0	3,832	0	0	0	4,000	10,000	200,000	31	0	0	0	0	11,000	228,863
Imperial Beach	Number	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2
	Exposure (x$1000)	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
La Mesa	Number	0	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	0
Lemon Grove	Number	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
	Exposure (x$1000)	0	0	0	0	0	0	0	0	4	0	0	0	0	0	4
National City	Number	0	12	0	0	0	1	2	0	11	1	0	0	0	2	29
	Exposure (x$1000)	0	2,299	0	0	0	2,000	4,000	0	27	20,000	0	0	0	2,000	30,327
Oceanside	Number	1	21	0	2	0	4	4	1	37	0	0	0	1	6	77
	Exposure (x$1000)	200,000	4,024	0	4,000	0	8,000	8,000	100,000	77	0	0	0	2,000	6,000	332,100
Poway	Number	0	8	0	0	0	1	0	0	1	0	0	0	0	1	11
	Exposure (x$1000)	0	1,533	0	0	0	2,000	0	0	3	0	0	0	0	1,000	4,535
San Diego (City)	Number	0	119	2	3	0	2	8	3	122	49	1	0	1	5	315
	Exposure (x$1000)	0	22,800	4,000	6,000	0	4,000	16,000	300,000	229	980,000	100,000	0	2,000	5,000	1,440,030
San Marcos	Number	0	4	0	0	0	0	0	2	6	0	0	0	0	2	14
	Exposure (x$1000)	0	766	0	0	0	0	0	200,000	14	0	0	0	0	2,000	202,781
Santee	Number	0	9	0	2	0	0	1	0	5	0	0	0	0	0	17
	Exposure (x$1000)	0	1,724	0	4,000	0	0	2,000	0	4	0	0	0	0	0	7,729
Solana Beach	Number	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
	Exposure (x$1000)	0	192	0	0	0	0	0	0	0	0	0	0	0	0	192
Unincorporated	Number	3	39	0	1	0	4	1	0	56	0	0	0	0	13	117
Rural	Exposure (x$1000)	600,000	7,472	0	2,000	0	8,000	2,000	0	193	0	0	0	0	13,000	632,665
Unincorporated	Number	0	15	0	0	0	1	1	0	20	0	0	0	0	1	38
Urban Core	Exposure (x$1000)	0	2,874	0	0	0	2,000	2,000	0	58	0	0	0	0	1,000	7,932
Vista	Number	0	1	0	0	0	2	2	0	4	0	0	0	1	4	14
	Exposure (x$1000)	0	192	0	0	0	4,000	4,000	0	10	0	0	0	2,000	4,000	14,202
Total Number		4	294	3	8	2	21	29	12	349	51	2	0	3	57	835
Total Exposure (x$1000)		800,000	56,330	6,000	16,000	20,000	42,000	58,000	1,200,000	753	1,020,000	200,000	0	6,000	57,000	3,482,083

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 6637 low-income households and 17,098 elderly persons.

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

		Residential Buildings at Risk		Commercial Buildings at Risk	
Jurisdiction	**Exposed Population**	**Building Count**	**Potential Exposure (x$1000)**	**Building Count**	**Potential Exposure (x$1000)**
Carlsbad	455	204	$57,426	2	$8,963
Chula Vista	0	0	$0	0	$0
Coronado	0	0	$0	0	$0
Del Mar	0	0	$0	0	$0
El Cajon	35	22	$6,193	0	$0
Encinitas	24	7	$1,971	0	$0
Escondido	751	295	$83,043	2	$8,963
Imperial Beach	0	0	$0	0	$0
La Mesa	0	0	$0	0	$0
Lemon Grove	2	0	$0	0	$0
National City	0	0	$0	0	$0
Oceanside	0	0	$0	0	$0
Poway	2	0	$0	0	$0
San Diego (City)	137,095	48,049	$13,525,794	1,072	$4,804,382
San Marcos	1,441	457	$128,646	4	$17,927
Santee	35	12	$3,378	0	$0
Solana Beach	0	0	$0	0	$0
Unincorporated - Rural	9,130	3,573	$1,005,800	93	$416,798
Unincorporated - Urban Core	1,509	314	$88,391	4	$17,927
Vista	92	32	$9,008	1	$4,482
Total	**150,571**	**52,965**	**$14,909,648**	**1,178**	**$5,279,443**

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	WWTR	RAIL	SCH	Total
Carlsbad	Number	0	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	0
Chula Vista	Number	0	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	0
Coronado	Number	0	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	0
Del Mar	Number	0	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	0
El Cajon	Number	0	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	0
Encinitas	Number	0	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	0
Escondido	Number	0	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	0
Imperial Beach	Number	0	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	0
La Mesa	Number	0	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	0
Lemon Grove	Number	0	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	0
National City	Number	0	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	0
Oceanside	Number	0	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	0
Poway	Number	0	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	0
San Diego (City)	Number	0	17	0	10	0	6	4	0	93	0	0	0	0	22	152
	Exposure (x $1000)	0	3,257	0	20,000	0	12,000	8,000	0	221	0	0	0	0	22,000	65,478
San Marcos	Number	0	0	0	0	0	1	0	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	0	2,000
Santee	Number	0	0	0	1	0	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	0	2,000
Solana Beach	Number	0	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	0
Unincorporated	Number	0	3	0	2	0	3	1	0	26	0	0	0	0	0	35
Rural	Exposure (x $1000)	0	575	0	4,000	0	6,000	2,000	0	82	0	0	0	0	0	12,657
Unincorporated	Number	0	0	0	0	0	0	0	0	2	0	0	0	0	8	10
Urban Core	Exposure (x $1000)	0	0	0	0	0	0	0	0	3	0	0	0	0	8,000	8,003
Vista	Number	0	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	0
Total Number		0	20	0	13	0	10	5	0	121	0	0	0	0	30	199
Total Exposure (x $1000)		0	3,832	0	26,000	0	20,000	10,000	0	306	0	0	0	0	30,000	90,138

Refer to Table 4.4-1 for abbreviation definition

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

		Residential Buildings at Risk		Commercial Buildings at Risk	
Jurisdiction	**Exposed Population**	**Building Count**	**Potential Exposure (x$1000)**	**Building Count**	**Potential Exposure (x$1000)**
Carlsbad	57	30	$8,445	0	$0
Chula Vista	2	1	$282	1	$4,482
Coronado	0	0	$0	0	$0
Del Mar	0	0	$0	0	$0
El Cajon	39	13	$3,660	1	$4,482
Encinitas	6	1	$282	0	$0
Escondido	171	71	$19,987	2	$8,963
Imperial Beach	0	0	$0	0	$0
La Mesa	0	0	$0	0	$0
Lemon Grove	0	0	$0	0	$0
National City	7	2	$563	0	$0
Oceanside	0	0	$0	0	$0
Poway	0	0	$0	0	$0
San Diego (City)	10	3	$845	0	$0
San Marcos	970	286	$80,509	0	$0
Santee	0	0	$0	0	$0
Solana Beach	0	0	$0	0	$0
Unincorporated - Rural	23,197	4,188	$1,178,922	89	$398,871
Unincorporated - Urban Core	35,499	11,039	$3,107,479	389	$1,743,381
Vista	11	2	$563	0	$0
Total	**59,969**	**15,636**	**$4,401,534**	**482**	**$2,160,179**

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	WWTR	RAIL	SCH	Total
Carlsbad	Number	0	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	0
Chula Vista	Number	0	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	0
Coronado	Number	0	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	0
Del Mar	Number	0	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	0
El Cajon	Number	0	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	0
Encinitas	Number	0	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	0
Escondido	Number	0	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	0
Imperial Beach	Number	0	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	0
La Mesa	Number	0	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	0
Lemon Grove	Number	0	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	0
National City	Number	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
	Exposure (x$1000)	0	192	0	0	0	0	0	0	0	0	0	0	0	0	192
Oceanside	Number	0	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	0
Poway	Number	0	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	0
San Diego (City)	Number	0	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	0
San Marcos	Number	0	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	0
Santee	Number	0	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	0
Solana Beach	Number	0	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	0
Unincorporated Rural	Number	1	20	0	0	0	3	0	0	39	0	0	0	0	4	67
	Exposure (x$1000)	200,000	3,832	0	0	0	6,000	0	0	108	0	0	0	0	4,000	213,940
Unincorporated Urban Core	Number	0	29	0	0	0	8	2	1	36	0	0	0	2	12	90
	Exposure (x$1000)	0	5,556	0	0	0	16,000	4,000	100,000	71	0	0	0	4,000	12,000	141,628
Vista	Number	0	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	0
Total Number		1	50	0	0	0	11	2	1	75	0	0	0	2	16	158
Total Exposure (x$1000)		200,000	9,580	0	0	0	22,000	4,000	100,000	179	0	0	0	4,000	16,000	355,759

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 2008. 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 Cities of San Marcos and Escondido, 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.

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. Areas burned during the 2007 firestorm that are susceptible to flooding or debris flow as a result of a significant rain event have been mapped and these maps have been provided to the appropriate jurisdictions.

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 2,944,186 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 189,665 low-income households and 329,326 elderly persons.

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

		Residential Buildings at Risk		Commercial Buildings at Risk	
Jurisdiction	Exposed Population	Building Count	Potential Exposure (x$1000)	Building Count	Potential Exposure (x$1000)
Carlsbad	0	0	$0	0	$0
Chula Vista	17	5	$1,408	0	$0
Coronado	0	0	$0	0	$0
Del Mar	0	0	$0	0	$0
El Cajon	0	0	$0	0	$0
Encinitas	5	1	$282	0	$0
Escondido	65	27	$7,601	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	2	1	$282	0	$0
San Diego (City)	21	0	$0	1	$4,482
San Marcos	0	0	$0	0	$0
Santee	0	0	$0	0	$0
Solana Beach	0	0	$0	0	$0
Unincorporated - Rural	13,286	5,254	$1,479,001	187	$838,078
Unincorporated - Urban Core	2,251	628	$176,782	23	$103,079
Vista	13	5	$1,408	0	$0
Total	**15,660**	**5,921**	**$1,666,762**	**211**	**$945,639**

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

		Residential Buildings at Risk		Commercial Buildings at Risk	
Jurisdiction	Exposed Population	Building Count	Potential Exposure (x$1000)	Building Count	Potential Exposure (x$1000)
Carlsbad	3,219	1,294	$364,261	33	$147,896
Chula Vista	9,048	2,795	$786,793	3	$13,445
Coronado	19	0	$0	0	$0
Del Mar	7	5	$1,408	0	$0
El Cajon	97	36	$10,134	2	$8,963
Encinitas	1,267	424	$119,356	14	$62,744
Escondido	846	328	$92,332	14	$62,744
Imperial Beach	65	0	$0	0	$0
La Mesa	0	0	$0	0	$0
Lemon Grove	188	79	$22,239	1	$4,482
National City	0	0	$0	0	$0
Oceanside	1,402	470	$132,305	7	$31,372
Poway	937	305	$85,858	17	$76,189
San Diego (City)	20,153	6,990	$1,967,685	208	$932,194
San Marcos	2,236	818	$230,267	8	$35,854
Santee	222	89	$25,054	3	$13,445
Solana Beach	76	33	$9,290	1	$4,482
Unincorporated - Rural	47,816	18,209	$5,125,834	658	$2,948,959
Unincorporated - Urban Core	41,461	10,036	$2,825,134	180	$806,706
Vista	654	217	$61,086	7	$31,372
Total	129,713	42,128	$11,859,032	1,156	$5,180,845

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

		Residential Buildings at Risk		Commercial Buildings at Risk	
Jurisdiction	Exposed Population	Building Count	Potential Exposure (x$1000)	Building Count	Potential Exposure (x$1000)
Carlsbad	9,255	4,298	$1,209,887	72	$322,682
Chula Vista	3,840	1,224	$344,556	18	$80,671
Coronado	0	0	$0	0	$0
Del Mar	16	9	$2,534	1	$4,482
El Cajon	118	42	$11,823	3	$13,445
Encinitas	1,159	419	$117,949	18	$80,671
Escondido	1,660	654	$184,101	17	$76,189
Imperial Beach	37	7	$1,971	0	$0
La Mesa	404	177	$49,826	1	$4,482
Lemon Grove	0	0	$0	0	$0
National City	9	2	$563	5	$22,409
Oceanside	2,795	849	$238,994	21	$94,116
Poway	3,069	976	$274,744	55	$246,494
San Diego (City)	30,997	10,710	$3,014,865	280	$1,254,876
San Marcos	11,312	3,578	$1,007,207	30	$134,451
Santee	2,658	938	$264,047	18	$80,671
Solana Beach	50	22	$6,193	1	$4,482
Unincorporated - Rural	8,518	3,197	$899,956	108	$484,024
Unincorporated - Urban Core	8,068	2,504	$704,876	76	$340,609
Vista	792	277	$77,976	12	$53,780
Total	84,757	29,883	$8,412,065	736	$3,298,531

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

		Residential Buildings at Risk		Commercial Buildings at Risk	
Jurisdiction	Exposed Population	Building Count	Potential Exposure (x$1000)	Building Count	Potential Exposure (x$1000)
Carlsbad	76,454	31,464	$8,857,116	1,229	$5,508,009
Chula Vista	169,128	57,512	$16,189,628	1,963	$8,797,577
Coronado	18,868	8,097	$2,279,306	428	$1,918,168
Del Mar	3,332	1,836	$516,834	178	$797,743
El Cajon	97,629	35,464	$9,983,116	1,348	$6,041,332
Encinitas	55,064	21,388	$6,020,722	1,103	$4,943,315
Escondido	134,126	43,671	$12,293,387	1,745	$7,820,567
Imperial Beach	26,346	9,139	$2,572,629	310	$1,389,327
La Mesa	56,195	25,030	$7,045,945	946	$4,239,688
Lemon Grove	25,058	8,606	$2,422,589	361	$1,617,894
National City	55,054	15,749	$4,433,344	881	$3,948,378
Oceanside	161,361	58,273	$16,403,850	1,824	$8,174,621
Poway	43,815	14,007	$3,942,971	610	$2,733,837
San Diego (City)	1,251,231	473,008	$133,151,752	17,500	$78,429,750
San Marcos	60,659	20,218	$5,691,367	735	$3,294,050
Santee	50,473	17,705	$4,983,958	535	$2,397,710
Solana Beach	11,413	5,585	$1,572,178	303	$1,357,955
Unincorporated - Rural	71,028	24,474	$6,889,431	792	$3,549,506
Unincorporated - Urban Core	255,909	86,104	$24,238,276	2,970	$13,310,649
Vista	90,913	28,908	$8,137,602	1,106	$4,956,760
Total	2,714,056	986,238	$277,625,997	36,867	$165,226,834

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

		Residential Buildings at Risk		Commercial Buildings at Risk	
Jurisdiction	Exposed Population	Building Count	Potential Exposure (x$1000)	Building Count	Potential Exposure (x$1000)
Carlsbad	88,928	37,056	$10,431,264	1,334	$5,978,588
Chula Vista	182,033	61,536	$17,322,384	1,984	$8,891,693
Coronado	18,887	8,097	$2,279,306	428	$1,918,168
Del Mar	3,355	1,850	$520,775	179	$802,224
El Cajon	97,844	35,542	$10,005,073	1,353	$6,063,740
Encinitas	57,495	22,232	$6,258,308	1,135	$5,086,730
Escondido	136,697	44,680	$12,577,420	1,776	$7,959,499
Imperial Beach	26,448	9,146	$2,574,599	310	$1,389,327
La Mesa	56,599	25,207	$7,095,771	947	$4,244,170
Lemon Grove	25,246	8,685	$2,444,828	362	$1,622,375
National City	55,063	15,751	$4,433,907	886	$3,970,786
Oceanside	165,558	59,592	$16,775,148	1,852	$8,300,108
Poway	47,823	15,289	$4,303,854	682	$3,056,519
San Diego (City)	1,302,402	490,708	$138,134,302	17,989	$80,621,301
San Marcos	74,207	24,614	$6,928,841	773	$3,464,354
Santee	53,353	18,732	$5,273,058	556	$2,491,825
Solana Beach	11,539	5,640	$1,587,660	305	$1,366,919
Unincorporated - Rural	140,648	51,134	$14,394,221	1,745	$7,820,567
Unincorporated - Urban Core	307,689	99,272	$27,945,068	3,249	$14,561,043
Vista	92,372	29,407	$8,278,071	1,125	$5,041,913
Total	2,944,186	1,064,170	$299,563,855	38,970	$174,651,849

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	WWTR	RAIL	SCH	Total
Carlsbad	Number	0	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	0
Chula Vista	Number	0	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	0
Coronado	Number	0	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	0
Del Mar	Number	0	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	0
El Cajon	Number	0	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	0
Encinitas	Number	0	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	0
Escondido	Number	0	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	1	0	0	0	0	0	1
Imperial Beach	Number	0	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	0
La Mesa	Number	0	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	0
Lemon Grove	Number	0	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	0
National City	Number	0	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	0
Oceanside	Number	0	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	0
Poway	Number	0	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	0
San Diego (City)	Number	0	0	0	0	0	0	0	0	5	0	0	0	0	0	5
	Exposure (x$1000)	0	0	0	0	0	0	0	0	6	0	0	0	0	0	6
San Marcos	Number	0	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	0
Santee	Number	0	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	0
Solana Beach	Number	0	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	0
Unincorporated Rural	Number	2	22	1	14	0	5	0	0	114	0	0	0	0	2	160
	Exposure (x$1000)	400,000	4,215	2,000	28,000	0	10,000	0	0	415	0	0	0	0	2,000	446,630
Unincorporated Urban Core	Number	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
	Exposure (x$1000)	0	0	0	0	0	0	0	0	4	0	0	0	0	0	4
Vista	Number	0	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	0
Total Number		2	22	1	14	0	5	0	0	120	0	0	0	0	2	166
Total Exposure (x$1000)		400,000	4,215	2,000	28,000	0	10,000	0	0	426	0	0	0	0	2,000	446,641

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	1	1	2	0	0	0	2	7
	Exposure (x$1000)	0	192	0	0	0	0	2,000	100,000	3	0	0	0	2,000	104,195
Chula Vista	Number	0	0	0	0	0	0	0	0	3	0	0	0	1	4
	Exposure (x$1000)	0	0	0	0	0	0	0	0	1	0	0	0	1,000	1,001
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	1	0	0	0	0	1
	Exposure (x$1000)	0	0	0	0	0	0	0	0	3	0	0	0	0	3
Encinitas	Number	0	1	0	0	0	0	0	0	1	0	0	0	0	2
	Exposure (x$1000)	0	192	0	0	0	0	0	0	1	0	0	0	0	193
Escondido	Number	0	1	0	0	0	0	0	0	2	0	0	0	0	3
	Exposure (x$1000)	0	192	0	0	0	0	0	0	4	0	0	0	0	196
Imperial Beach	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	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	2	0	0	0	0	2
	Exposure (x$1000)	0	0	0	0	0	0	0	0	4	0	0	0	0	4
Poway	Number	0	0	0	0	0	0	0	0	3	0	0	0	1	4
	Exposure (x$1000)	0	0	0	0	0	0	0	0	8	0	0	0	1,000	1,008
San Diego (City)	Number	0	8	0	2	0	0	1	0	58	0	0	0	3	72
	Exposure (x$1000)	0	1,533	0	4,000	0	0	2,000	0	134	0	0	0	3,000	10,667
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	1	0	0	0	0	1
Santee	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	1	0	0	0	0	1
Solana Beach	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	2	0	0	0	0	2
Unincorporated - Rural	Number	13	105	2	34	0	50	0	5	665	0	0	0	23	897
	Exposure (x$1000)	2,600,000	20,118	4,000	68,000	0	100,000	0	500,000	2,173	0	0	0	23,000	3,317,291
Unincorporated - Urban Core	Number	0	9	0	0	0	6	1	2	75	0	0	0	6	99
	Exposure (x$1000)	0	1,724	0	0	0	12,000	2,000	200,000	82	0	0	0	6,000	221,806
Vista	Number	0	0	0	0	0	0	0	0	1	0	0	0	1	2
	Exposure (x$1000)	0	0	0	0	0	0	0	0	0	0	0	0	1,000	1,000
Total Number		13	125	2	36	0	56	3	8	815	0	0	0	37	1,095
Total Exposure (x$1000)		2,600,000	23,950	4,000	72,000	0	112,000	6,000	800,000	2,417	0	0	0	37,000	3,657,367

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	WWTR	RAIL	SCH	Total
Carlsbad	Number	0	0	0	0	0	0	0	0	19	0	0	0	0	3	22
	Exposure (x$1000)	0	0	0	0	0	0	0	0	27	0	0	0	0	3,000	3,027
Chula Vista	Number	0	1	0	0	0	0	0	0	2	0	0	0	0	1	4
	Exposure (x$1000)	0	192	0	0	0	0	0	0	4	0	0	0	0	1,000	1,195
Coronado	Number	0	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	0
Del Mar	Number	0	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	0
El Cajon	Number	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
	Exposure (x$1000)	0	0	0	0	0	0	0	0	3	0	0	0	0	0	3
Encinitas	Number	0	3	0	0	0	0	0	0	3	0	1	0	0	0	7
	Exposure (x$1000)	0	575	0	0	0	0	0	0	1	0	100,000	0	0	0	100,576
Escondido	Number	0	0	0	1	0	0	0	0	7	0	0	0	0	0	8
	Exposure (x$1000)	0	0	0	2,000	0	0	0	0	5	0	0	0	0	0	2,005
Imperial Beach	Number	0	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	0
La Mesa	Number	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
	Exposure (x$1000)	0	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	0
	Exposure (x$1000)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
National City	Number	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
	Exposure (x$1000)	0	192	0	0	0	0	0	0	0	0	0	0	0	0	192
Oceanside	Number	0	1	0	0	0	0	1	0	8	0	0	0	0	0	10
	Exposure (x$1000)	0	192	0	0	0	0	2,000	0	16	0	0	0	0	0	2,208
Poway	Number	0	2	0	0	0	0	0	0	7	0	0	0	0	1	10
	Exposure (x$1000)	0	383	0	0	0	0	0	0	22	0	0	0	0	1,000	1,405
San Diego (City)	Number	0	13	0	3	0	0	0	0	51	0	0	0	0	8	75
	Exposure (x$1000)	0	2,491	0	6,000	0	0	0	0	92	0	0	0	0	8,000	16,582
San Marcos	Number	0	1	0	2	0	1	0	0	2	0	0	0	0	0	6
	Exposure (x$1000)	0	192	0	4,000	0	2,000	0	0	4	0	0	0	0	0	6,196
Santee	Number	0	0	0	1	0	0	0	0	2	0	0	0	0	0	3
	Exposure (x$1000)	0	0	0	2,000	0	0	0	0	5	0	0	0	0	0	2,005
Solana Beach	Number	0	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	0
Unincorporated Rural	Number	4	17	0	2	0	3	1	0	136	0	0	0	0	2	165
	Exposure (x$1000)	800,000	3,257	0	4,000	0	6,000	2,000	0	446	0	0	0	0	2,000	817,703
Unincorporated Urban Core	Number	0	6	0	0	0	1	0	2	16	0	0	1	0	0	26
	Exposure (x$1000)	0	1,150	0	0	0	2,000	0	200,000	21	0	0	100,000	0	0	303,171
Vista	Number	0	0	0	0	0	1	0	0	2	0	0	0	0	1	4
	Exposure (x$1000)	0	0	0	0	0	2,000	0	0	1	0	0	0	0	1,000	3,001
Total Number		4	45	0	9	0	6	2	2	255	0	1	1	0	16	341
Total Exposure (x$1000)		800,000	8,622	0	18,000	0	12,000	4,000	200,000	648	0	100,000	100,000	0	16,000	1,259,270

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	WWTR	RAIL	SCH	Total
Carlsbad	Number	1	19	0	2	1	7	4	1	89	0	1	0	0	18	143
	Exposure (x$1000)	200,000	3,640	0	4,000	10,000	14,000	8,000	100,000	153	0	100,000	0	0	18,000	457,793
Chula Vista	Number	0	39	2	2	1	11	8	7	85	0	1	0	0	59	215
	Exposure (x$1000)	0	7,472	4,000	4,000	10,000	22,000	16,000	700,000	165	0	100,000	0	0	59,000	922,638
Coronado	Number	0	1	0	1	0	3	4	1	12	0	0	0	0	9	31
	Exposure (x$1000)	0	192	0	2,000	0	6,000	8,000	100,000	12	0	0	0	0	9,000	125,204
Del Mar	Number	0	5	0	0	0	1	2	0	10	0	0	0	0	2	20
	Exposure (x$1000)	0	958	0	0	0	2,000	4,000	0	7	0	0	0	0	2,000	8,965
El Cajon	Number	1	37	1	2	1	8	7	6	61	0	0	0	0	47	171
	Exposure (x$1000)	200,000	7,089	2,000	4,000	10,000	16,000	14,000	600,000	153	0	0	0	0	47,000	900,242
Encinitas	Number	0	11	0	1	0	6	3	3	72	0	0	0	7	23	126
	Exposure (x$1000)	0	2,108	0	2,000	0	12,000	6,000	300,000	127	0	0	0	14,000	23,000	359,235
Escondido	Number	0	67	1	1	0	6	8	8	68	0	1	0	1	43	204
	Exposure (x$1000)	0	12,837	2,000	2,000	0	12,000	16,000	800,000	187	0	100,000	0	2,000	43,000	990,024
Imperial Beach	Number	0	1	0	0	0	2	2	2	3	0	0	0	0	8	18
	Exposure (x$1000)	0	192	0	0	0	4,000	4,000	200,000	2	0	0	0	0	8,000	216,194
La Mesa	Number	0	36	0	1	0	4	4	2	52	0	0	0	0	25	124
	Exposure (x$1000)	0	6,898	0	2,000	0	8,000	8,000	200,000	112	0	0	0	0	25,000	250,010
Lemon Grove	Number	0	8	0	0	0	2	3	0	23	0	0	0	0	10	46
	Exposure (x$1000)	0	1,533	0	0	0	4,000	6,000	0	58	0	0	0	0	10,000	21,591
National City	Number	0	46	1	1	2	4	4	7	37	0	1	0	2	20	125
	Exposure (x$1000)	0	8,814	2,000	2,000	20,000	8,000	8,000	700,000	87	0	100,000	0	4,000	20,000	872,901
Oceanside	Number	1	37	2	4	0	10	9	11	103	0	1	0	7	37	222
	Exposure (x$1000)	200,000	7,089	4,000	8,000	0	20,000	18,000	1,100,000	206	0	100,000	0	14,000	37,000	1,508,295
Poway	Number	0	40	1	0	0	3	1	1	22	0	0	1	0	22	91
	Exposure (x$1000)	0	7,664	2,000	0	0	6,000	2,000	100,000	60	0	0	100,000	0	22,000	239,724
San Diego (City)	Number	4	445	12	22	8	85	95	49	750	3	2	2	5	339	1,821
	Exposure (x$1000)	800,000	85,262	24,000	44,000	80,000	170,000	190,000	4,900,000	1,686	60,000	200,000	200,000	10,000	339,000	7,103,948
San Marcos	Number	0	11	0	0	0	7	3	2	54	0	0	0	2	20	99
	Exposure (x$1000)	0	2,108	0	0	0	14,000	6,000	200,000	136	0	0	0	4,000	20,000	246,244
Santee	Number	0	14	1	1	0	3	2	0	27	0	1	0	0	15	64
	Exposure (x$1000)	0	2,682	2,000	2,000	0	6,000	4,000	0	60	0	100,000	0	0	15,000	131,742
Solana Beach	Number	0	5	0	0	0	1	1	0	27	0	0	0	1	9	44
	Exposure (x$1000)	0	958	0	0	0	2,000	2,000	0	44	0	0	0	2,000	9,000	16,002
Unincorporated Rural	Number	13	72	0	5	3	35	2	5	383	0	0	1	0	38	557
	Exposure (x$1000)	2,600,000	13,795	0	10,000	30,000	70,000	4,000	500,000	1,289	0	0	100,000	0	38,000	3,367,085
Unincorporated Urban Core	Number	0	96	0	1	0	30	7	6	194	0	1	1	2	100	438
	Exposure (x$1000)	0	18,394	0	2,000	0	60,000	14,000	600,000	415	0	100,000	100,000	4,000	100,000	998,808
Vista	Number	0	12	0	0	0	8	4	3	48	0	0	0	9	38	122
	Exposure (x$1000)	0	2,299	0	0	0	16,000	8,000	300,000	95	0	0	0	18,000	38,000	382,394
Total Number		20	1,002	21	44	16	236	173	114	2,118	3	9	5	36	882	4,679
Total Exposure (x$1000)		4,000,000	191,983	42,000	88,000	160,000	472,000	346,000	11,400,000	5,056	60,000	900,000	500,000	72,000	882,000	19,119,039

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	WWTR	RAIL	SCH	Total
Carlsbad	Number	1	20	0	2	1	7	5	2	110	0	1	0	0	23	172
	Exposure (x$1000)	200,000	3,832	0	4,000	10,000	14,000	10,000	200,000	183	0	100,000	0	0	23,000	565,015
Chula Vista	Number	0	40	2	2	1	11	8	7	95	0	1	0	0	61	228
	Exposure (x$1000)	0	7,664	4,000	4,000	10,000	22,000	16,000	700,000	185	0	100,000	0	0	61,000	924,849
Coronado	Number	0	1	0	1	0	3	4	1	12	0	0	0	0	9	31
	Exposure (x$1000)	0	192	0	2,000	0	6,000	8,000	100,000	13	0	0	0	0	9,000	125,204
Del Mar	Number	0	5	0	0	0	1	2	0	10	0	0	0	0	2	20
	Exposure (x$1000)	0	958	0	0	0	2,000	4,000	0	7	0	0	0	0	2,000	8,965
El Cajon	Number	1	37	1	2	1	8	7	6	63	0	0	0	0	47	173
	Exposure (x$1000)	200,000	7,089	2,000	4,000	10,000	16,000	14,000	600,000	159	0	0	0	0	47,000	900,248
Encinitas	Number	0	15	0	1	0	6	3	3	76	0	1	0	6	25	136
	Exposure (x$1000)	0	2,874	0	2,000	0	12,000	6,000	300,000	130	0	100,000	0	12,000	25,000	460,004
Escondido	Number	0	68	1	2	0	6	8	8	76	0	1	1	1	43	214
	Exposure (x$1000)	0	13,029	2,000	4,000	0	12,000	16,000	800,000	197	0	100,000	100,000	2,000	43,000	1,092,226
Imperial Beach	Number	0	1	0	0	0	2	2	2	4	0	0	0	0	8	19
	Exposure (x$1000)	0	192	0	0	0	4,000	4,000	200,000	2	0	0	0	0	8,000	216,194
La Mesa	Number	0	36	0	1	0	4	4	2	53	0	0	0	0	25	125
	Exposure (x$1000)	0	6,898	0	2,000	0	8,000	8,000	200,000	113	0	0	0	0	25,000	250,010
Lemon Grove	Number	0	8	0	0	0	2	3	0	23	0	0	0	0	10	46
	Exposure (x$1000)	0	1,533	0	0	0	4,000	6,000	0	58	0	0	0	0	10,000	21,591
National City	Number	0	47	1	1	2	4	4	7	37	0	1	0	2	20	126
	Exposure (x$1000)	0	9,005	2,000	2,000	20,000	8,000	8,000	700,000	87	0	100,000	0	4,000	20,000	873,093
Oceanside	Number	1	38	2	4	0	10	10	11	112	0	1	0	7	37	233
	Exposure (x$1000)	200,000	7,281	4,000	8,000	0	20,000	20,000	1,100,000	226	0	100,000	0	14,000	37,000	1,510,506
Poway	Number	0	42	1	0	0	3	1	1	31	0	0	1	0	24	103
	Exposure (x$1000)	0	8,047	2,000	0	0	6,000	2,000	100,000	89	0	0	100,000	0	24,000	242,137
San Diego	Number	4	466	12	27	8	85	96	49	859	3	2	3	5	350	1,966
(City)	Exposure (x$1000)	800,000	89,286	24,000	54,000	80,000	170,000	192,000	4,900,000	1,912	60,000	200,000	300,000	10,000	350,000	7,231,198
San Marcos	Number	0	12	0	2	0	8	3	2	56	0	0	0	2	20	105
	Exposure (x$1000)	0	2,299	0	4,000	0	16,000	6,000	200,000	142	0	0	0	4,000	20,000	252,441
Santee	Number	0	14	1	2	0	3	2	0	30	0	1	0	0	15	68
	Exposure (x$1000)	0	2,682	2,000	4,000	0	6,000	4,000	0	65	0	100,000	0	0	15,000	133,748
Solana Beach	Number	0	5	0	0	0	1	1	0	28	0	0	0	1	9	45
	Exposure (x$1000)	0	958	0	0	0	2,000	2,000	0	46	0	0	0	2,000	9,000	16,004
Unincorporated	Number	30	194	2	41	3	88	3	10	1,184	0	0	3	0	63	1,618
Rural	Exposure (x$1000)	6,000,000	37,170	4,000	82,000	30,000	176,000	6,000	1,000,000	3,908	0	0	300,000	0	63,000	7,702,078
Unincorporated	Number	0	111	0	1	0	37	8	10	285	0	1	2	2	106	561
Urban Core	Exposure (x$1000)	0	21,268	0	2,000	0	74,000	16,000	1,000,000	518	0	100,000	200,000	4,000	106,000	1,523,785
Vista	Number	0	12	0	0	0	9	4	3	50	0	0	0	9	40	127
	Exposure (x$1000)	0	2,299	0	0	0	18,000	8,000	300,000	96	0	0	0	18,000	40,000	386,395
Total Number		37	1,172	23	89	16	298	178	124	3,192	3	10	10	35	937	6,114
Total Exposure (x$1000)		7,400,000	224,555	46,000	178,000	160,000	596,000	356,000	12,400,000	8,136	60,000	1,000,000	1,000,000	70,000	937,000	24,435,691

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 3,173,407 (State of California Department of Finance Report E:1 2008-2009). 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.

Insert Figure 4.5.1

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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Insert Figure 4.5.2

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 1) mitigation goals and objectives, 2) mitigation actions and priorities, 3) an implementation plan, and 4) documentation of the mitigation planning process for each of the twenty one (21) participating jurisdictions. 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 and 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.

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 as well as the Fire protection District.

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's 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 State of California's Standardized Emergency Management System (SEMS), the National Incident Management System (NIMS) as well as 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. The 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 and special district.

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	14	8	2,252	0	0	0	0
Dam Failure	4,113	1,951	549,207	49	219,603	12	1,775
Earthquake (Annualized Loss - Includes shaking, liquefaction and landslide components)	77,889	29,072	3,173	317	1350	100*/ 102**	9,574*/ 43,434**
Flood (Loss)							
100 Year	6,906	3,045	857,168	102	457,133	27	2,169
500 Year	6,996	3,086	868,709	104	466,097	27	2,169
Rain-Induced Landslide							
High Risk	455	204	57,426	2	8,963	0	0
Moderate Risk	57	30	8,445	0	0	0	0
Tsunami	1,165	535	150,603	23	103,079	6	386
Wildfire / Structure Fire							
Extreme	0	0	0	0	0	0	0
Very High	3,219	1,294	364,261	33	147,896	7	104,195
High	9,255	4,298	1,209,887	72	322,682	22	3,027
Moderate	76,454	31,464	8,857,116	1,229	5,508,009	143	457,793

* 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 City of Carlsbad local planning group (LPG) for emergency planning is the Carlsbad Emergency Management Administrative Team (CEMAT). 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	Community and Economic Development, Housing and Neighborhood Development, Parks and Recreation Programs
B. Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Y	Community and Economic Development
C. Planners or Engineer(s) with an understanding of natural and/or manmade hazards	Y	Community and Economic Development, Fire Prevention, Asset Management and Environmental Programs
D. Floodplain manager	Y	Utilities, Community and Economic Development
E. Surveyors	Y	Community and Economic Development
F. Staff with education or expertise to assess the community's vulnerability to hazards	Y	CEMAT, Fire Prevention
G. Personnel skilled in GIS and/or HAZUS	Y	GIS Staff in IT
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	Y	
J. An emergency response plan	Y	N
K. A post-disaster recovery plan	Y	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 original Carlsbad LPG members were Michele Masterson, Joe Garuba 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 7 Goals for their Hazard Mitigation Plan (See Attachment A for Goals 6 and 7).

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

Goal 2. Build and maintain local capacity and commitment to hazard mitigation goals.

Goal 3. Reduce the possibility of damage and losses to existing assets, including people, facilities and infrastructure due to flooding/dam failure.

Goal 4. Reduce the possibility of damage and losses to existing assets, including people, critical facilities/infrastructure, and public facilities due to earthquakes.

Goal 5: Reduce the possibility of damage and losses to existing assets, including people, critical facilities/infrastructure, and public facilities due to structural fire/wildfire.

Goal 6. Reduce the possibility of damage and losses to existing assets, including people, facilities and infrastructure due to hazardous materials-related hazards

Goal 7. Reduce the possibility of damage and losses to existing assets, including people, facilities and infrastructure due to manmade hazards where appropriate.

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 five 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	Carlsbad Emergency Management Administrative Team (CEMAT) develop hazard mitigation public awareness strategies.
Action 1.A.2	Publicize and encourage the adoption of appropriate hazard mitigation actions.
Action 1.A.3	Provide information to the public on the City website and through public education opportunities.
Objective 1B: Promote partnerships between the state, counties, and local jurisdictions and agencies 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.	
Objective 1B: Promote partnerships between the state, counties, and local jurisdictions and agencies to identify, prioritize, and implement mitigation actions (continued).	
Action 1.B.2	Support public sector symposiums and public education opportunities.
Objective 1C: Work with Chamber of Commerce, businesses and other local agencies to promote hazard mitigation in the local 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	Support private sector symposiums and public education opportunities.

Goal 2: Build and maintain local capacity and commitment to hazard mitigation goals.	
Objective 2.A: Increase awareness and knowledge of hazard mitigation principles and practice among local officials.	
Action 2.A.1	CEMAT liaison with city departments to increase awareness and knowledge of hazard mitigation plan, principles and goals,
Objective 2.B: Implement actions associated with hazard mitigation plan.	
Action 2.B.1	CEMAT coordinate and monitor action plan milestones.
Objective 2.C: Continue GIS mapping of potential hazard areas.	
Action 2.C.1	Update GIS mapping as appropriate.

Goal 3: Reduce the possibility of damage and losses to existing assets, including people, facilities and infrastructure due to <u>flooding/dam failure</u>.	
Objective 3.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to flooding/dam failure.	
Action 3.A.1	Update inundation maps every 10 years.
Action 3.A.2	Review and compare existing flood control standards, zoning and building requirements.
Action 3.A.3	Review and update policies that discourage growth in flood-prone areas.

Goal 3: Reduce the possibility of damage and losses to existing assets, including people, facilities and infrastructure due to flooding/dam failure (continued).	
Objective 3.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to flooding/dam failure (continued).	
Action 3.A.4	Review and update city-wide Evacuation Plan.
Action 3.A.5	Periodically exercise flooding/dam failure response actions.
Action 3.A.6	Update flooding/dam failure response actions in Emergency Operations Plan (EOP).
Objective 3.B: Protect existing assets with the highest relative vulnerability to the effects of a flooding (100 year floodplain)/dam failure.	
Action 3.B.1	Identify hazard-prone structures and areas.
Action 3.B.2	Maintain Storm Water System.
Action 3.B.3	Maintain materials for building water barriers.
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 earthquakes.	
Objective 4.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to earthquakes.	
Action 4.A.1	Update earthquake response actions in Emergency Operations Plan (EOP).
Action 4.A.2	Continue periodic updates of local building codes, public works construction codes, zoning and grading ordinances to reflect legislative changes.
Action 4.A.3	Review and update city-wide Evacuation Plan.
Action 4.A.4	Periodically exercise earthquake response actions.

Goal 4: Reduce the possibility of damage and losses to existing assets, including people, critical facilities/infrastructure, and public facilities due to earthquakes. (continued)	
Objective 4.B: Protect existing assets with the highest relative vulnerability to the effects of earthquakes.	
Action 4.B.1	CEMAT review local vulnerability to ground motion, landslides and liquefaction impacts on facilities and infrastructure.
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 participation in state-wide earthquake preparedness exercises..

Goal 5: Reduce the possibility of damage and losses to existing assets, including people, critical facilities/infrastructure, and public facilities due to structural fire/wildfire.	
Objective5.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to structural fire/wildfire.	
Action 5.A.1	Update structural fire/wildfire response actions in Emergency Operations Plan (EOP).
Action 5.A.2	Review and update city-wide Evacuation Plan.
Action 5.A.3	Periodically exercise structural fire/wildfire response actions.
Action 5.A.4	Participate in amendments to Fire Protection programs, policies, and requirements; ref. Section IV.F. City Landscape Manual.
Action 5.A.5	Continue with Hosp Grove trimming and replanting efforts.
Action 5.A.6	Continue to provide for annual vegetation management/maintenance, as necessary, in Hosp Grove defensible space.
Action 5.A.7	Provide fire public education materials as requested or needed.
Objective5.B: Coordinate with and support existing efforts to mitigate structural fire/wildfire.	
Action 5.B.1	Continue to maintain the City's weed abatement ordinance to facilitate the removal of annual weeds/vegetation or habitat.

Goal 5: Reduce the possibility of damage and losses to existing assets, including people, critical facilities/infrastructure, and public facilities due to structural fire/wildfire (continued).	
Objective5.B: Coordinate with and support existing efforts to mitigate structural fire/wildfire (continued).	
Action 5.B.2	Provide increased vegetation management oversight to developments or HOA's bordering on open space or in Very High Fire Hazard Severity Zones.
Objective5.C: Maintain GIS mapping to best reflect potential vulnerability of assets from structural fire/wildfire.	
Action 5.C.1	GIS maintain mapped fire risk areas.
Objective5.D: Maintain adequate emergency response capability.	
Action 5.D.1	Continue to evaluate service level impacts and needs as part of City Council goals, Standards of Cover reviews, and Annual Operating Budget and Capital Improvement Program.

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: Carlsbad Emergency Management Administrative Team (CEMAT) develop hazard mitigation public awareness strategies.

Coordinating Individual/Organization: CEMAT

Potential Funding Source: General Fund

Implementation Timeline: On-going

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

Coordinating Individual/Organization: Parks and Recreation Planning

Potential Funding Source: Grant Funding and General Fund

Implementation Timeline: Fiscal Year 2010 – 2014

Action Item #3: Participate in amendments to Fire Protection programs, policies, and requirements; ref. Section IV.F., City Landscape Design Manual.

Coordinating Individual/Organization: Community Development Planning

Potential Funding Source: General Fund
Implementation Timeline: Fiscal Year 2010-2014

Action Item #4: Continue to maintain the City's weed abatement ordinance to facilitate the removal of annual weeds/vegetation or habitat.
Coordinating Individual/Organization: Fire Prevention
Potential Funding Source: General Fund
Implementation Timeline: On-going

Action Item #5: Provide increased vegetation management oversight to developments or HOA's bordering on open space or in Very High Fire Hazard Severity Zones.
Coordinating Individual/Organization: Fire Prevention
Potential Funding Source: General Fund
Implementation Timeline: Fiscal Year 2010 - 2014

Action Item #6: Investigate feasibility of maintaining hazardous materials business plans in Mobile Data Computer.
Coordinating Individual/Organization: Fire Department
Potential Funding Source: General Fund
Implementation Timeline: FY 2010-2014

Action Item #7: Continue periodic updates of local building codes, public works construction codes, zoning and grading ordinances to reflect legislative changes.
Coordinating Individual/Organization: Fire Department Community and Economic Development
Potential Funding Source: General Fund
Implementation Timeline: FY 2010-2014

Action Item #8: GIS develop layer depicting location of business required to have hazardous materials business plans.
Coordinating Individual/Organization: GIS
Potential Funding Source: General Fund
Implementation Timeline: FY 2010-2014

Action Item 9: Update hazardous material business plan library.
Coordinating Individual/Organization: Fire Prevention

Potential Funding Source: General Fund

Implementation Timeline: FY 2010-2014

Action Item 10: Provide information to the public on the City website and through public education opportunities.

Coordinating Individual/Organization: CEMAT

Potential Funding Source: General Fund

Implementation Timeline: FY 2010-2014

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, as 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	8,635	2,973	836,900	190	851,523	45	218,126
Earthquake (Annualized Loss - Includes shaking, liquefaction and landslide components)	173,491	43,573	4,004	407	1,084	162*/ 164**	6,533*/ 46,344**
Flood (Loss)							
100 Year	5,947	2,395	674,193	153	685,700	29	107,324
500 Year	25,564	9,180	2,584,170	405	1,815,089	56	140,497
Rain-Induced Landslide							
High Risk	0	0	0	0	0	0	0
Moderate Risk	2	1	282	1	4,482	0	0
Tsunami	83	26	7,319	1	4,482	2	20,192
Wildfire / Structure Fire							
Extreme	17	5	1,408	0	0	0	0
Very High	9,048	2,795	786,793	3	13,445	8	1,016
High	3,480	1,224	344,556	18	80,671	4	1,195
Moderate	169,128	57,512	16,189,628	1,963	8,797,577	215	922,638

* 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 regions. 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 Development Services 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.
  - 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.
  - Implements and enforces programs, plans, policies, and regulations over land development and redevelopment in order to assure adequate and maintainable infrastructure.
  - Mutual aid with certified building inspectors and engineers for damage assessment following a disaster
- City of Chula Vista Public Works 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.
  - 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 Information Technology 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.

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	Development Services and Public Works Departments
B. Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Y	Development Services and Public Works Departments
C. Planners or Engineer(s) with an understanding of natural and/or manmade hazards	Y	Development Services and Public Works Departments
D. Floodplain manager	Y	City Engineer and Building Official
E. Surveyors	Y	Public Works Department
F. Staff with education or expertise to assess the community's vulnerability to hazards	Y	Development Services, Police, Fire, Management & Information Systems, and Public Works Departments.
G. Personnel skilled in GIS and/or HAZUS	Y	Information Technology Department
H. Scientists familiar with the hazards of the community	N	City uses Consultant Scientists, as needed and as resources are available
I. Emergency Coordinator	Y	Fire Department-Tom Leonard, Emergency Services Coordinator
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	Development Services and Finance Departments

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.	California Building Code	Y	N
T.	California Reference Standards Code	Y	N
U.	California Mechanical Code	Y	N

Table 5.4-3 (cont.)
City of Chula Vista: Legal and Regulatory Capability

V.	California Electrical Code	Y	N
W.	California Plumbing Code	Y	N
X.	California Fire Code	Y	N
Y.	California Statutes 21000-21178: Public Resources Code, Division 13 – Environmental Quality	Y	N
Z.	Urban-Wildland Interface Code	Y	N
AA.	Floodplain Regulations	Y	N
BB.	Zoning and Specific Plans	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 resources are available and to the extent the funds are used to benefit eligible census tracts
B. Capital improvements project funding	Yes, as resources are 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. City does not own or operate other utilities
E. Impact fees for homebuyers or developers for new developments/homes	Yes, as resources are available
F. Incur debt through general obligation bonds	Yes, as resources are available
G. Incur debt through special tax and revenue bonds	Yes, as resources are 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

Once developed, City staff presented submitted the plan the CalEMA and FEMA for approval. Once approved by FEMA the plan will be taken to City Council for adoption.

Public comments were solicited by the County Office of Emergency Services to present these goals, objectives and actions to citizens and to receive public input. 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 the City of Chula Vista' 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 (See Attachment A)

Goal 10. Other Manmade Hazards (See Attachment A)

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	Review the City's General Plan periodically and update the appropriate elements, as necessary, as resources are available.
Action 1.A.2	Identify new hazardous occupancies as they are permitted or created and establish database for same, as resources are available.
Action 1.A.3	Update the City's zoning ordinance periodically and address development in hazard areas and minimize zoning ambiguities, as resources are available.
Action 1.A.4	Periodically revisit the City's hazard mitigation-related ordinances to identify areas where improvements could be made, as resources are available.
Action 1.A.5	Utilize hazard overlays to identify hazard-prone areas, as resources are available.
Action 1.A.6	Establish buffer zones for development near hazard-prone areas, as resources are available.
Action 1.A.7	Prohibit development in extreme hazard areas that cannot be adequately mitigated and set aside for open space, as resources are available.
Action 1.A.8	Identify land uses appropriate to specific hazard areas, as resources are 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 resources are available.
Action 1.B.2	Amend the Zoning and Subdivision Ordinances, as required, to implement the appropriate policies of the General Plan, as resources are 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 resources are available.
Action 1.B.4	Amend the Fire Code and Building Code, as necessary, to be consistent with the appropriate policies of the General Plan, as resources are available.
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 resources are available.
Action 1.B.6	Identify and provide fire mitigation measures in buildings with hazardous materials, add ventilation systems to minimize explosions, as required, and add control areas, as resources are available.
Action 1.B.7	Develop hazard-specific code requirements and/or technical opinions for each type of hazard area, as resources are available.

Goal 1: Promote disaster resistant existing and 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 (continued).	
Action 1.B.8	Develop standardized processes for evaluating proposed developments within hazard areas, as resources are 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 resources are available.
Action 1.B.10	Establish minimum structure setbacks adjacent to hazard areas, with respect to hazard specific code, as resources are available.
Objective 1.C: Encourage consistent enforcement of general plans, zoning ordinances, and building codes.	
Action 1.C.1	Periodically review General Plan, Zoning Ordinance, Fire Codes, Subdivision Ordinance, and Building Codes for consistency, as resources are available.
Action 1.C.2	Maintain ongoing training for development staff on development procedures and zoning and building code interpretation, as resources are available.
Action 1.C.3	Continue to provide a hazmit compliance review any time a permit is obtained for any improvement on new and existing hazardous occupancies, as resources are available.
Action 1.C.4	Develop and implement specialized training on an on-going basis for Development Services staff for each type of hazard area, as resources are 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 resources are 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 occupancies and encourage a maintenance program, as resources are available.
Action 1.C.8	Develop standard processes for evaluating/approving proposed development in hazard areas, as resources are available.
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 resources are available.
Action 1.D.2	Apply for State/Federal grants/funds for the acquisition of developable land for open space development.

Goal 1: Promote disaster resistant existing and future development (continued).	
Objective 1.D: Discourage future development that exacerbates hazardous conditions (continued).	
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 resources are available.
Action 1.D.4	Set aside or zone extreme hazard areas for open space uses, as resources are available.
Action 1.D.5	Evaluate the potential benefits of establishing buffer/transition zoning for each type of hazard area, as resources are available.
Action 1.D.6	Educate the public regarding hazardous locations, operations, buildings, etc., as resources are available.
Action 1.D.7	Where feasible, encourage the development of infrastructure to assist in the hardening of hazard exposure zones, as resources are 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 resources are available.
Action 1.E.2	Utilize staff consultant expertise in evaluating technical studies/data, as resources are 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 resources are available.
Objective 1.F: Actively pursue grant funding for citywide hazard mitigation.	
Action 1.F.1	Keep a look out for hazard mitigation funding, from state and nation-wide sources, and to inform the proper department head when potential grant funding is identified.
Action 1.F.2	Apply for hazard mitigation grant funding, as it becomes available.
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 resources are available.
Action 2.A.2	Continually provide Chula Vista citizens with Community Emergency Response Team training opportunities to increase public awareness of hazards and response to hazards, as resources are available.
Action 2.A.3	Provide a public information program on geologic and firestorm hazards and safety, as resources are available.
Action 2.A.4	Provide training at Town Hall Meetings or other public gatherings, as resources are available.
Action 2.A.5	Provide discussion, on City's home web page, regarding 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 resources are 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	Continue to 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 resources are 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 resources are available.
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 resources are available.
Action 2.D.2	Provide newsletters or Internet sites to publicize the information gathered through the monitoring program, as resources are available.
Action 2.D.3	Provide specific outreach to citizens with special needs, as funding becomes available.

Goal 2: Promote public understanding, support and demand for hazard mitigation (continued).	
Objective 2.E: Discourage activities that exacerbate hazardous conditions.	
Action 2.E.1	Promote an increased level of security of facilities storing hazardous materials.
Action 2.E.2	Ensure land uses that do not conform to this Plan are not permitted.
Action 2.E.3	In the event non-conforming land uses are damaged or destroyed in a disaster, ensure that reconstruction is consistent with Chula Vista Municipal Code, Chapter 19.64.
Action 2.E.4	Provide guidelines in the usage of hazardous materials specifically in approved locations, as resources are 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 practices among state, and local officials.	
Action 3.A.1	Establish the means to share information and innovations in various areas of hazard mitigation, as resources are available.
Action 3.A.2	Coordinate hazard mitigation activities with local utilities, water suppliers, and critical facilities within the City of Chula Vista, as resources are 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 County Office of Emergency Services (OES), CalEMA, and FEMA review of the City's hazard mitigation plan for recommendations for plan refinements and for potential funding sources.
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, as resources are available.
Action 3.C.2	Explore viable public and private mutual aid resource alternatives.
Action 3.C.3	Identify public and private resources available for various types of emergencies, including materials, equipment, debris removal/recycling, etc.
Action 3.C.4	Establish emergency purchasing authority with local businesses, suppliers, disposal sites, and material recyclers, as resources are available.

Goal 4: Improve hazard mitigation coordination and communication with federal, state and local governments.	
Objective 4.A: Establish and maintain close 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 and County, State, and Federal entities, as resources are available.
Action 4.A.2	Promote mutual aid agreements and interagency dialogue related to hazard mitigation planning, as resources are 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 resources are 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 resources are 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 resources are 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 resources are available. Safeguard the projects by storing in multiple locations. Promote the sharing of these projects and data 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 publicly-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, as resources are available.
Action 5.A.2	Prevent deposit of fill or construction within any floodway, as resources are available.
Action 5.A.3	Update Drainage Element of the General Plan based upon actual developed conditions (General Plan, GMOC Section), as resources are available.

Goal 5: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and publicly-owned facilities, due to <u>floods</u> (continued).	
Objective 5.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to floods (continued).	
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 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 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 resources are available.
Action 5.B.3	Discourage the disruption of natural flowage patterns and encourage the maximum use of natural and naturalized drainage ways in new development (General Plan drainage and flood control policies), as resources are 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 resources are 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 resources are 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.
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 resources are 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.

Goal 5: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and publicly-owned facilities, due to <u>floods</u> (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 (continued).	
Action 5.D.3	Update Flood layers in GIS upon FEMA approval of LOMRs/LOMAs.
Objective 5.E: Identify data limitations needed to provide information about relative vulnerability of assets from floods (e.g., Q3/digital floodplain maps)	
Action 5.E.1	Update General Plan drainage policies using current data based upon actual, developed conditions and proposed development conditions, as resources are available.
Action 5.E.2	Utilize empirical data to further define flood hazard models, as resources are available.

Goal 6: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and publicly owned facilities, due to <u>wildfires and structural fires</u>.	
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, as resources are available.
Action 6.A.2	Ensure the space separating buildings is consistent with the standards of fire-safety practices, as resources are 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 (i.e. Fire Protection Plans) 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, including Fire Safe Councils, in wildland fire safety and survival for all residents adjacent to wildland areas, as resources are available.
Action 6.B.2	Develop and publicize evacuation plans and routes in areas threatened by wildland fires, as resources are available.

Goal 6: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and publicly owned facilities, due to <u>wildfires and structural fires</u> (continued).	
Objective 6.B: Prevent the loss of life in wildland fires (continued).	
Action 6.B.3	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 resources are available.
Action 6.B.4	Manage open space preserves in a manner that minimizes fuel loads, through actions such as hand clearing and other appropriate means, as resources are available.
Action 6.B.5	Add a Fire Prevention Technician to the Fire department's budget to perform fire department open space and weed abatement inspections in support of goal six and ensure that the position is filled and has adequate resources, as resources are 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 wildland and open space areas in accordance with adopted fire, building, wildland-urban interface codes, fire protection plans and community wildfire protection plan, as resources are available.
Action 6.C.2	Ensure defensible fire-fighting space is afforded adjacent to wildland and open space areas in new developments, as resources are 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.
Action 6.D.3	Require non-combustible window assemblies and double-pane glass in all new and remodeled structures facing a wildland, as resources are available.
Action 6.D.4	Adopt an ordinance requiring residential dwelling fire sprinkler systems adjacent to fire hazard areas.
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 resources are available.
Action 6.E.2	Improve and ensure adequate access to wildland areas and adequate water supply for firefighters, as resources are available.
Action 6.E.3	Increase budget to the Public Works Open Space Maintenance for brush clearing, as resources are available.

Goal 6: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and publicly owned facilities, due to <u>wildfires and structural fires</u> (continued).	
Objective 6.F: Investigate the possibility of doing further Community Vegetation Management Analysis.	
Action 6.F.1	Prepare a *Community Wildfire Protection Plan*, as resources are available.
Action 6.F.2	Investigate the possibility of adopting a final *Community Wildfire Protection Plan* and ensure the enforcement thereof, as resources are available.
Action 6.F.3	Apply for grant funds to finance individual structure and property hazard analysis/ assessments throughout wildland-urban interface areas, as grants are available.
Objective 6.G: Identify data needed to provide information related to wildland fires (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 wildland fire events, as resources are available. Include additional layers showing canyon names, acreage, fire department access points and evacuation routes.
Action 6 G.2	Continue working with regional (SDREGIN) and federal agencies to establish procedures that will enable the City to acquire near real-time data on wildland fire extents to 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 resources are available.

Goal 7: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and publicly 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.

Goal 7: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and publicly owned facilities, due to <u>dam failure</u> (continued).	
Objective 7.A: Develop a comprehensive approach for reducing the possibility of damage and losses due to dam failure (continued).	
Action 7.A.4	Review current dam failure information/data for clarity and accuracy, as resources are available.
Action 7.A.5	Review current evacuation plans for accuracy and practicality and publicize these plans, as resources are available.
Action 7.A.6	Obtain and review State-mandated annual dam assessment reports.
Objective 7.B: Protect existing assets with the highest relative vulnerability to the effects of dam failure.	
Action 7.B.1	Identify and prioritize critical facilities within dam inundation zones, as resources are available.
Action 7.B.2	Identify vulnerable populations within dam inundation areas, as resources are available.
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 resources are 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 resources are available.

Goal 8: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and publicly 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, as resources are available.

Goal 8: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and publicly owned facilities, due to geological hazards (continued).	
Objective 8.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to geological hazards (continued).	
Action 8.A.2	Ensure the structural characteristics of soil and requirements contained in building codes determine the type of construction allowed, as resources are 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 resources are 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 landfill would be geologically safe, as resources are available.
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 that are determined to be unsafe from geologic hazards shall be mitigated, discontinued, removed, or relocated, as resources are 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 resources are 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 resources are available.
Action 8.C.2	The City's seismic safety practices and measures shall be coordinated with the San Diego Association of Governments (SANDAG), the County of San Diego, and other cities in the County, as resources are available.

Goal 8: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and publicly owned facilities, due to <u>geological hazards</u> (continued).	
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 practices and measures of the City of Chula Vista are 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, as resources are 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 resources are available.
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 resources are 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, as resources are 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 resources are 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 weighing STAPLEE criteria

The Disaster Mitigation Act 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 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 resources are available. Safeguard the projects by storing in multiple locations. Promote the sharing of these projects and data with other agencies.

Coordinating Individual/Organization: All Team Members (Inter-Departmental)

Potential Funding Source: General Fund

Implementation Timeline: 1-3 Years

Action Item #2: Ensure new land uses that do not conform to this Plan are not permitted.

Coordinating Individual/Organization: Development Services Department

Potential Funding Source: Development Fees, General Fund

Implementation Timeline: 1-5 Years

Action Item #3: Develop and promote public education programs, including Fire Safe Councils, in wildland fire safety and survival for all residents adjacent to wildland areas, as resources are available.

Coordinating Individual/Organization: Fire Department

Potential Funding Source: General Fund

Implementation Timeline: 1-3 Years

Action Item #4: Prepare a *Community Wildfire Protection Plan*, as resources are available.

Coordinating Individual/Organization: Fire Department

Potential Funding Source: General Fund

Implementation Timeline: 1-3 Years

Action Item #5: Explore viable public and private mutual aid resource alternatives.

Coordinating Individual/Organization: All Team Members (Inter-Departmental)

Potential Funding Source: Solid Waste Fees, Solid Waste Grants, General Fund

Implementation Timeline: 1-3 Years

Action Item #6: Continue to 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: 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: Development Services Department

Potential Funding Source: General Fund, Development Fees

Implementation Timeline: 5 Years

Action Item #8: Continually provide citizens with Community Emergency Response Team training opportunities to increase public awareness of hazards and response to hazards, as resources are available.

Coordinating Individual/Organization: Fire Department

Potential Funding Source: State Homeland Security Grant Program, General Fund

Implementation Timeline: 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: 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: 5 Years

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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	580	261	73,472	1	0	0	0
Dam Failure	0	0	0	0	0	0	0
Earthquake (Annualized Loss - Includes shaking, liquefaction and landslide components)	24,189	6,734	1,673	80	299	22*/27**	6,499*/ 36,541**
Flood (Loss)							
100 Year	2,853	1,227	345,401	30	134,451	4	2,198
500 Year	3,868	1,715	482,773	46	206,158	4	2,198
Rain-Induced Landslide							
High Risk	0	0	0	0	0	0	0
Moderate Risk	0	0	0	0	0	0	0
Tsunami	8,523	3,367	947,811	98	439,207	23	7,227
Wildfire / Structure Fire							
Extreme	0	0	0	0	0	0	0
Very High	19	0	0	0	0	0	0
High	0	0	0	0	0	0	0
Moderate	18,868	8,097	2,279,306	428	1,918,168	31	125,204

* 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	Yes

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
- Ed Hadfield, Fire Division Chief
- Ed Walter, Community Development Senior Planner
- Scott Huth, Public Services Supervisor

Once developed, City staff submitted the plan to Cal EMA and FEMA for approval. Once the plan is approved it will be submitted to the City Council for adoption.

The draft plan was posted on the Office of Emergency Services Website to present these preliminary goals, objectives and actions to citizens and to receive public input Specific questions were asked and the public was requested to provide comments and suggestions regarding the draft plan and the proposed mitigation actions. An email address was provided for the public to send comments and suggestions to. This email address was checked daily for public input. 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 11 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	Continue to 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	Continue to 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.D.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)	
Objective 2.C: Promote hazard mitigation in the business community (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 NIMS/SEMS/ICS 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	Develop and enhance existing sprinkler ordinance
Objective 6.B: Protect existing assets with the highest relative vulnerability to the effects of urban conflagrations.	
Action 6.B.1	Develop and enhance existing 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: Minimize losses due to Tsunamis	
Action 7.D.1	Become a Tsunami Ready City

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.

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

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 (continued).	
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 9 prioritized mitigation actions as well as an implementation strategy for each are:

Action Item # 1: Increase and enhance EOC Operations

Coordinating Individual/Organization: Fire Department

Potential Funding Source: Coronado Fire Department Budget

Implementation Timeline: On-going - Completed through training

Action Item # 2: Continue to support and maintain Community emergency Response Team (CERT) Program

Coordinating Individual/Organization: Fire Department

Potential Funding Source: Coronado Fire Department Budget

Implementation Timeline: On-going

Action Item # 3: Continue to develop pre-incident plan to mitigate hazards and maximize response

Coordinating Individual/Organization: Fire Department

Potential Funding Source: Coronado Fire Department Budget

Implementation Timeline: January 2010 – December 2014

Action Item # 4: Continue to participate in the Multi-Jurisdiction Hazard Mitigation Plan planning process. Implement as much of the plan as practical

Coordinating Individual/Organization: Fire Department

Potential Funding Source: Coronado Emergency Preparedness Department Budget

Implementation Timeline: January 2010 – December 2014

Action Item # 5: Use an the City Website to educate the public

Coordinating Individual/Organization: Fire Department

Potential Funding Source: Coronado Fire Department Budget

Implementation Timeline: On-going

Action Item # 6: NIMS/SEMS/ICS training for city personnel

Coordinating Individual/Organization: Fire Department

Potential Funding Source: Coronado Fire Department Budget

Implementation Timeline: On-going

Action Item # 7: Participate in the Regional Exercise and Training Program

Coordinating Individual/Organization: Fire Department

Potential Funding Source: Grant Funds

Implementation Timeline: Annual, on-going

Action Item # 8: Update Emergency Preparedness guidelines for the City of Coronado

Coordinating Individual/Organization: Fire Department

Potential Funding Source: Funding sources not identified at this time

Implementation Timeline: During 2010 and on a regular basis afterwards

Action Item # 9: Become a Tsunami Ready City

Coordinating Individual/Organization: Fire Department

Potential Funding Source: Funding sources not identified at this time

Implementation Timeline: January 2010 – December 2011

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	17	10	2,815	0	0	0	0
Dam Failure	1,139	612	172,278	47	210,640	13	2,579
Earthquake (Annualized Loss - Includes shaking, liquefaction and landslide components)	4,389	2,044	281	31	137	20*/21**	490*/ 5,281**
Flood (Loss)							
100 Year	813	435	122,453	42	188,231	7	578
500 Year	1,062	567	159,611	47	210,640	8	2,578
Rain-Induced Landslide							
High Risk	0	0	0	0	0	0	0
Moderate Risk	0	0	0	0	0	0	0
Tsunami	1,023	542	152,573	35	156,860	6	2,385
Wildfire / Structure Fire							
Extreme	0	0	0	0	0	0	0
Very High	7	5	1,408	0	0	0	0
High	16	9	2,534	1	4,482	0	0
Moderate	3,332	1,836	516,834	178	797,743	20	8,965

* 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 & Community Development
B. Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Y	Engineering (RBF Consulting) and Building (Esgil Corporation)
C. Planners or Engineer(s) with an understanding of natural and/or manmade hazards	Y	Planning & Community Development, Fire and Public Works
D. Floodplain manager	Y	Planning & Community Development
E. Surveyors	N	Engineering (RBF Consulting)
F. Staff with education or expertise to assess the community's vulnerability to hazards	Y	Planning & Community Development, Fire, Public Works & Community Services
G. Personnel skilled in GIS and/or HAZUS	Y	SANDAG & Engineering (RBF Consultants)
H. Scientists familiar with the hazards of the community	Y	Consultants
I. Emergency manager	Y	Fire Department – Director of Public Safety (Fire Chief)
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	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. Local Coastal Plan	Y	N
I. A capital improvements plan	Y	N
J. An economic development plan	N	N
K. An emergency response plan	Y	N
L. A post-disaster recovery plan	N	N
M. A post-disaster recovery ordinance	N	N
N. Real estate disclosure requirements	Y	N

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, clean 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:

- Pat Vergne, Community Services Director
- Mark Muir, Fire Chief
- Robert Scott, Fire Marshall
- David Scherer, Public Works Director
- Adam Birnbaum, Planning Manager
- Richard Lucera, Development Review Manager, RBF Consulting

Once developed, City staff submitted the final plan to the State of California and the Federal Emergency Management Agency (FEMA) for approval. Once approved by FEMA, the plan will be taken to the Del Mar City Council for adoption.

The draft plan was posted on the Office of Emergency Services Website to present these preliminary goals, objectives and actions to citizens and to receive public input Specific questions were asked and the public was requested to provide comments and suggestions regarding the draft plan and the proposed mitigation actions. An email address was provided for the public to send comments and suggestions to. This email address was checked daily for public input. 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 five 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

Goal 1: Promote public understanding, support and demand for hazard mitigation (continued).	
Objective 1.A: Educate the public to increase awareness of hazards and opportunities for mitigation actions (continued).	
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
Objective 1.C: Promote hazard mitigation in the business community.	
Action 1.C.1	Use the Del Mar Village association as a conduit 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

Goal 2: Improve hazard mitigation coordination and communication with federal, state, local and tribal governments (continued).	
Objective 2.C: Improve the City's capability and efficiency at administering pre- and post-disaster mitigation (continued).	
Action 2.C.2	Continue participation in the regional Training and Exercise Program
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 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
Action 3.A.4	Complete the Flood hazard Mitigation Plan
Action 3.A.5	Investigate the feasibility of moving the Public Works Yard to a site outside of the flood zone.
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	Continue to coordinate with neighboring jurisdictions on 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	Continue to annually review and update wildland pre-plans for firefighting forces
Action 4.A.2	Continue to maximize utilization of outside firefighting equipment and staff resources
Action 4.A.3	Continue to 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	Continue to implement mitigation measures to enhance protection of homes along Crest Canyon and the urban/wildland interface.
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	Implement the certified local coastal program
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 program 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: Complete the Flood hazard Mitigation Plan

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

Potential Funding Source: FEMA Grant

Implementation Timeline: January 2010 to December 2011

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 coastal bluff region. Implement plans to retrofit the first of three coastal highway bridges while pursuing funding for the retrofitting of the remaining two. 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 of San Diego & State of California). Implement mitigation measures to enhance protection of homes along and in the Crest Canyon area and the wild-land/urban interface. 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: On-going

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: On-going

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, (OES, SanGis) to accurately map affected areas. Share and train with acquired information with all city department's and personnel. Coordinate with neighboring jurisdictions on 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: Fire Chief & Director of Community Services

Potential Funding Source: General Fund and Grants

Implementation Timeline: On-going

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/Fire Chief

Potential Funding Source: General Fund

Implementation Timeline: On-going

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

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

Potential Funding Source: General Fund

Implementation Timeline: On-going

Priority Action #10: Improve the City's capability and efficiency at administering pre-and post-disaster mitigation. Find additional training opportunities for staff. Continue participation in the regional Training and Exercise Program. Make this institutional for the staff.

Coordinating Individual/Organization: Fire Department

Potential Funding Source: General Fund and Grants

Implementation Timeline: On-going

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 Facilitie s	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	20,204	2,058	299	2,207	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 and Fire Safety 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: Development standards promote the health, safety, convenience, and general welfare of the inhabitants of the City of El Cajon and assist in the coordinated, efficient, and economical development of the city.
  - Planning Division-Site Plan Review (Site Development Plan – SDP): The SDP process is an administrative review that does not require a public hearing. The review is completed in 30 working days.
  - 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 and State environmental laws.
- 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	Public Works and Community Development
D. Floodplain manager		Community Development
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 and Community Development
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 5.7-3City of El Cajon: Legal and Regulatory Capability ALUCP (Airport Land Use Compatibility Plan)

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:

- Rick Sitta, Deputy Chief
- Mark Coit, Police Lieutenant
- Director of Community Development - Melissa Ayres
- Principal Planner- Barbara Ramirez
- Building Official/Fire Marshal - Dan Pavao.

Once developed, City staff presented them to the City of El Cajon City Manager for approval. It was then submitted to the State of California and FEMA for approval. Once approved by FEMA the plan will be taken to City Council for adoption.

The draft plan was posted on the Office of Emergency Services Website to present these preliminary goals, objectives and actions to citizens and to receive public input Specific questions were asked and the public was requested to provide comments and suggestions regarding the draft plan and the proposed mitigation actions. An email address was provided for the public to send comments and suggestions to. This email address was checked daily for public input.. 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	Update the safety element of the General Plan every five (5) years.
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 Environmental Review in accordance with CEQA to identify degree of potential risk.
Action 1.C.3	Recommend mitigation to reduce or 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.

Goal 2: Promote public understanding, support and demand for hazard mitigation (continued).	
Objective 2.C: Promote hazard mitigation in the business community (continued).	
Action 2.C.2	Continue to include 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.
Objective 3.C: Develop a new Emergency Operations Center (EOC) for the City	
Action 3.C.1	Construct a new EOC
Action 3.C.2	Equip the new EOC
Action 3.C.3	Train staff to operate the new EOC utilizing the National Incident Management System (NIMS), the Standardized Emergency Management System (SEMS) and the Incident Management System (ICS).

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 National Icident Management System (NIMS), the Standardized Emergency Management 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 one foot above the base flood elevation.
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 prohibit construction within floodways.
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 and local Flood Ordinance.
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 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.
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.
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.

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.

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).	
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 California 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 10 prioritized mitigation actions as well as an implementation strategy for each are:

Action Item #1: Construct, equip and train staff on the proper operation of anew Emergency Operations Center (EOC).

Coordinating Individual/Organization: Police and Fire

Potential Funding Source: Proposition O funds

Implementation Timeline: Current to December, 2013

Action Item #2: **Continue to t**rain employees in potential hazards.

Coordinating Individual/Organization: Fire Department

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

Implementation Timeline: On-going

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.

Action Item #4: Train city EOC staff on NIMS, SEMS and ICS.

Coordinating Individual/Organization: Fire Department, Administrative Services Department

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

Implementation Timeline: On-going

Action Item #5: Continue to 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.

Action Item #6: Continue to 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: On-going.

Action Item #7: Continue to inform public regarding hazard mitigation activities.

Coordinating Individual/Organization: Fire Department

Potential Funding Source: Fire Department

Implementation Timeline: On-going.

Action Item #8: Maintain the hazard reporting process found on City website.

Coordinating Individual/Organization: Fire Department, Administrative Services Department

Potential Funding Source: General Fund, grant money as available

Implementation Timeline: On-going

Action Item #9: Maintain the 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: On-going

Action Item #10: Continue to utilize California Building Code for Building Conservation for non-historic buildings.

Coordinating Individual/Organization: City Manager, Building Department

Potential Funding Source: Grant funds as they become available

Implementation Timeline: On-going

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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

* 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 Encinitas LPG as their top six, based on their probability and potential impact. A brief rationale for including each of these is included.

- **Earthquake**: On November 22, 1800, a 6.5 magnitude occurred on the Rose Canyon fault offshore from Oceanside. It cracked adobe walls at the missions of San Diego de Alcala and San Juan Capistrano. Other notable local earthquakes include a magnitude 6.0 earthquake centered on the Rose Canyon or Coronado Band faults on May 27, 1862, and a magnitude 5.4 earthquake centered off the coast of Oceanside on the Coronado Bank Fault on July 13, 1986. The 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**: Geologists estimate that a magnitude 7.5 earthquake from the Elsinore Fault 11 miles east of Lake Wohlford could result in a failure of its hydraulic fill dam. 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 (1895) and Dixon Reservoir Dam (1970) could possibly threaten city facilities and infrastructure (San Elijo Water Reclamation Facility, Cardiff and Olivenhain sewer pump stations and the 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. In 2000, unstable cliffs at Beacon's Beach in Encinitas caused a landslide that killed a woman sitting on the beach. Erosion studies have been conducted for Encinitas, Solana Beach and Del Mar. 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. Winter storms in 1997 and later in 2005-2006 resulted in significant damage and required emergency protective measures and debris removal. The associated recovery costs (FEMA public assistance) for the 2005-06 event was over $500,000.
- **Hazardous Materials**: One major freeway (Interstate 5), one railway and a major liquefied petroleum transmission pipeline pass through the community. This hazard is addressed in a Attachment A.

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, and Fire (Prevention)
C. Planners or Engineer(s) with an understanding of natural and/or manmade hazards	Y	Planning & Building, Engineering, and Fire
D. Floodplain manager	Y	Planning & Building
E. Surveyors	N	Contracted through Engineering on a as needed basis
F. Staff with education or expertise to assess the community's vulnerability to hazards	Y	Fire Department, Engineering and Planning & Building
G. Personnel skilled in GIS and/or HAZUS	Y	GIS Division, Planning & Building
H. Scientists familiar with the hazards of the community	N	Contracted as needed
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. International Wildland Urban Interface Code		
C. Zoning ordinance	Y	N
D. Subdivision ordinance or regulations	Y	N
E. Special purpose ordinances (floodplain management, storm water management, hillside or steep slope ordinances, grading, wildfire ordinances, hazard setback requirements, water conservation, clean water/NPDES)	Y	N
F. Growth management ordinances (also called "smart growth" or anti-sprawl programs)	Y	N
G. Site plan review requirements	Y	N
H. Land use overlay zones (Floodplain, Hillside/Inland and Coastal Bluff)	Y	N
I. General or comprehensive plan	Y	N
J. Local Coastal Program	Y	N
K. A capital improvements plan	Y	N
L. An economic development plan	Y	N
M. An emergency response plan	Y	N
N. A post-disaster recovery plan	N	N
O. A post-disaster recovery ordinance	N	N
P. Real estate disclosure requirements	Y	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 San Dieguito Water District is a subsidiary district to the City of Encinitas and its goals, objectives and actions are included in this document. The Encinitas LPG members were:

- Tom Gallup, Senior Management Analyst , Fire Department
- J. Alfred Dichoso, AICP, Associate Planner, Planning and Building Department
- Bryce Wilson, Senior Management Analyst, Public Works Department
- Blair Knoll, Associate Civil Engineer, San Dieguito Water District
- Corina Jimenez, Management Analyst II, Fire Department
- Chad Luttrell, GIS Analyst, GIS Division

- Michael Stauffer, Senior Management Analyst, Parks and Recreation Department
- Bob McSeveney, Senior Management Analyst, City Manager's Office
- Kipp Hefner, Assistant Civil Engineer, Engineering Department

Once developed, City staff submitted the plan to the State of California and FEMA. Once FEMA has approved the plan it will be taken the Encinitas City Council for adoption.

The draft plan was posted on the Office of Emergency Services Website to present these preliminary goals, objectives and actions to citizens and to receive public input Specific questions were asked and the public was requested to provide comments and suggestions regarding the draft plan and the proposed mitigation actions. An email address was provided for the public to send comments and suggestions to. This email address was checked daily for public input. 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.

The Olivenhain Municipal Water District and North County Transit District have both adopted Local Multi-hazard Mitigation Plans. The goals, objectives and action items identified in the City of Encinitas' plan compliment and support those identified our partner agencies' plans.

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 Floodplain, 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.
Action 1.A.7	Conduct a Comprehensive General Plan Update and ensure compliance with California Government Code section 65302.6 (AB 2140).
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.

Goal 1: Promote disaster resistant future development (continued).	
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 (continued).	
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 policies of 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	Continue to authorize city officials to issue citations where compliance cannot be gained through traditional means, such as written notification.
Action 1.C.3	Continue to authorize city officials to place liens on properties that do not comply with City's weed abatement ordinance.
Action 1.C.4	Continue to provide a building inspection and code enforcement program to ensure compliance with codes and ordinances.
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. 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 Floodplain, 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.D.3	Implement an Open Space Management Plan.
Action 1.D.4	Continue to require an Environmental Impact Report to identify degree of risk, when necessary.
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.

Goal 1: Promote disaster resistant future development (continued).	
Objective 1.E: Address identified data limitations regarding the lack of information about new development and build-out potential in hazard areas (continued).	
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.
Action 1.E.3	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 permits.
Action 1.E.4	Update databases/Geographic Information System (GIS), with particular attention to maintaining hazard overlay layers. Require electronic submittals of plans.
Objective 1.F: Address future conditions resulting from climate change and mitigate future environmental impacts.	
Action 1.F.1	Continue to promote water conservation as a means to mitigate future drought conditions (Municipal Code 23.26)
Action 1.F.2	Develop an Environmental Action Plan and continue to promote sound environmental management practices throughout all city departments and services (Council Policy C025)
Action 1.F.3	Continue to require development projects comply with the California Environmental Quality Act (CEQA).
Action 1.F.4	Continue to utilize public facilities as “cool zone” sites on days when weather conditions are excessively hot.

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	
Action 2.A.1	Develop business resumption/continuity of operations plan for city operations.
Action 2.A.2	Maintain and revise as necessary standard operating procedures and checklists for recovery operations for use by the city’s emergency management team with the Emergency Operations Center (EOC).

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).	
Objective 2.B: Provide training for city officials on managing disaster recovery operations	
Action 2.B.1	Continue to conduct annual disaster exercises.

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	Continue to conduct routine seismic safety surveys/assessments 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.	
Action 3.B.1	Seismically upgrade Fire Stations #1 and #2 (originally constructed in 1957 and 1960, respectively) to meet existing building codes. Rebuild Fire Stations #1 and #2 (originally constructed in 1957 and 1960, respectively) to meet existing building codes and seismic safety requirements.
Action 3.B.2	Rebuild Moonlight Beach Lifeguard Tower to meet existing building codes, as part of the Moonlight Beach Master Plan.

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).	
Objective 3.B: Protect existing assets with the highest relative vulnerability to the effects of earthquakes (continued).	
Action 3.B.3	As funding becomes available, evaluate whether mitigation measures are necessary to protect city facilities and infrastructure from seismic events and implement reasonable mitigation measures, as necessary.
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	Support the replacement of freeway bridge supports with new supports that meet current seismic standards as part of Caltrans future Interstate 5 widening project.
Action 3.C.2	Support the replacement, repair or retrofitting of rail bridges in Encinitas by the North County Transit District, as funding becomes available.
Action 3.C.3	Support earthquake mitigation efforts by Scripps Memorial Hospital as part of its expansion.
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: Educate citizens about seismic risks, the potential impacts of earthquakes and opportunities for mitigation actions.	
Action 3.D.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.D.2	Continue to 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.D.3	Continue to maintain the Community Emergency Response Team (CERT) program as a means for mitigating hazards in neighborhoods.
Action 3.D.4	Increase awareness among at-risk populations of emerging earthquake mitigation technologies.
Action 3.D.5	Work with Senior Commission and local care facilities to educate Encinitas seniors and providers about the benefits of earthquake mitigation practices.
Action 3.D.6	Continue to utilize the Encinitas NOW! newsletter to provide residents with earthquake mitigation information.

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).	
Objective 3.E: Establish and maintain closer working relationships with federal, state agencies, local governments and special districts.	
Action 3.E.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.F: Encourage other organizations to incorporate hazard mitigation activities.	
Action 3.F.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.F.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	Continue to enforce the City's weed abatement policy.
Action 4.A.2	Continue to conduct fire safety inspections to reduce the risk of wildfire/structural fire.
Action 4.A.3	Continue to encourage existing property owners without fire suppression ("sprinkler") systems or a class A rated roof covering to voluntarily install them.
Action 4.A.4	Evaluate existing emergency resources (i.e. brush trucks, water tenders) and, if necessary and funding is available, purchase additional resources.
Action 4.A.5	Continue to offer fire extinguisher training to City employees and staff and community organizations upon request.
Action 4.A.6	Update the San Dieguito Water District Master Plan with particular attention to fire system upgrades.

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/structural fires</u> (continued).	
Objective 4.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to wildfires/structural fires (continued).	
Action 4.A.7	Work with Olivenhain Municipal Water District, Rancho Santa Fe Fire Protection District and Elfin Forest/Harmony Grove Fire Department to secure grant funding to add additional hydrants in wildland urban interface areas.
Objective 4.B: Protect existing assets with the highest relative vulnerability to the effects of wildfires/structural fires.	
Action 4.B.1	As funding becomes available, evaluate whether mitigation measures are necessary to protect city facilities and infrastructure from wildfires and implement reasonable mitigation measures, as necessary.
Action 4.B.2	Continue to work with the Santa Fe Irrigation District (SFID) on implementing mitigation measures necessary to protect the R.E. Badger Filtration Plan, as funding becomes available.
Action 4.B.3	Evaluate whether combustible superstructure materials were used in the construction of older road bridges in Olivenhain.
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, support efforts to locate firefighting aircraft within San Diego County.
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 annual 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	Continue to provide Community Emergency Response Team (CERT) training for 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	Provide hazard mitigation education/training with routine inspections of businesses utilizing code enforcement and fire prevention inspections.

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/structural fires</u> (continued).	
Objective 4.E: Educate citizens about wildfire/structural fire risks, the potential impacts of wildfires/structural fires, their consequences and opportunities for mitigation actions (continued).	
Action 4.E.5	Promote CalEMA's "My Hazards" interactive web site that provides recommended actions for fires.
Objective 4.F: Establish and maintain <u>closer working relationships</u> 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 <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	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	As funding becomes available, evaluate whether mitigation measures are necessary to protect city facilities and infrastructure from dam failures and implement reasonable mitigation measures, as necessary.
Objective 5.C: Coordinate with and support existing efforts to mitigate dam failures (e.g., US Army Corps of Engineers, US Bureau of Reclamation, California Department of Water Resources).	
Action 5.C.1	Continue to participate in Wohlford Dam failure tabletop disaster exercises with City of Escondido.

Goal 5: 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).	
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.
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	Provide residents living in the dam inundation area with preparedness and safety information in the city newsletter.
Objective 5.F: Establish and maintain <u>closer working relationships</u> with federal, state agencies, local governments and special districts	
Action 5.F.1	Identify Federal and State funding to minimize/mitigate dam inundation hazards to critical facilities and vulnerable populations.
Objective 5.G: Encourage other organizations to incorporate hazard mitigation activities.	
Action 5.G.1	Support efforts by the City of Escondido to secure mitigation funding from the State and Federal government to strengthen Wohlford Dam.
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 <u>coastal bluff failures</u>.	
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.

Goal 6: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to <u>coastal bluff failures</u> (continued).	
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.).	
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 <u>floods, severe weather and tsunamis</u>.	
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	Adopt 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	Continue to discuss mitigation strategies for San Elijo State Beach campground with State of California Department of Parks and Recreation and Sheriff's Department.

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).	
Objective 7A: Develop a comprehensive approach to reducing the possibility of damage and losses due to floods, severe weather and tsunamis (continued).	
Action 7A.7	Continue to participate in the National Weather Service Storm Ready Program.
Objective 7B: Protect existing assets with the highest relative vulnerability to the effects of floods, severe weather and tsunamis.	
Action 7.B.1	As funding becomes available, evaluate whether mitigation measures are necessary to protect city facilities and infrastructure from flooding and tsunamis and implement reasonable mitigation measures, as necessary.
Action 7.B.2	Rebuild Moonlight Beach Lifeguard Tower to meet existing building codes, as part of the Moonlight Beach Master Plan.
Action 7.B.3	Add storm protection rip-rap on South Coast Highway 101 in Cardiff–by-the-Sea to protect the road.
Action 7.B.4	Continue to provide public support by maintaining supplies of sand and sandbags for residents to mitigate flooding.
Action 7.B.5	Continue to participate in the National Flood Insurance Program and requirement to review applications for conformance with NFIP standards.
Action 7.B.6	Continue to improve road flooding problems by constructing permanent drainage structures as approved and funded in the City's Capital Improvement Program (CIP) budget.
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, California Department of Water Resources, National Weather Service).	
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, continue developing a drainage maintenance program.

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).	
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	Promote the FloodSmart.gov and CalEMA's "My Hazards" interactive web site to provide residents with recommended flood mitigation actions.
Objective 7F: Establish and maintain <u>closer working relationships</u> with federal, state agencies, local governments and special districts	
Action 7.F.1	Identify Federal and State funding to minimize/mitigate flood hazards to critical facilities and vulnerable populations.

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 7 prioritized mitigation actions for 2010-2015 as well as an implementation strategy for each are:

Priority Action #1: Rebuild Fire Stations #1 and #2 (originally constructed in 1957 and 1960, respectively) to meet existing building codes (i.e. seismic, fire).

Coordinating Individual/Organization: Fire Department

Potential Funding Source: Fire Mitigation Fees; Lease Revenue Bonds

Implementation Timeline: January 2010– 2015

Priority Action #2: Comprehensive update of the City of Encinitas General Plan and Public Safety Element

Coordinating Individual/Organization: Planning & Building Department

Potential Funding Source: General Fund

Implementation Timeline: January 2010– 2015

Priority Action #3 Complete installation of approximately 100 to 150 new fire hydrants in older areas of the city, thus improving fire protection by meeting current hydrant spacing requirements (San Dieguito Water District Master Plan project number HP-5)

Coordinating Individual/Organization: San Dieguito Water District

Potential Funding Source: General Fund

Implementation Timeline: January 2010– 2015

Priority Action Item #4 Leucadia Drainage Project

Coordinating Individual/Organization: Engineering Department

Potential Funding Source: Hazard Mitigation Grants

Implementation Timeline: January 2010– 2015

Priority Action #5 Replace Fire Ladder Truck

Coordinating Individual/Organization: Fleet Maintenance Division/Fire Department

Potential Funding Source: General Fund

Implementation Timeline: January 2010– 2015

Priority Action Item #6 Adopt a comprehensive shoreline erosion plan, based on the Beach Bluff Erosion Technical Report

Coordinating Individual/Organization: Engineering Department

Potential Funding Source: General Fund

Implementation Timeline: January 2010– 2015

Priority Action Item #7 Develop a continuity of operations/business resumption plan for city operations

Coordinating Individual/Organization: Fire Department

Potential Funding Source: General Fund and Grant Funding

Implementation Timeline: January 2010– 2015

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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	47,700	14,323	4,031,925	766	3,432,982	118	751,472
Earthquake (Annualized Loss - Includes shaking, liquefaction and landslide components)	133,666	31,374	3,142	409	1,488	156*/156**	2,849*/ 15,693**
Flood (Loss)							
100 Year	8,367	2,599	731,619	101	452,652	15	5,781
500 Year	32,516	9,994	2,813,311	336	1,505,851	54	228,863
Rain-Induced Landslide							
High Risk	751	295	83,043	2	8,963	0	0
Moderate Risk	171	71	19,987	2	8,963	0	0
Tsunami	0	0	0	0	0	0	0
Wildfire / Structure Fire							
Extreme	65	27	7,601	0	0	0	0
Very High	846	328	92,332	14	62,744	3	100,195
High	1,660	654	184,101	17	76,189	8	2,005
Moderate	134,126	43,671	12,293,387	1,745	7,820,567	204	990,024

* 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 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 Community Services Department
  - Maintains city infrastructure (assets) ranging from streets to parks to buildings and vehicle fleet.
  - Responds to city emergencies, including 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.
- City of Escondido Engineering Services 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 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 through a Community Wildland Protection Program (CWPP).
  - Emergency Medical Services: Manage the department's advanced life support responder program, 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 Operations Center (EOC) and other key elements.

- 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 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.
- City of Escondido Utilities Department
  - 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

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 Services Utilities
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, Utilities
E. Surveyors	Y	Engineering
F. Staff with education or expertise to assess the community's vulnerability to hazards	Y	Engineering, Planning, Fire, Maintenance & Operations, Utilities
G. Personnel skilled in GIS and/or HAZUS	Y	Information Systems
H. Scientists familiar with the hazards of the community	Y - limited	
I. Emergency manager	Y – limited	Fire
J. Grant writers	Y – limited	

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. Fire code	Y	N
C. Zoning ordinance	Y	N
D. Subdivision ordinance or regulations	Y	N
E. Special purpose ordinances (floodplain management, storm water management, hillside or steep slope ordinances, wildfire ordinances, hazard setback requirements)	Y	N
F. Growth management ordinances (also called "smart growth" or anti-sprawl programs)	Y	N
G. Site plan review requirements	Y	N
H. General or comprehensive plan	Y	N
I. A capital improvements plan	Y	N
J. An economic development plan	Y	N
K. An emergency response plan	Y	N
L. A post-disaster recovery plan	N	N
M. A post-disaster recovery ordinance	N	N
N. Real estate disclosure requirements	Y	N
O. Other – Habitat Planning	Y	N
P. Other – Emergency Action Plan for Wohlford Dam	Y	N
Q. Other – Hazardous Material Site Plans	Y	N
R. 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	No
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 OES **staff** 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, provided input to the Escondido LPG. The Escondido LPG members were:

- Tom Albergo, Police Lieutenant
- Ed Domingue, Director of Engineering Services
- Dan Hildebrand, GIS Manager
- Mari Hill, Interim Fire Marshal
- Randy Licata, Operations Division Chief
- Michael Lowry, Fire Chief
- Joyce Masterson, Assistant to the City Manager

- Richard O'Donnell, Deputy Director of Maintenance & Operations
- Don Rawson, Emergency Management Coordinator
- Barbara Redlitz, Assistant Planning Director
- Kimberly Russell, Safety Administrator
- Joe Russo, Building Official
- Richard Walker, Deputy Utilities Manager
- Jodi Vinson, Risk & Safety Manager

Once developed, City staff submitted the final plan to the State of California and FEMA for approval. Once approved, the plan will be taken to the Escondido City Council for adoption.

The draft plan was posted on the Office of Emergency Services Website to present these preliminary goals, objectives and actions to citizens and to receive public input Specific questions were asked and the public was requested to provide comments and suggestions regarding the draft plan and the proposed mitigation actions. An email address was provided for the public to send comments and suggestions to. This email address was checked daily for public input. 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.

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.

Goal 6. Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to wildfires.

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.

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.

Goal 9. Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to extremely hazardous materials releases.

Goal 10. Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to 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 10 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 5.1.2.3.

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.

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 (continued).	
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.	
Objective 2.A: Educate the public to increase awareness of hazards and opportunities for mitigation actions.	
Action 2.A.1	Continue to assist local mobile home parks with their community preparedness plans, including regular presentations at meetings of park residents.
Action 2.A.2	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.3	Continue to utilize the Community Emergency Response Team (C.E.R.T.) as a venue for teaching fire and life safety awareness and preparedness measures.
Action 2.A.4	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 in partnership with the Burn Institute.

Goal 2: Increase public understanding, support, and demand for hazard mitigation (continued).	
Objective 2.B: Promote partnerships between the state, county, and local governments to identify, prioritize, and implement mitigation actions (continued).	
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.
Action 2.B.4	Continue to maintain partnership with County OES in mitigation actions related to C.E.R.T., Disaster Service Workers Programs, and Emergency Management Preparedness Programs.
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 through a partnership with the Burn Institute.
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 hazard mitigation efforts.
Objective 2.E: Discourage activities that exacerbate hazardous conditions.	
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 through a partnership with the Burn Institute.
Action 2.E.2	Continue to partner with County OES in the development of Public Service Announcements related to mitigation of hazardous conditions and corrections.
Action 2.E.3	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.

Goal 3: Build and support local capacity and commitment to continuously become less vulnerable to hazards (continued).	
Objective 3.A: Increase awareness and knowledge of hazard mitigation principles and practices among state and local officials (continued).	
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 Emergency Operations Center 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 provide storage of a Mobile Decontamination Unit belonging to the San Diego County Unified Disaster Council and continue training of fire department personnel in the use and operation of the Unit.
Action 4.A.3	Continue to maintain good working relationships with the San Diego County Water Authority and neighboring water agencies.
Action 4.A.4	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.
Action 4.A.5	Continue to provide storage of several disaster caches belonging to the American Red Cross.
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.
Objective 5.A: Ensure new development is properly located and conditioned to avoid flooding (continued).	
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.
Action 5.B.7	Continue to provide barricades to identify flooded areas.

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> (continued).	
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 Wildland-Urban Interface (WUI) 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, CALFire, 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. Also continue to require enhanced construction for certain structures in all WUI areas.
Action 6 A.4	Continue to require residential fire sprinklers for units outside of adopted distance and Quality of Life standard response times and WUI areas.
Action 6 A.5	Continue to require defined defensible space around all habitable structures in WUI areas.
Action 6 A.6	Continue to regulate and govern mitigation measures consistent with the International Wildland-Urban Interface Code, Appendix "A" and "D" of the 2006 edition.
Objective 6.B: Protect existing assets with the highest relative vulnerability to the effects of wildfires.	
Action 6.B.1	Continue proactive enforcement of 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 WUI areas are compliant with new building and fire codes for fire resistant construction including possible enhanced construction requirements for certain structures.

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).	
Objective 6.B: Protect existing assets with the highest relative vulnerability to the effects of wildfires (continued).	
Action 6.B.3	Continue to maintain and update existing wildland pre-fire plans for neighborhoods adjacent to WUI 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. Continue partnership with State Fish & Game to mitigate exposure of protected habitat areas.
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	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	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).	
Action 6.D.1	Develop a Community Wildfire Protection Plan (CWPP) for the City's Local Responsibility Area (LRA).
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.
Action 6.E.2	Continue to plan for additional reserve equipment and staff during emergencies to supplement potential need for additional fire resources (i.e. surge capacity).
Action 6.E.3	Continue to staff and maintain Cal EMA Type 3 brush engine.

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>.	
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.
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%.
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. 1805.4.2 of the Building Code.
Action 8.A.7	Continue to require that when the foundation design is based on Tables No. 1804.2 & 1805.4.2, 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. 1804.2, 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 International Building Code 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 nine 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: As available from local, state or federal resources

Implementation Timeline: Ongoing

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: Ongoing

Action Item #3: Develop a Community Wildfire Protection Plan (CWPP) that identifies all potential stakeholders, coordinates public outreach and education, and accurately assess vegetative and infrastructure hazards.

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: Continue involvement in regional collaborative efforts between public and private partners in public education and disaster preparedness campaigns in High Hazard Urban Interface communities.

Coordinating Individual/Organization: Fire Department

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

Implementation Timeline: Ongoing

Action Item #5: Develop timeframes and funding mechanism for the ultimate replacement or renovation of the Dixon and Wohlford Dams.

Coordinating Individual/Organization: Utilities Department

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

Implementation Timeline: 5 - 10 years

Action Item #6: Encourage the use of alternate technologies for detection, neutralization, containment, disposal, and transportation.

Coordinating Individual/Organization: Planning Department

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

Implementation Timeline: Ongoing

Action Item #7: 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: Ongoing

Action Item #8: 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: Ongoing

Action Item #9: 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

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	157	64	18,016	0	0	0	0
Dam Failure	5,526	1,880	529,220	42	188,231	6	3,192
Earthquake (Annualized Loss - Includes shaking, liquefaction and landslide components)	26,849	5,185	923	36	129	15*/16**	3,991*/ 18,047**
Flood (Loss)							
100 Year	1,206	408	114,852	14	62,744	0	0
500 Year	3,408	1,178	331,607	35	156,860	0	0
Rain-Induced Landslide							
High Risk	0	0	0	0	0	0	0
Moderate Risk	0	0	0	0	0	0	0
Tsunami	5,225	2,138	601,847	97	434,725	2	1,001
Wildfire / Structure Fire							
Extreme	0	0	0	0	0	0	0
Very High	65	0	0	0	0	1	<1
High	37	7	1,971	0	0	0	0
Moderate	26,346	9,139	2,572,629	310	1,389,327	18	216,194

* 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	Y	Public Works
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	Y	Public Safety

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, and Public Works provided input to the Imperial Beach LPG. The Imperial Beach LPG members were:

- Leticia Hernandez, Management Analyst, Public Safety
- Peter Lau, Superintendent, Public Works

Once developed, City staff will submit the plan to CalEMA and FEMA for approval. Once it is approved by FEMA the plan will be taken to the City Council for adoption.

The draft plan was posted on the Office of Emergency Services Website to present these preliminary goals, objectives and actions to citizens and to receive public input. Specific questions were asked and the public was requested to provide comments and suggestions regarding the draft plan and the proposed mitigation actions. An email address was provided for the public to send comments and suggestions to.

This email address was checked daily for public input. 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.	
Action 1.A.1	Update General Plan every 10 years.
Action 1.A.2	Attract and retain qualified, professional and experienced staff.

Goal 1: Promote disaster resistant future development (continued).	
Objective 1.A: Facilitate the development or updating of general plans and zoning ordinances to limit development in hazard areas (continued).	
Action 1.A.3	Continue to identify high hazard areas.
Action 1.A.4	Continue to 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	Continue to 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	Continue to staff enforcement personnel to a level to ensure compliance.
Action 1.C.2	Develop Enforcement Group to ensure coordination and standardization of 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	Continue to develop Geographic Information Systems (GIS) capabilities to identify hazards.
Action 1.E.2	Continue to use the developed data sets to test hazard scenarios and mitigation tools.
Action 1.E.3	Continue to 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	Continue to gain public acceptance for avoidance policies in high hazard areas.
Action 1.F.2	Continue to publicize and adopt the appropriate hazard mitigation measures.
Action 1.F.3	Continue to 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	Continue to publicize and encourage the adoption of appropriate hazard mitigation actions.
Action 2.A.2	Continue to 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	Continue to heighten public awareness of hazards by using the City Publicist.
Action 2.A.4	Continue to gain public acceptance for avoidance policies in high hazard areas.
Action 2.A.5	Continue to identify hazard specific issues and needs.
Action 2.A.6	Continue to help create demand for hazard resistant construction and site planning.
Action 2.A.7	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.2	Maintain the auto aid agreement with Navy Ream Field.
Action 2.B.3	Support the County Fire Safe Council.
Action 2.B.4	Promote cooperative Vegetation Management Programs that incorporate hazard mitigation.
Objective 2.C: Promote hazard mitigation in the business community.	
Action 2.C.1	Continue to increase awareness and knowledge of hazard mitigation principles and practices.
Action 2.C.2	Continue to encourage businesses to develop and implement hazard mitigation actions.
Action 2.C.3	Continue to 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.

Goal 2: Increase public understanding and support for effective hazard mitigations. (continued)	
Objective 2.D: Monitor and publicize the effectiveness of mitigation actions implemented citywide (continued).	
Action 2.D.2	Continue to establish budget and identify funding sources for mitigation outreach.
Objective 2.E: Provide education on hazardous conditions.	
Action 2.E.1	Continue to support public and private sector symposiums.
Action 2.E.2	Continue to coordinate production of brochures, informational packets and other handouts.
Action 2.E.3	Continue to 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	Continue to use Media, City Publicist and Public Safety demonstrations to increase the number of news releases.
Action 3.A.2	Continue to conduct meetings with key elected officials to determine local issues and concerns.
Action 3.A.3	Continue to continuously demonstrate the importance of pre-disaster mitigation planning to the City Council and other public officials.
Action 3.A.4	Continue to 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	Continue to coordinate the development of a multi-jurisdictional plan.
Action 3.B.2	Form City Working Group to update and monitor the City's portion of the plan.
Objective 3.C: Limit growth and development in hazardous areas.	
Action 3.C.1	Continue to update GIS mapping to identify hazardous areas.
Action 3.C.2	Continue to enforce trespassing regulations in high-risk areas.
Action 3.C.3	Continue to update General Plan and zoning regulations to reflect hazardous areas.
Action 3.C.4	Continue to 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: Continue upgrade City EOC.	
Action 3.D.1	Maintain the planning group to determine needs.
Action 3.D.3	Continue to 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	Continue to encourage and assist in development of multi-jurisdictional/ multi-functional training and exercises to enhance hazard mitigation.
Action 4.A.2	Continue to maintain working relationships with agencies providing resources and expertise in hazard mitigation.
Objective 4.B: Encourage other organizations to incorporate hazard mitigation activities.	
Action 4.B.1	Continue to encourage all jurisdictions to become part of the HIRT JPA.
Action 4.B.2	Continue to establish and maintain lasting partnerships.
Action 4.B.3	Continue to 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	Continue to 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)	
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.
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 infrastructure with regard to earthquake risk.
Action 6.D.2	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	Participate in community awareness meetings.
Action 7.A.2	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)	
Objective 7.B: Protect existing assets with the highest relative vulnerability to the effects of coastal storms/erosion (continued).	
Action 7.B.2	Encourage the public to prepare and maintain a 3-day preparedness kit for home and work.
Objective 7.C: Coordinate with and support existing efforts to mitigate severe coastal storms/erosion.	
Action 7.C.1	Continue to review and update plans that would include coordination with cities, special districts and County departments.
Action 7.C.2	Continue to 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.

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	Continue to review and revise existing flood control standards, zoning and building requirements.
Action 8.A.2	Continue to 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	Continue to assure adequate funding to restore damaged facilities to 100-year flood design.
Action 8.B.2	Continue to update storm water system plans and improve storm water facilities in high-risk areas.
Action 8.B.3	Continue to 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: Address identified data limitations regarding the lack of information about the relative vulnerability of assets from flooding.	
Action 8.D1	Continue to encourage the public to prepare and maintain a 3-day preparedness kit for home and work.
Action 8.D.2	Continue to 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 9 prioritized mitigation actions as well as an implementation strategy for each are:

Priority Action #1: Conduct training and exercises for all employees.

Coordinating Individual/Organization: Public Safety

Potential Funding Source: General Fund, Grants.

Implementation Timeline: On-going.

Priority Action #2: Update dam inundation maps.

Coordinating Individual/Organization: Public Works

Potential Funding Source: General Fund

Implementation Timeline: March 2010 – June 2012

Priority Action #3: 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 #4: 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: On-going

Priority Action #5: Maintain CERT program for the City.

Coordinating Individual/Organization: Public Safety

Potential Funding Source: General Fund, Grants

Implementation Timeline: On-going.

Priority Action #6: Coordinate the development of a multi-jurisdictional plan.

Coordinating Individual/Organization: Public Safety

Potential Funding Source: General Fund, Grants.

Implementation Timeline: On-going.

Priority Action #7: 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: On-going

Priority Action #8: Improve hazard warning and response planning.

Coordinating Individual/Organization: Public Safety

Potential Funding Source: General Fund, Grants.

Implementation Timeline: On-going

Priority Action #9: Maintain established City Working Group to update and monitor the (hazard mitigation) plan.

Coordinating Individual/Organization: Public Safety

Potential Funding Source: General Fund, Grants.

Implementation Timeline: On-going

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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	1,701	731	205,777	19	85,152	11	395
Earthquake (Annualized Loss - Includes shaking, liquefaction and landslide components)	53,856	14,205	1,147	158	400	86*/86**	3,275*/ 17,166**
Flood (Loss)							
100 Year	0	0	0	0	0	0	0
500 Year	0	0	0	0	0	0	0
Rain-Induced Landslide							
High Risk	0	0	0	0	0	0	0
Moderate Risk	0	0	0	0	0	0	0
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	1	<1
High	404	177	49,826	1	4,482	0	0
Moderate	56,195	25,030	7,045,945	946	4,239,688	124	250,010

* 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 submitted the plan to CalEMA and FEMA for approval. Once approved by FEMA the plan will be taken to the City Council for adoption.

The draft plan was posted on the Office of Emergency Services Website to present these preliminary goals, objectives and actions to citizens and to receive public input Specific questions were asked and the public was requested to provide comments and suggestions regarding the draft plan and the proposed mitigation actions. An email address was provided for the public to send comments and suggestions to. This email address was checked daily for public input.. 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 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.
Action 1.A.2	Update 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 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.
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	Continue to make available information regarding hazard mitigation in the City of La Mesa through print media and the city website.
Action 2.A.2	Continue to 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 Cal EMA 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.
Action 3.A.3	Continue to participate in the regional multi-jurisdictional training and exercise program.
Objective 3.B: Development model hazard mitigation plan and provide technical assistance to State agencies, local and tribal governments to prepare hazard mitigation plans.	
Action 3.B.1	At the regional level, continue to be a part of the development of the regional plan.
Objective 3.C: Promote the use of volunteers in preparing the community before, during and after disasters	
Action 3.C.1	Continue to train residents as CERT Team members.

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	Continue to 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	Continue to include the County, Cal EMA 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	Continue to 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 <u>wildfires</u>.	
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 enforce fire codes involving new construction.
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 <u>dam failure</u>.	
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.
Action 7.A.2	Update Dam Inundation plans

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).	
Objective 7.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to dam failure (continued).	
Action 7.A.3	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 <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 use of current California 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: Update General Plan.

Coordinating Individual/Organization: Community Development Department

Potential Funding Source: General Fund

Implementation Timeline: June 2010 through December 2012

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 CalEMA 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 current California Building Code in all areas of new construction and remodel activity within the City.

Coordinating Individual/Organization: Community Development Department

Potential Funding Source: General Fund

Implementation Timeline: On-going

Action Item #9: Continue to conduct EOC drills at the city and regional 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

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 Fire Department
  - Includes Fire Prevention Department, Fire Plans and Subdivision Review
    - Plans review of compliance with State, Federal and Local ordinances.
    - Evaluation of water supply needs and establishing the location of current and future water supply needs.
  - Fire Prevention Inspections Department
    - Conducts scheduled inspections of new construction.
    - 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.
  - Building: Reviews proposed projects for conformance to State and local building codes
- City of Lemon Grove Engineering Services Department
  - Storm water: Reduction of urban runoff and storm water to the greatest extent possible.
  - Reviews project site 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, Associate Engineer
B. Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Y	Community Development-Director, Senior Planner, Engineer Service-City Engineer, Associate Engineer
C. Planners or Engineer(s) with an understanding of natural and/or manmade hazards	Y	Community Development-Director, Senior Planner, Engineer Service-City Engineer, Associate Engineer
D. Floodplain manager	Y	Engineering services – City Engineer
E. Surveyors	Y	Engineering Services – On-call consultants
F. Staff with education or expertise to assess the community's vulnerability to hazards	Y	Fire Department-Fire Chief
G. Personnel skilled in GIS and/or HAZUS	Y	Community Development Department Engineering Services
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	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
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:

- Graham Mitchell, City Manager
- Tim Smith, Deputy Fire Chief
- Carol Dick, Director, Community Development
- Pat Lund, City Engineer

Once developed, City staff submitted the plan to the State of California and to FEMA for approval. Once approved by FEMA the plan will be taken to the lemon Grove City Council for adoption.

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 as needed..
Action 1.A.2	Attract and retain qualified, professional and experienced staff.
Action 1.A.3	Update Fire and Building Codes and ordinances.

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	Continue to build and support local partnerships, such as the United Disaster Council (UDC) and Urban Area Working Group (UAWG) 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	Continue to incorporate 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	Continue to 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	Continue to 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	Continue to build and support local partnerships, such as the United Disaster Council (UDC) and Urban Area Working Group (UAWG) and the coordination of mutual aid agreements.
Action 3.A.2	Continue to encourage development of standardized Emergency Operations Plans within the City of Lemon Grove that coordinate with countywide Emergency Operations Plans.
Action 3.A.3	Continue to develop multi-jurisdictional multi-functional training and exercises to enhance hazard mitigation.
Action 3.A.4	Continue to maintain working relationships with agencies providing resources and expertise that further hazard mitigation efforts.

Goal 3: Improve hazard mitigation coordination and communication with federal, state and local governments (continued).	
Objective 3.B: Support a coordinated permitting activities process.	
Action 3.B.1	Continue to utilize notification procedures for all permits that support affected agencies.
Action 3.B.2	Continue to streamline policies to eliminate conflicts and duplication of effort.
Action 3.B.3	Continue to exchange resources and work with other agencies.
Action 3.B.4	Continue efforts towards consolidating the administration of fire resources for the Cities of Lemon Grove, La Mesa and El Cajon.

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 update existing flood control standards, zoning and building requirements.
Action 4.A.2	Continue policies that discourage growth in flood-prone areas.
Action 4.A.3	Continue to 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	Continue to periodically update Building Codes to reflect current standards.
Action 5.A.2	Continue to identify hazard-prone structures using GIS.
Action 5.A.3	Continue to 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: Continue to build and support local partnerships, such as the United Disaster Council (UDC) and Urban Area working Group (UAWG), and the coordination of mutual aid agreements.

Coordinating Individual/Organization: Deputy Fire Chief

Potential Funding Source: General Fund

Implementation Timeline: On-going

Action Item #2: Continue to incorporate hazard mitigation concerns into City of Lemon Grove planning and budgetary processes.

Coordinating Individual/Organization: City Manager, Finance Department

Potential Funding Source: General Fund

Implementation Timeline: February - March of each fiscal year

Action Item #3: Continue to 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: On-going

Action Item #4: Continue to encourage development of standardized Emergency Operations Plans within the City of Lemon Grove that coordinate with countywide Emergency Operations Plans.

Coordinating Individual/Organization: Deputy Fire Chief

Potential Funding Source: General Fund

Implementation Timeline: On-going

Action Item #5: Continue to develop multi-jurisdictional multi-functional training and exercises to enhance hazard mitigation.

Coordinating Individual/Organization: Deputy Fire Chief

Potential Funding Source: General Fund, Grant Funds (SHSG, UASI)

Implementation Timeline: On-going

Action Item #6: Continue efforts towards consolidating the administration of fire resources for the Cities of Lemon Grove, La Mesa and El Cajon

Coordinating Individual/Organization: Deputy Fire Chief

Potential Funding Source: General Fund

Implementation Timeline: On-going

Action Item #7: Continue to review and update 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: Continue policies that discourage growth in flood-prone areas.

Coordinating Individual/Organization: City Manager

Potential Funding Source: General Fund

Implementation Timeline: On-going

Action Item #9: Update Building and Fire Codes to reflect current standards.

Coordinating Individual/Organization: City Manager

Potential Funding Source: General Fund

Implementation Timeline: As State codes change

Action Item #10: Continue to identify hazard-prone areas using GIS.

Coordinating Individual/Organization: Deputy Fire Chief

Potential Funding Source: General Fund

Implementation Timeline: On-going

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, Local Planning Groups (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	1,998	496	139,624	184	824,633	53	31,044
Earthquake (Annualized Loss - Includes shaking, liquefaction and landslide components)	54,081	8,776	1,133	157	552	101*/105**	6,850*/ 48,848**
Flood (Loss)							
100 Year	2,854	893	251,380	118	528,841	21	24,557
500 Year	8,584	2,735	769,903	259	1,160,760	29	30,327
Rain-Induced Landslide							
High Risk	0	0	0	0	0	0	0
Moderate Risk	7	2	563	0	0	1	192
Tsunami	1,306	0	0	5	22,409	5	60,384
Wildfire / Structure Fire							
Extreme	0	0	0	0	0	0	0
Very High	0	0	0	0	0	0	0
High	9	2	563	5	22,409	1	192
Moderate	55,054	15,749	4,433,344	881	3,948,378	125	872,901

* 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:

- **Dam Failure/Floods**: Sweetwater dam failure
- **Earthquakes**: proximity to local faults (e.g. Rose Canyon Fault); older structures; potential for loss of life, injuries, and damage to property, as well as disruption of services is significant
- **Hazmat Release**: three freeways (i.e. I-5, I-805, & SR-54) and railway pass through the City making it susceptible to hazardous spills, releases, or accidents; several industrial facilities in the City handle hazardous materials on a regular basis
- **Structure Fires**: older structures
- **Tsunami:** proximity to waterfront may affect maritime business industry

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
  - Fire Prevention
  - Emergency Rescue and Response
  - Fire Suppression
  - Code Enforcement
  - Public Education

  - Emergency Management
  - Weed Abatement
- City of National City Development Services Department
  - General Plan
  - Development Standards (Building, Planning, Engineering)
  - Development Review Process
  - Code Enforcement
  - Zoning Ordinances
  - Traffic Control
- City of National City Police Department
  - Enforcement
  - Investigation
  - Security
  - Emergency Response
  - Traffic Control

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	Development Services Department
B. Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Y	Development Services Department
C. Planner(s) or Engineer(s) with an understanding of natural and/or manmade hazards	Y	Fire/Development Services Department/Police
D. Floodplain manager	Y	Development Services Department
E. Surveyors	N	
F. Staff with education or expertise to assess the community's vulnerability to hazards	Y	Fire/Development Services Department/Police
G. Personnel skilled in GIS and/or HAZUS	Y	Fire/Development Services Department/Police
H. Scientists familiar with the hazards of the community	N	
I. Emergency manager	Y	City Manager's Office/Fire/Police
J. Grant writers	Y	Fire/Development Services Department/Police

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 ordinances, 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	N	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)	Yes- eligible, but limited accessibility
B. Capital improvements project funding	Yes- eligible, but limited accessibility
C. Authority to levy taxes for specific purposes	No- requires voter approval
D. Fees for water, sewer, gas, or electric service	Yes- Sewer Only
E. Impact fees for homebuyers or developers for new developments/homes	Yes- Parks Only
F. Incur debt through general obligation bonds	No- requires voter approval
G. Incur debt through special tax and revenue bonds	No- requires voter approval
H. Incur debt through private activity bonds	No
I. Withhold spending in hazard-prone areas	Yes- subject to Council approval

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, Planning, Engineering, and Redevelopment provided input to the National City LPG. The National City LPG members were:

- Ray Pe (Community Development Department)
- Walter Amedee (Fire Department)
- Peggy Chapin (Development Services Department)
- Martin Reeder (Development Services Department)
- Mike Harlan (Police Department)
- Din Daneshfar (Development Services Department)

Once developed, City staff submitted the final plan to CalEMA and FEMA for approval. Once approved, the plan will be taken to the City Council for adoption.

The draft plan was posted on the Office of Emergency Services Website to present these preliminary goals, objectives and actions to citizens and to receive public input Specific questions were asked and the public was requested to provide comments and suggestions regarding the draft plan and the proposed mitigation actions. An email address was provided for the public to send comments and suggestions to. This email address was checked daily for public input. The following sections present the hazard-related goals, objectives and actions as prepared by the County'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 developments for new 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 other local governments.

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

Goal 5. Earthquakes

Goal 6. Floods

Goal 7. Structural Fire/Wildfire

Goal 8. Tsunamis

Goal 9. Manmade Hazards (See Attachment A)

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 developments for new 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.
Objective 1.B: Encourage and facilitate the adoption of building codes for new development and renovation that will protect these assets and new development in hazard areas.	
Action 1.B.1	Adopt and implement current building and fire codes per state cycle.
Action 1.B.2	Continue to regularly adopt and implement existing building codes
Objective 1.C: Continue to implement National City land use code and enforce building codes.	
Action 1.C.1	Encourage and improve communications between the Development Services Department and Fire Department.
Action 1.C.2	Cross-train staff from Development Services Department and Fire on current relevant codes.
Objective 1.D: Encourage future development that incorporates planning that will not exacerbate hazardous conditions.	
Action 1.D.1	Review annually and update as necessary the Flood Plain Ordinance periodically.
Action 1.D.2	Continue to update Land Use Codes periodically.
Objective 1.E: Consider appropriate zoning that will limit future 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 plot hazard areas for new 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	Conduct workshops with Neighborhood Councils, Chamber of Commerce, interested groups, schools, individual homeowners, and business community on hazards that require advance preparedness.
Action 2.A.2	Continue to promote disaster preparedness with the distribution of print materials or videos.

Goal 2: Promote public understanding, support and demand for hazard mitigation (continued).	
Objective 2.B: Promote partnerships between the state, counties and other 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.
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 the Chamber of Commerce, Rotary Clubs, etc.
Action 2.C.2	Conduct informational meetings with business owners/managers.
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 building construction that exacerbates hazardous conditions.	
Action 2.E.1	Actively implement code enforcement for building without permits.
Action 2.E.2	Actively 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	Update and adopt the City of National City Emergency Plan every 10 years.
Action 3.A.2	Update and adopt the Hazard Mitigation Plan every 5 years.
Objective 3.B: Develop a hazard mitigation plan and provide technical assistance to implement the plan.	
Action 3.B.1	Work with the Fire Department, Development Services Department, Community Development Department, and Police Department to develop the hazard mitigation plan.

Goal 3: Build and support local capacity and commitment to continuously become less vulnerable to hazards (continued).	
Objective 3.B: Develop a hazard mitigation plan and provide technical assistance to implement the plan (continued).	
Action 3.B.2	Implement hazard mitigation plan recommendations.

Goal 4: Improve hazard mitigation coordination and communication with federal, state and other local governments.	
Objective 4.A: Establish and maintain closer working relationships with state agencies and other local governments.	
Action 4.A.1	Continue to work with the 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	Continue support/participation in regional programs to include HIRT, USAR, and MMST
Objective 4.B: Encourage other organizations to incorporate hazard mitigation activities.	
Action 4.B.1	Hold seminars to encourage 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	Make available a copy of the completed Hazard Mitigation Plan for the public to view.
Objective 4.C: Improve the City's capability and efficiency at administering pre- and post- disaster mitigation.	
Action 4.C.1	Work with the Fire Department, Development Services Department, Community Development Department, and Police Department 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	Conduct on-going education programs to inform the community of pre-and post disaster advice.

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 losses due to earthquakes.	
Action 5.A.1	Conduct workshops with Neighborhood Councils, Chamber of Commerce, individual homeowners, and business community on hazards that require advance preparedness.
Action 5.A.2	Recommend that the City retrofit the City Hall as funds become available.
Action 5.A.3	Actively pursue grant funds and other funding sources to retrofit City Hall.
Action 5.A.4	Maintain an Emergency Response Plan.
Action 5.A.5	Regularly schedule Emergency Response Plan Exercises with City staff.
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 inspections of at-risk structures that conduct care for children, seniors, and other group homes.
Action 5.B.3	Conduct inspections of child care facilities, senior facilities, and other facilities where occupants may be severely impacted to ensure the structures are structurally safe.
Action 5.B.4	Conduct informational meetings with Neighborhood Councils, Chamber of Commerce, individual homeowners, and business community.
Objective 5.C: Address identified data limitations regarding the lack of information about the relative vulnerability of assets from earthquakes.	
Action 5.C.1	Implement GIS program citywide.
Action 5.C.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 through implementation of a landscape ordinance that encroaches previous site design.
Action 6.A.4	Maintain and update a city-wide Evacuation Plan.
Action 6.A.5	Maintain search and rescue equipment deployment objectives.
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	Maintain adequate materials to disperse to the public for installing water barriers when necessary.
Action 6.B.2	Construct detention basins when necessary and review new development for adequate design features.
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	Regularly participate in workgroup activities with the County.
Action 6.C.2	Regularly participate in workgroup activities with the Caltrans.
Action 6.C.3	Regularly 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 for all new development.
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	Require Hydrology Studies be prepared for all new development, except single family residences.
Action 6.E.4	Use Hydrological Modeling Techniques for large developments.

Goal 7: Reduce the possibility of damage and losses to existing assets, particularly people and critical facilities/infrastructure due to structural fire/wildfire.	
Objective 7.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to structural fire/wildfire.	
Action 7.A.1	Regularly maintain a Fire Prevention Program.
Action 7.A.2	Regularly maintain a Pre-Fire Plan Program.
Action 7.A.3	Regularly maintain a Fire Suppression Program.
Action 7.A.4	Assess staffing levels of Fire Prevention Staff and increase as appropriate.
Action 7.A.5	Develop a Housing Inspection Program and routinely conduct housing inspections of homes over 50 years old.
Action 7.A.6	Conduct 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	Annually assess staffing levels and ensure adequate staffing is available to meet fire suppression objectives.
Action 7.B.3	Maintain standard operating procedures for fire ground operations.
Action 7.B.4	Conduct annual wildland fire fighting and ICS training to ensure operational readiness.
Action 7.B.5	Identify and work to eliminate non-fire resistant roofs.
Action 7.B.6	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 an inspection process to ensure buildings are constructed 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.

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> (continued).	
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.

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

Priority Action #1: Update the General Plan.

Coordinating Individual/Organization: Community Development

Potential Funding Source: General Fund

Implementation Timeline: FY 09 – FY 11

Priority Action #2: 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: January 2010 - December 2015

Priority Action #3: 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: January 2010 - December 2015

Priority Action #4: Work with the Regional Terrorism Threat Advisory Council (RTTAC).

Coordinating Individual/Organization: Police Department

Potential Funding Source: General/Other Applicable Funds

Implementation Timeline: January 2010 - December 2015

Priority Action #5: Continue Maintenance of the Storm Water System in Operable Conditions

Coordinating Individual/Organization: Department of Public Works/Development Services Department

Potential Funding Source: CDBG, Gas Tax, Sewer System Maintenance, and General Funds

Implementation Timeline: January 2010 - December 2015

Priority Action #6: Implement code enforcement for buildings without permits.

Coordinating Individual/Organization: Development Services Department

Potential Funding Source: Citation fees/General fund

Implementation Timeline: January 2010 - December 2015

Priority Action #7: Maintain a Fire prevention Program

Coordinating Individual/Organization: Fire Department

Potential Funding Source: General/Other Applicable Funds

Implementation Timeline: January 2010 - December 2015

Priority Action #8: Implement GIS Program

Coordinating Individual/Organization: Development Services Department

Potential Funding Source: General/Other Applicable Funds

Implementation Timeline: January 2010 - December 2015

Priority Action #9: Continue to update Land Use Code periodically.

Coordinating Individual/Organization: Community Development

Potential Funding Source: General Fund

Implementation Timeline: FY 09 – FY 11

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	76	54	15,201	3	13,445	0	0
Dam Failure	33,755	11,437	3,219,516	285	1,277,285	56	222,319
Earthquake (Annualized Loss - Includes shaking, liquefaction and landslide components)	160,421	45,696	6,138	274	1,176	131*/134**	13,643*/ 51,419**
Flood (Loss)							
100 Year	19,007	6,715	1,890,273	217	972,529	57	220,310
500 Year	37,323	12,878	3,625,157	368	1,649,266	77	332,700
Rain-Induced Landslide							
High Risk	0	0	0	0	0	0	0
Moderate Risk	0	0	0	0	0	0	0
Tsunami	2,108	1,059	298,109	46	206,158	5	578
Wildfire / Structure Fire							
Extreme	0	0	0	0	0	0	0
Very High	1,402	470	132,305	7	31,372	2	4
High	2,795	849	238,994	21	94,116	10	2,208
Moderate	161,361	58,273	16,403,850	1,824	8,174,621	222	1,508,295

* 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 Division
  - Development Plans Review
  - Fire & Life Safety Inspection
  - Beach Lifeguard Services
  - Hazardous Materials Response and Evaluation

- City of Oceanside Police Department
  - Police Services
  - Harbor PD Services
  - Emergency Public Notification
  - Evacuation Coordination
- City of Oceanside Public Works Department
  - Low Level Hazardous Waste clean up
  - Streets and Sidewalks
  - Lighting District
  - Fleet Management
  - Harbor/Beach Maintenance
  - Harbor Management
- City of Oceanside Administrative Services
  - Finance Services
  - Human Services
  - Administrative Services
  - Government Services
  - Information Technology Services
- City of Oceanside Water Utilities Department
  - Water Services
  - Wastewater management
  - GIS Services
  - Storm water Control and Monitoring
- City of Oceanside Development Services
  - Building Division
  - Building Inspection
  - Engineering Division
  - Planning Division
- City of Oceanside Economic and Community Development Department
  - Property Management
  - Redevelopment Services

  - Economic Development
- Neighborhood Services
  - Code Enforcement
  - Housing Department
  - Parks and Recreation Division
- Library 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
B. Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Y	Engineering & Building Department
C. Planners or Engineer(s) with an understanding of natural and/or manmade hazards	Y	Planning & Engineering Department
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
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
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	Y	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 updated 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 updated 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 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 update members were:

- Joe Urban, Emergency Preparedness Coordinator
- Ken Matsumoto, Division Chief
- Don Hadley – Deputy City Manager
- Joseph Arranaga – Public Works Director
- Lonnie Thibodeaux – Water Utilities Director
- George Buell – Development Services Director
- Michael Sherwood – Information Technologies Director

Once completed, City staff will submit the final plan to CalEMA and FEMA for approval. Once approved by FEMA the plan will be taken to the City Council for adoption.

The draft plan was posted on the Office of Emergency Services Website to present these preliminary goals, objectives and actions to citizens and to receive public input. Specific questions were asked and the public was requested to provide comments and suggestions regarding the draft plan and the proposed mitigation actions. An email address was provided for the public to send comments and suggestions to. This email address was checked daily for public input. All comments were reviewed and were incorporated into the draft plan as appropriate. The following sections present the hazard-related goals, objectives and actions as prepared by the City of 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. Storm Surge/Coastal Erosion

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 of objectives and actions to assist in the implementation of each of their ~~11~~ 12 (add man-made threats) 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. Continued development and increase of local CERT Team members and capabilities.

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 and updated event information. Includes development of a countywide damage assessment team.

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 (continued).	
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 (continued).	
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 <u>dam failure.</u>	
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 5 prioritized mitigation actions as well as an implementation strategy for each are:

Action Item #1: Pursue vegetation management within river and creek channels

Coordinating Individual/Organization: Public Works

Potential Funding Source: Federal Grant

Implementation Timeline: 2010-2015

Action Item #2: 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: 2010-2015

Action Item #3: Reduce the possibility of damage and losses of existing assets relating to the Oceanside Pier structure due to: severe weather, earthquakes, storm surge and salt-water corrosion.

Coordinating Individual/Organization: City of Oceanside / County of San Diego

Potential Funding Source: Grant

Implementation Timeline: 2010-2015

Action Item #4: Relocation of the Haymar Sewer Truck Main due to multiple exposed areas of the current pipeline being subjected to the possibility of being washed out during storms/landslides and releasing raw sewage into the environment.

Coordinating Individual/Organization: City of Oceanside / County of San Diego

Potential Funding Source: Grant

Implementation Timeline: 2010-015

Action Item #5: To construct anti-obstruction flood devices for each of the 5 bridges (Coast Highway, Benet, Foussat, Douglas and College) that cross the San Luis Rey River to protect against potential debris obstruction against bridge support structures due to excessive debris flow.

Coordinating Individual/Organization: City of Oceanside / County of San Diego

Potential Funding Source: Grant

Implementation Timeline: 2010-2015

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)	51,126	16,348	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, water supplies, and wastewater collection system.
  - **Landslide/Rockslide**: on Poway Grade and Pomerado Road may result from earthquake or heavy rains.

5.15.1 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.

5.15.1.1 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	Development Services – Planners, Engineers
B. Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Y	Development Services – Engineers, Consultants; Safety Services – Fire Marshal
C. Planners or Engineer(s) with an understanding of natural and/or manmade hazards	Y	Development Services – Planners, Engineers
D. Floodplain manager	Y	Development Services - Planner, Engineers
E. Surveyors	Y	Development Services - Consultants
F. Staff with education or expertise to assess the community's vulnerability to hazards	Y	Development Services – Planners, Engineers Public Works – Managers; Safety Services – Chief Officers
G. Personnel skilled in GIS and/or HAZUS	Y	Administrative Services – IT Staff
H. Scientists familiar with the hazards of the community	Y	Development Services - Consultants
I. Emergency manager	Y	City Manager Office – City Manager Safety Services – Chief Officers
J. Grant writers	Y	All Departments – Various 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	Y	N
M. Real estate disclosure requirements	Y	N

5.15.1.2 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:

- Mark Sanchez, Safety Services
- Pat Ryan, Public Works
- Tom Howard, Public Works
- Jim Lyon, Development Services
- Jon Canavan, Safety Services

Once developed, City staff will present plan to the City Manager for submission to Cal EMA and FEMA. Upon approval from FEMA, staff will present Plan to City Council for adoption.

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 infrastructure.

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	Continue to evaluate and revise General Plan policies as necessary.
Action 1.A.2	Continue to review and update FEMA maps regarding flood risk in Poway as necessary.
Action 1.A.3	Continue the evaluation of 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)	
Objective 1.A: The General Plan can be updated to further promote resistance to the effects of disasters upon development and infrastructure (continued).	
Action 1.A.4	Continue to update the Water Master Plan with particular attention to fire system upgrades as needed.
Action 1.A.5	Improve the use of technologies used in City's Emergency Operations Centers.
Action 1.A.6	Maintain improved wildfire defensible space strategies.

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 NIMS/SEMS/ICS review and training for appropriate City staff and the City Council.
Action 2.A.2	Continue and enhance public education and outreach activities regarding disaster preparedness.
Action 2.A.3	Maintain CERT program.
Action 2.A.4	Partner with regional organizations focused on improved disaster preparedness.

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.
Action 3.A.2	Update fire control and evacuation plans for 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 the Millards Ranch, Beeler Canyon, and Boulder Mountain areas.
Action 3.A.4	Upgrade road access, surface, and grade for fire safety equipment at identified locations.

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).	
Objective 3.A: Plan and prepare for damage and loss from wildfire (continued).	
Action 3.A.5	Continue to update the Water Master Plan. Evaluate adding hydrants, creating loops, and other means to improve pressure and volume where needed.
Action 3.A.6	When possible, work with SDG&E seeking replacement of wood utility poles with metal poles in areas that have high risk of wildfires.
Action 3.A.7	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	Provide sand bags to the public for the prevention of flooding damage or loss.
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	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	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.3	Develop the Public Works office site as a departmental operations center site for City operations, to include supplies and equipment.
Action 3.C.4	Provide specialized training to staff for disaster recovery responsibilities.
Action 3.C.5	Investigate funding opportunities in order to provide disaster preparedness kits to special populations (seniors and the disabled) in the community.
Action 3.C.6	Evaluate the use of the Green Valley Truck Trail as an emergency response east-west corridor.

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 8 prioritized mitigation actions as well as an implementation strategy for each are:

Priority Action #1: Maintain improved wildfire defensible space strategies.

Coordinating Individual/Organization: Safety Services & Development Services

Potential Funding Source: City of Poway

Implementation Timeline: Annual action.

Priority Action #2: Partner with regional organizations focused on improved disaster preparedness.

Coordinating Individual/Organization: Safety Services & Community Services

Potential Funding Source: City of Poway

Implementation Timeline: On-going.

Priority Action #3: Maintain Community Emergency Response Team program.

Coordinating Individual/Organization: Safety Services

Potential Funding Source: City of Poway

Implementation Timeline: On-going.

Priority Action #4: Continue to update the Water Master Plan. Evaluate adding hydrants, creating loops, and other means to improve pressure and volume where needed.

Coordinating Individual/Organization: Public Works & Development Services

Potential Funding Source: City of Poway

Implementation Timeline: FY 2010-2013

Priority Action #5: Develop the Public Works office site as a departmental operations center site for City operations, to include supplies and equipment.

Coordinating Individual/Organization: Public Works

Potential Funding Source: City of Poway

Implementation Timeline: FY 2010-2011

Priority Action #6: Continue the removal of sediment and silt from channels as needed, and make structural improvements in floodways to increase capacity.

Coordinating Individual/Organization: Public Works

Potential Funding Source: City of Poway

Implementation Timeline: On-going.

Priority Action #7: Continue to evaluate and revise General Plan as necessary.

Coordinating Individual/Organization: Development Services

Potential Funding Source: City of Poway

Implementation Timeline: FY 2011-2012

Priority Action #8: When possible, work with SDG&E seeking replacement of wooden utility poles with metal poles in areas that have high risk of wildfires.

Coordinating Individual/Organization: Safety Services &Development Services

Potential Funding Source: City of Poway

Implementation Timeline: FY 2011-2012

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)
Total Exposure	1,235,758	296,105	80,640,892	7,216	16,350,410	986	3,893,356
Coastal Storm / Erosion	199	128	36,032	1	4,482	0	0
Dam Failure	336,907	81,405	22,166,582	2,505	5,676,080	135	870,370
Earthquake (Annualized Loss - Shaking and liquefaction components)	1,235,758* / 616,164**	296,105* / 150,332**	80,629,392*/ 40,935,404**	7,216* / 4,601**	16,350,734*/ 10,425,406**	986* / 212**	3,893,356*/ 1,413,486**
Floods (Loss)							
100 Year	336,907	81,045	22,068,554	2,505	5,676,080	76	870,370
500 Year	1,235,758	296,105	80,629,392	7,216	16,350,734	986	3,893,356
Rain-Induced Landslide							
High Risk	***	***	***	***	***	***	***
Moderate Risk	***	***	***	***	***	***	***
Tsunami	10,294	6,490	1,826,935	393	1,761,308	68	1,083,347
Wildfire/ Structure Fire							
Extreme	23,074	5,386	1,466,608	600	1,359,540	1	590
Very High	451,267	123,995	33,763,839	3,380	7,658,742	14	26,937
High	504,618	132,477	36,073,487	3,707	8,399,691	18	55,466
Moderate	1,235,758	296,105	80,629,392	7,216	16,350,734	986	3,893,356

* Represents Probabilistic Peak Ground Acceleration 0.15 - 0.25 (low shake) only.

** Represents Liquefaction Only.

*** Data not currently available for this hazard within the City of San Diego (12/1/09)

After reviewing the localized hazard maps and exposure/loss table above, the following hazards categories were identified by the San Diego LPG as its top seven.

- **Structure Fire/Wildfire**
- **Coastal Storms/Erosion/Tsunami**
- **Earthquakes**
- **Dam Failure**
- **Flood**
- **Landslide**
- **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, and personnel with GIS skills.

DEVELOPMENT SERVICES DEPARTMENT

The Development Services Department 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 to repair or restore an area damaged by those hazards included in this plan. However, provisions are provided to allow emergency work without delay.

ENGINEERING AND CAPITAL PROJECTS DEPARTMENT (E&CP)

E&CP provides a full range of engineering services for the City's capital investment in various types of infrastructure and provides traffic engineering services to the community. The department is responsible for planning, design, project management, and construction management of public improvement projects; quality control and inspection of private work permitted in the right-of –way; surveying and material testing; and providing traffic operations and transportation engineering services.

E&CP activities include work on various public infrastructure assets to rehabilitate, restore, improve and add to the City of San Diego's capital facilities. The Capital Improvement Program (CIP) covers a wide range of projects including: airports, bikeways, drainage and flood control facilities, libraries, parks and recreation centers, police, fire and lifeguard stations, street improvements, street lights, traffic signals, utilities undergrounding, water and sewer facilities and pipelines.

Traffic engineering services include transportation system forecasting and program management, responding to traffic requests from the public, maintaining the City's traffic signal system, and traffic safety analysis.

Other engineering services include quality control and inspection for private work permitted in the right of way, site grading and subdivision improvements, infrastructure asset management, CIP prioritization, and engineer functions for all City departments.

ENVIRONMENTAL SERVICES DEPARTMENT

The Environmental Services Department was established in 1988 to protect the environment and to provide all San Diego residents with properly disposed municipal solid waste, along with an environment free of litter and illegal dumping. The Collection Services Division has provided City refuse pickup for 90 years and curbside recycling and yard waste collection for two decades.

The department pursues waste reduction and recycling, composting and environmentally-sound landfill management to meet the City of San Diego's long term waste disposal needs. In addition, Environmental

Services oversees the City's management of energy, pursues innovative energy independence goals and works to advance more sustainable practices within the City organization and the community.
The Ridgehaven green building, one of America's most resource efficient buildings, is home to the Environmental Services Department. Ridgehaven holds the nation's first Energy Star label for buildings awarded by the U.S. Department of Energy and the U.S. Environmental Protection Agency in 1999. Green building features include energy savings, resource conservation, a healthy workplace, and operational savings.

The department continues to explore means of improving waste diversion in San Diego. Less material generated translates into an extended life for the City's Miramar Landfill, scheduled to close in 2017.

The department is organized into three operational divisions:

Collections Services Division provides weekly refuse and every-other-week recyclables and yard waste collection services to homes and some small businesses through the City of San Diego, and places and services street litter bins in commercial districts throughout the City. The Collection Services Division was named Fleet of the Year by Fleet Owner Magazine in 2005.

Energy Sustainability and Environmental Protection Division develops and manages programs relating to energy use, sustainability, climate change and hazardous and universal waste. This division includes energy, sustainability, and environmental protection sections.

Waste Reduction and Disposal Division develops and implements the City's solid waste reduction and diversion programs, directs disposal operations at the City's Miramar Landfill, manages the City's inactive landfill sites, collects landfill fees and enforces and supports the City's solid waste codes. The Miramar Landfill is the nation's first municipally-operated landfill to earn the ISO 14001 certification. This division includes waste reduction, refuse disposal, fee booth operations, franchise administration, solid waste code enforcement, and field operations.

FIRE-RESCUE DEPARTMENT

The Fire-Rescue Department serves the ninth largest City in the United States and the second largest City in California. San Diego Fire-Rescue is a multi-faceted organization that provides City residents with fire and life safety services including fire protection, emergency medical services, and lifeguard protection at San Diego beaches.

Members of the department guarantee to the people of San Diego they we will provide dependable service in a responsible fashion, while showing care and compassion for those in need. They protect lives, property, and the environment through fire suppression, medical care, emergency medical transport, technical rescue, hazardous materials response, fire investigation, explosives disarmament, fire safety inspections, fire prevention and education programs, disaster preparedness, hazardous materials mitigation, equipment and facilities maintenance, waterway and swimmer safety, and the operation of the 911 communications center.

GENERAL SERVICES DEPARTMENT

The General Services Department is composed of five distinct divisions providing a range of services to the City of San Diego.

The Communications Division provides primary service delivery for wireless communications technologies; engineers, installs, operates, and maintains private, metropolitan-wide, wireless voice and data communications systems and equipment; and contracts for commercially-provided wireless services. The Communications Division ensures the provision of life-line voice and data communications for emergency first responders.

The Facilities Division is responsible for ensuring the facilities where library, park and recreation centers, and other government services are provided are maintained in a safe and operable manner. More than 1,600 City facilities are in constant use and require preventive maintenance, custodial service, scheduled maintenance, and, in some cases, emergency repair to keep them in full operation. The Facilities staff, which includes plumbers, painters, electricians, carpenters, locksmiths, and other skilled-trades people, provides these services to City departments.

The Fleet Services Division provides all City departments with motive equipment and a full range of fleet management services. These services include acquisition, fitting, maintenance and repair, the provision of parts and fuel, body repair, painting, metal fabrication, disposal services, and other motive equipment-related support services, such as machining, equipment rental, and operator training.

The Publishing Services Division provides full reproduction capability, including offset press operations, high-volume copying, and finishing services and also provides graphic design and electronic publishing services. The Division is responsible for administering the Citywide Convenience Copier Program, providing approximately 580 photocopiers to City departments.

The Street Division maintains approximately 2,800 miles of streets and alleys, 5,200 miles of sidewalks, 235,000 trees, 250,000 street signs, and 50,000 street lights through three sections: Roadways/Trench Restoration, Resurfacing & Pavement Management, and Electrical/Traffic & Trees. The Roadways/Trench Restoration Section is responsible for maintaining street pavement surfaces and sidewalks. This section responds to more than 9,000 service requests and fills more than 50,000 potholes annually. In addition, under a service level agreement, crews repair damaged roadways surfaces and sidewalks associated with water and sewer work within the street right-of-way. The Resurfacing & Pavement Management Section is responsible for planning, evaluating, and executing street resurfacing contracts. The Electrical/Traffic & Trees Section is responsible for the maintenance and operations of over 1,600 traffic signals and flashing beacons and approximately 50,000 street and park lights. This section also assists with the set up of the Winter Homeless Shelters and the December Night Lights Festival at Balboa Park.

OFFICE OF HOMELAND SECURITY

The San Diego Office of Homeland Security (SD-OHS) oversees the City's Homeland Security, Disaster Preparedness, Emergency Management, and Recovery/Mitigation Programs. The primary focus is to

ensure comprehensive emergency preparedness, training, response, recovery and mitigation services are concentrated to minimize the adverse effects to life, property, the environment and the City's economic base from natural, technological and manmade disasters.

SD-OHS is responsible for securing and managing Federal Homeland Security Urban Area Security Initiative (UASI) grants for the region. These grants are intended to address the needs of high-threat, high-density urban areas to assist in building enhanced and sustainable capacity to prevent, protect against, respond to, and recover from acts of terrorism. The UASI program focuses on enhancing preparedness through regional collaboration and development of integrated regional systems.

Disaster Preparedness efforts ensure the City is prepared for major disasters by coordinating planning efforts and training of City employees; assisting with the integration of the City's emergency plans in a collaborative environment both internally and externally; interfacing with county, State and federal jurisdictions; and ensuring the flow of information to the public and business community to assist in emergency preparation and response.

Under the Emergency Management Program, SD-OHS maintains the City's Emergency Operations Center (EOC) and alternate EOC in a ready-to-activate status, ensures assigned staff is fully trained and capable of carrying out their responsibilities during activations, and manages the EOC during responses to multi-department and City-wide emergencies to support incident response activities and maintain City-wide response capabilities. This program oversees the opening of shelters and provision of mass care during a disaster as well as standing up the local disaster assistance centers to provide assistance to the public following a disaster.

SD-OHS coordinates recovery and mitigation programs for the City by collecting timely disaster-related data and coordinating applications for state and federal grant programs related to disaster response, recovery, and mitigation. These grant programs provide a vital source of revenue to offset the costs of natural and man-made disasters.

INFORMATION TECHNOLOGY DEPARTMENT

The Information Technology Department provides responsive and dependable information technology services to City organizations to support fiscally sound and effective government. The department is responsible for providing the City of San Diego's Information Technology strategic direction, policies, procedures, and standards. The goals of the department are to effectively manage the delivery of City-wide technology services, guide technology decision-making to ensure consistency with the City-wide business direction, ensure a skilled, responsive, and innovative workforce that keeps current with evolving business-critical technologies, and provide a high quality customer service.

PARK AND RECREATION DEPARTMENT

The mission of the Park and Recreation Department is to acquire, develop, and maintain a park and recreation system which enriches the quality of life for residents and visitors alike, and preserves it for future generations. The department is responsible for overseeing nearly 40,000 acres of developed and undeveloped space, more than 340 parks including Balboa Park, Mission Trails Regional Park, and

Mission Bay Park; 25 miles of shoreline from Sunset Cliffs to La Jolla; 13 pools; 3 public golf complexes; 52 recreation centers and more. Park and recreation professionals and volunteers host hundreds of community events each year and provide safe places for thousands of children to go after school.

PLANNING AND COMMUNITY INVESTMENT DEPARTMENT

The mission of the City Planning & Community Investment (CPCI) Department is to create a well-planned desirable living and working environment for all San Diegans. To achieve this mission, CPCI is responsible for the development and implementation of land use and transportation policies, as well as long-range fiscal planning for public facilities. The City's General Plan is its constitution for development, expressing community vision and values while guiding future development. On March 10th, 2008, the City Council adopted the City of San Diego General Plan, a comprehensive update to the 1979 Progress Guide and General Plan. As a participating jurisdiction in the County's Multi-Jurisdictional Hazard Mitigation Plan, the City, through its General Plan, has adopted policies that guide development away from hazardous sites while utilizing hazardous mitigation and other safety measures in the provision of future developments. The policies addressing hazardous mitigation are concentrated in the Land Use, Mobility, Urban Design, and Public Facilities, Services and Safety Elements.

On July 7, 2009, the City Council adopted the General Plan Action Plan, the implementation and monitoring document accompanying the General Plan. Both the General Plan and Action Plan contain policies that limit future development in hazardous areas. Because the General Plan does not address specific community zoning issues, these mitigation measures are achieved through the Community Plan Update process.

The City's community plans are integral components of the General Plan, refining the broad City–wide policies to more community–specific policies which remain consistent with the General Plan. CPCI's primary responsibilities related to hazardous mitigation are implemented through the update of Community Plans.

POLICE DEPARTMENT

The San Diego Police Department provides law enforcement, scene and event security, evacuations, public emergency notifications, traffic and crowd control, traffic and criminal investigations, records management, permits and licensing for police regulated businesses, laboratory services, and support services. The City is represented by 9 area commands, divided into 19 service areas, policing 122 neighborhoods. The Department plans for and implements the Dam Failure Plan and the San Diego River Road Closure Plan.

PUBLIC UTILITIES DEPARTMENT

The Public Utilities Department is comprised of the Wastewater and Water Sections. The emphasis for the new department is to provide a streamlined, effective organization in oversight, strategic planning, and administration for the City's water storage, treatment, and delivery systems, the regional wastewater treatment and disposal services, and the Municipal Sewage System.

Metropolitan Wastewater's mission is to provide the public with a safe and efficient regional sewer system that protects our ocean water quality, supplements our limited water supply, and meets federal standards, at the lowest possible cost. Through state-of-the-art facilities, water reclamation, biosolids production and cogeneration, the City is a leader in maximizing the conservation of water and energy as part of the wastewater treatment process.

The City of San Diego entered the municipal water business in 1901 when the City bought the water system from a private company. More than 100 years later, San Diego's water infrastructure has become one of the most complex in the United States. San Diego operates more than 3,302 miles of water lines, 49 water pump plants, 90+ pressure zones, and more than 200 million gallons of potable water store capacity in 32 standpipes, elevated tanks, and concrete and steel reservoirs. In addition to supplying more than 280,000 metered service connections within its own incorporated boundaries, San Diego conveys and sells potable water to the City of Del Mar, the Santa Fe and San Dieguito Irrigation Districts, and the California American Water Company, which, in turn, serves the Cities of Coronado and Imperial Beach and portions of south San Diego. San Diego also maintains several emergency connections to and from neighboring water agencies, including Santa Fe Irrigation District, the Poway Municipal Water District, and Otay Water District, the California American Water Company, and the Sweetwater Authority.

STORM WATER DEPARTMENT

The Storm Water Pollution Prevention Program is the lead office for the City's efforts to reduce pollutants in urban runoff and storm water to the maximum extent practicable. These activities, include but are not limited to, public education, employee training, water quality monitoring, source identification, code enforcement, watershed management, and Best Management Practices development/implementation with the City of San Diego jurisdictional boundaries. The Storm Water Program represents the City on storm water and NPDES storm water permit issues before the Principal Permittee, the County Department of Environmental Health, and the Regional Water Quality Control Board. In addition, the Storm Water Program provides technical expertise and guidance to all City departments to ensure implementation and compliance with the Permit. Storm Water also prepares and transmits an annual report to the County for submittal to the Regional Board and is responsible agent that certifies the City is in compliance with all Permit requirements.

The Storm Water Department has been designated as the lead in protecting and improving the water quality of rivers, creeks, bays, and the ocean in compliance with the updated Municipal Storm Water Permit and other surface water quality regulations and orders issued by the State of California. The Department's main priorities are to: (1) identify sources of pollution and abate them through the implementation of innovative and efficient public education, watershed management, storm water development regulations, monitoring, investigation, enforcement, and City-wide training programs; and (2) provide the most efficient storm drain system operation and maintenance services to San Diego's residents, businesses, and visitors.

The City of San Diego has over 70,000 storm drain structures and over 800 miles of drainage pipe. The Department is responsible for inspection, maintenance, and repair of the storm drain system in the public right-of-way and in drainage easements. This includes clearing blocked drains, removing debris from

storm drain structures, and cleaning and repairing damaged drainpipes. In addition, the City of San Diego maintains 84 miles of concrete and dirt drainage channels and ditches.

The Department is also responsible for street sweeping which provides two primary benefits to the City. The more obvious benefit is the collection and removal of paper, leaves, and other visible debris that collects in the gutters. The debris can block storm water facilities causing localized flooding during heavy rains. An equally important, but less visible benefit is the removal of metal particles and other hazardous waste products left by passing vehicles. Although they are virtually invisible, these particles can be extremely harmful to fish and other wildlife if they reach our creeks, rivers, beaches, and bays. Street sweeping also serves as a Best Management Practice (BMP) to control and improve water quality. Motorized sweeping removes an average of 4,400 tons of debris from the street before it goes into the storm drains. The City currently has over 2,700 miles of improved streets that are included in the street sweeping program. The Department has over 278 power sweepers and 23 operators, with a support staff of truck drivers and parking enforcement officers.

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 and Community Investment, Development Services, 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 and Capital Projects, General Services, and Development Services.
C. Planners or Engineer(s) with an understanding of natural and/or manmade hazards	Y	Fire-Rescue, Police, Development Services, Planning and Community Investment, Environmental Services, and Engineering and Capital Projects.
D. Floodplain manager	Y	Development Services, and Engineering and Capital Projects
E. Surveyors	Y	Engineering and 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, and Engineering and Capital Projects
H. Emergency manager	Y	Office of Homeland Security
I. Grant writers	Y	Financial Management, Park and 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

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. 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. Representatives of numerous City departments involved in hazard mitigation planning, including Environmental Services, Fire-Rescue, General Services, Office of Homeland Security, Police, Planning and Community Investment, and Public Utilities provided input to the San Diego LPG.

The San Diego LPG members were:

- John Alley
- Parita Avlani
- Gerry Barca
- Jamal Batta
- Megan Beall
- Kelly Broughton
- Gus Brown
- Sylvia Castillo
- Phyllis Chapin
- Brian Fennessy
- Stacy Lomedico
- Michael Prinz
- David Racela
- Eugene Ruzzini
- Marshall White
- Adrienne Turner
- John Valencia
- Peter Wongviboosin

The draft plan was posted on the Office of Emergency Services Website to present these preliminary goals, objectives and actions to citizens and to receive public input Specific questions were asked and the public was requested to provide comments and suggestions regarding the draft plan and the proposed mitigation actions. An email address was provided for the public to send comments and suggestions to. This email address was checked daily for public input.

The Hazard Mitigation Plan Guidelines process requires the completed plan be submitted to CalEMA and FEMA for approval prior to being taken to the City Council for adoption.

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 **six** Goals for their Hazard Mitigation Plan.

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 State-owned facilities, due to structural fire/wildfire, coastal storms/erosion/tsunami, earthquake, dam failure, flood, landslide, and other manmade hazards.

Goal 4. Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure and State-owned facilities due to severe weather (e.g., El Nino storms, thunderstorms, lightning, tsunami, and extreme temperature).

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

Goal 6. Reduce the high probability of damage and losses to existing assets, particularly people, critical facilities/infrastructure and State-owned facilities due to floods.

5.16.2.2 Objectives and Actions

The City of San Diego developed the following broad list of objectives, and action items to assist in achieving and implementing each of its **six** identified hazard mitigation goals.

Goal 1: Promote public understanding, support and demand for hazard mitigation.	
Objective 1.A: Promote partnerships between the state, counties, local and tribal governments to identify, prioritize, and implement mitigation actions.	
Action 1.A.1	Develop regional collaboration for a Geospatial Mitigation Strategy.

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	Encourage development of standardized Emergency Operations Plans within the City of San Diego that coordinate with County-wide Emergency Operations Plans.

Goal 2: Improve hazard mitigation coordination and communication with federal, state, local, and tribal governments (continued).	
Objective 2.B: Encourage other organizations to incorporate hazard mitigation activities.	
Action 2.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.
Objective 2.C: Support the State's efforts to improve its capability and efficiency at administering pre-and post-disaster mitigation.	
Action 2.C.1	Participate in the development and execution of an Emergency Operations Center (EOC) and Department Operation Centers (DOC) table top and functional disaster exercises (addressing the response and recovery phases), which include Military and State representative participation.

Goal 3: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and State-owned facilities, due to structural fire/wildfire, coastal storms/erosion/tsunami, earthquake, dam failure, flood, landslide, and other manmade hazards.	
Objective 3.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to structural fire/wildfire, coastal storms/erosion/tsunami, earthquake, dam failure, flood, landslide, and manmade hazards.	
Action 3.A.1	Develop an integrated communication/notification plan, including information about road closures, evacuation routes, unified command post locations, staging areas, and shelters.
Action 3.A.2	Provide to critical City of San Diego facilities backup electrical power generating systems, fuel, and necessary supplies in case of major power outages.

Goal 4: 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, lightning, tsunami, and extreme temperatures).	
Objective 4.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to severe weather.	
Action 4.A.1	Develop a regional Geospatial Model for hazard mitigation support.

Goal 5: 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 5.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to geological hazards.	
Action 5.A.1	Stabilize the City of San Diego's water delivery system during seismic activity to ensure rapid recovery of the water system for critical services, such as fire, drinking water, commercial and residential uses.
Action 5.A.2	Develop a means of providing water for firefighting when water service is disrupted.

Goal 6: Reduce the high probability 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 high probability of damage and losses due to floods.	
Action 6.A.1	Work with U.S. Fish and Wildlife Service (USFWS), U.S. Army Corps of Engineers (USACE), and other Federal, State, and local agencies to maintain the required channel cross section in the Tijuana River Valley Pilot Channel to carry flow resulting from a 25-year storm event.

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 our jurisdiction.

The Disaster Mitigation Action of 2000 (at 44CFR 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 **ten** prioritized mitigation actions as well as an implementation strategy for each are:

Action Item #1 (6.A.1): Work with U.S. Fish and Wildlife Service (USFWS), U.S. Army Corps of Engineers (USACE), and other Federal, State, and local agencies to maintain the required channel cross section in the Tijuana River Valley Pilot Channel to carry flow resulting from a 25-year storm event.

Coordinating Department/Organization: Storm Water

Potential Funding Source: Operating Budget/Augmented by Grant Funding

Implementation Timeline: 1-10 years

Action Item #2 (5.A.1): Stabilize the City of San Diego's water delivery system during seismic activity to ensure rapid recovery of the water system for critical services, such as fire, drinking water, commercial and residential uses.

Coordinating Department/Organization: Public Utilities

Potential Funding Source: Grant Funded

Implementation Timeline: 1-3 years

Action Item #3 (5.A.2): Develop a means of providing water for firefighting when water service is disrupted.

Coordinating Department/Organization: San Diego Fire Rescue & Public Utilities

Potential Funding Source: Need to obtain grant funding

Implementation Timeline: 1- 5 years

Action Item #4 (3.A.2): Provide to critical City of San Diego facilities backup electrical power generating systems, fuel, and necessary supplies in case of major power outages.

Coordinating Department/Organization: Office of Homeland Security & Homeland Preparedness Coordination Council

Potential Funding Source: Need to obtain grant funding

Implementation Timeline: 1-5 years

Action Item #5 (3.A.1): Develop an integrated communication/notification plan, including information about road closures, evacuation routes, unified command post locations, staging areas, and shelters.

Coordinating Department/Organization: Office of Homeland Security & Homeland Preparedness Coordination Council

Potential Funding Source: Operating Budget

Implementation Timeline: 1-3 years

Action Item #6 (2.C.1): Participate in the development and execution of an Emergency Operations Center (EOC) and Department Operations Center (DOC) table top and functional disaster exercises (addressing response and recovery phases), which include Military and State of California representative participation.

Coordinating Department/Organization: Office of Homeland Security & Homeland Preparedness Coordination Council

Potential Funding Source: Operating Budget/Augmented by Grant Funding

Implementation Timeline: 1-3 years

Action Item #7 (1.A.1): Develop regional collaboration for a Geospatial Mitigation Strategy.

Coordinating Department/Organization: Information Technology

Potential Funding Source: Operating Budget

Implementation Timeline: 1-3 years

Action Item #8 (2.A.1): Encourage development of standardized Emergency Operations Plans within the City of San Diego that coordinate with County-wide Emergency Operations Plans.

Coordinating Department/Organization: Office of Homeland Security & Homeland Preparedness Coordination Council

Potential Funding Source: Operating Budget/Grant Funding

Implementation Timeline: 1-3 years

Action Item #9 (2.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.

Coordinating Department/Organization: Community and Legislative Services

Potential Funding Source: Operating Budget

Implementation Timeline: 1-3 years

Action Item #10 (4.A.1): Develop a regional Geospatial Model for hazard mitigation support.

Coordinating Department/Organization: Information Technology

Potential Funding Source: Operating Budget

Implementation Timeline: 1-3 years

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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	2,481	829	233,364	59	264,420	6	2,196
Earthquake (Annualized Loss - Includes shaking, liquefaction and landslide components)	63,000	15,191	1,047	239	671	63*/63**	1,865*/ 8,560**
Flood (Loss)							
100 Year	2,377	794	223,511	70	313,719	13	202,589
500 Year	2,609	875	246,313	77	345,091	14	202,781
Rain-Induced Landslide							
High Risk	1,441	457	128,646	4	17,927	1	2,000
Moderate Risk	940	286	80,509	0	0	0	0
Tsunami	0	0	0	0	0	0	0
Wildfire / Structure Fire							
Extreme	0	0	0	0	0	0	0
Very High	2,236	818	230,267	8	35,854	1	1
High	11,312	3,578	1,007,207	30	134,451	6	6,196
Moderate	60,659	20,218	5,691,367	735	3,294,050	99	246,244

* 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 rationale 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. New development downstream from Lake San Marcos dam. 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 members of the Planning Division Emergency Response Team

- City of San Marcos Finance Department
  - Fiscal Capabilities:
    - Public Facility Financing Plan: Requires development to pay fees to assist in area-wide circulation improvements, drainage improvements and GIS.
    - Community Facilities District: Police and Fire CFD fees to fund capital improvements.
    - Redevelopment Area Funds: Tax increment funds to assist in completion of major infrastructure improvements.
    - 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.

  - 12/9/03: 2003-1216, approved 1/13/04: 150-foot clearance required in Wildland-Urban Interface due to potential of flame lengths in excess of 78 feet.

- 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	Y	Information Technology Division - GIS analyst
H. Scientists familiar with the hazards of the community	N	
I. Emergency manager	Y	Fire Department-Fire Chief, Battalion Chief
J. Grant writers	Y	Fire Department- Analyst, Battalion Chief

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
O. Specialized brush-clearance ordinance at 150 feet in the WUI	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 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, Sheriff, and Public Works provided input to the San Marcos LPG. The San Marcos LPG members were:

- Scott Hansen
- Carl Blasdell
- Karen Brindley
- Jerry Backoff

Once developed, City staff submitted the plan to CalEMA and FEMA for approval. Once approved, the plan will be taken to the City Council for adoption.

The draft plan was posted on the Office of Emergency Services Website to present these preliminary goals, objectives and actions to citizens and to receive public input. Specific questions were asked and

the public was requested to provide comments and suggestions regarding the draft plan and the proposed mitigation actions. An email address was provided for the public to send comments and suggestions to. This email address was checked daily for public input. The following sections present the hazard-related goals, objectives and actions as prepared by the City of 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 its section of the Hazard Mitigation Plan (See Attachment A for FOUO Goal 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 its 10 identified goals. The City of San Marcos developed objectives to assist in achieving its 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 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	Maintain public education efforts 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 and the Sheriff's Department.
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 Emergency Operations Plan every five years.
Action 3.A.2	Review HAZMIT plan annually and update as needed.

Goal 3: Build and support local capacity and commitment to continuously become less vulnerable to hazards. (continued)	
Objective 3.A: Increase awareness and knowledge of hazard mitigation principles and practice among local officials (continued).	
Action 3.A.3	Review completed Hazard Mitigation Plan with City personnel.
Action 3.A.4	Evaluate the fire department's 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
Action 3.B.2	Implement geospatial database of critical infrastructure/target hazards.

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, and CERT Council.
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 City's completed Hazard Mitigation plan for public viewing.

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</u>.	
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.

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.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to floods (continued).	
Action 5.A.3	As funding becomes available, commence drainage improvements to reduce flood risks.
Action 5.A.4	Develop a comprehensive approach to reducing the possibility of damage and losses due to floods by programming a storm water management data base and mapping capability into the City's automated building permit software.
Action 5.A.5	Continue imposing conditions on new developments to construct drainage improvements to reduce possibility of flooding.
Action 5.A.6	Pursue State or Federal grants to finance updating of existing flood plain maps as deemed necessary.
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, California Department of Water Resources).	
Action 5.C.1	Work to promulgate 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 Reaches 2, 4, and 5.

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</u> (continued).	
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) (continued).	
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 facilities 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.
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 <u>wildfires</u>.	
Objective 6.A: Continue the comprehensive approach to reducing the possibility of damage and losses due to wildfires.	
Action 6.A.1	Continue the wildland-urban interface fire prevention public education campaign.
Action 6.A.2	Enforce the new 150-foot fuel clearance ordinance.
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	Procure and deploy a back-up EOC and communications vehicle.
Action 6.A.7	Evaluate the fire department's 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.

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).	
Objective 6.A: Continue the comprehensive approach to reducing the possibility of damage and losses due to wildfires (continued).	
Action 6.A.9	Design new City owned critical facilities located in wildfire prone areas to minimize damage due to wildfires.
Action 6.A.10	Acquire and deploy a local AM radio station for emergency public information.
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	Review, update, and validate pre-incident plans for high vulnerability wildland-urban interface areas.
Action 6.B.4	Conduct annual wildland fire fighting and ICS training to ensure operational readiness.
Action 6.B.5	Continue the wildland urban interface fire prevention public education campaign.
Action 6.B.6	Maintain annual weed abatement program.
Action 6.B.7	Apply herbicide to roadway shoulder to reduce ignition potential from roadway traffic.
Action 6.B.8	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, CalFire).	
Action 6.C.1	Coordinate 6.B.1 with the CDF in SRA/LRA areas where 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 <u>dam failure</u>.	
Objective 7.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to dam failure.	
Action 7.A.1	Provide dam failure inundation awareness training to City and Sheriff's Department personnel.
Action 7.A.2	Evaluate the fire department's readiness to respond to and mitigate dam failure hazards.
Action 7.A.3	Design new City owned critical facilities located in dam failure inundation areas to minimize damage due to flooding caused by a dam failure.
Action 7.A.4	Perform inundation study for Lake San Marcos Dam failure in order to implement a response plan.

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 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	Implement information technology redundancy for continuity of city operations in the event that city facilities are damaged by 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 re-vegetated in compliance with the City's Grading Ordinance.
Action 8.B.2	Require clustering of development.

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> (continued).	
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.

Goal 9: Reduce the possibility of losses of city government services, due to <u>pandemic influenza</u>.	
Objective 9.A: Develop a comprehensive approach to reducing the possibility of losses of public service due to pandemic influenza.	
Action 9.A.1	Retrain department heads in the Continuity of Operations Plan to prepare for loss of employees due to influenza.
Action 9.A.2	Continue liaison with the County Health & Human Services Agency regarding pandemic procedures.
Action 9.A.3	Update the city Pandemic Influenza Contingency Plan, which includes employee education in hygiene and social distancing tactics, as well as facility disinfecting procedures.

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 12 prioritized mitigation actions as well as an implementation strategy for each are:

Priority Action #1: **[2.A.2]** Maintain public education efforts 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 2010 – August 2014

Priority Action #2: **[6.A.2]** Enforce the new 150-foot fuel clearance ordinance.

Coordinating Individual/Organization: Fire Department

Potential Funding Source: General Fund, Grants

Implementation Timeline: July 2010 – August 2014

Priority Action #3: **[9.A.3]** Update the city Pandemic Influenza Contingency Plan, which includes employee education in hygiene and social distancing tactics, as well as facility disinfecting procedures.

Coordinating Individual/Organization: Fire Department

Potential Funding Source: General Fund, Emergency Planning budget

Implementation Timeline: July 2010 – August 2014

Priority Action #4: **[6.B.3]** Review, update, and validate pre-incident plans for high vulnerability wildland-urban interface areas.

Coordinating Individual/Organization: Fire Department

Potential Funding Source: Grants

Implementation Timeline: July 2010 – August 2014

Priority Action #5: **[6.A.6]** Procure and deploy a back-up EOC and communications vehicle

Coordinating Individual/Organization: Fire Department

Potential Funding Source: Grants

Implementation Timeline: July 2010 – August 2014

Priority Action #6: **[5.C.1]** Work to promulgate 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 2010 – August 2014

Priority Action #7: **[3.B.2]** Implement geospatial database of critical infrastructure/target hazards

Coordinating Individual/Organization: Fire Department/Information Technology Division

Potential Funding Source: General Fund, Grants

Implementation Timeline: July 2003 – August 2006

Priority Action #8: **[8.A.3]** Implement information technology redundancy for continuity of city operations in the event that city facilities are damaged by geological hazards.

Coordinating Individual/Organization: Information Technology Division, Fire Department

Potential Funding Source: General Fund, Grants

Implementation Timeline: July 2010 – August 2014

Priority Action #9: **[6.A.10]** Acquire and deploy local AM radio station for emergency public information

Coordinating Individual/Organization: Fire Department, City Communications Officer

Potential Funding Source: SHSGP Grant

Implementation Timeline: July 2010 – August 2014

Priority Action #10: **[5.A.4]** Develop a comprehensive approach to reducing the possibility of damage and losses due to floods by programming a storm water management data base and mapping capability into the City's automated building permit software.

Coordinating Individual/Organization: Planning, Engineering, Building, Public Works Departments

Potential Funding Source: General Fund, Grants

Implementation Timeline: July 2010 – August 2014

Priority Action #11: **[7.A.4]** Perform inundation study for Lake San Marcos Dam failure in order to implement a response plan

Coordinating Individual/Organization: Fire Department

Potential Funding Source: EMPP Grant

Implementation Timeline: July 2003 – August 2006

Priority Action #12: **[2.A.1]** Pursue state and/or federal grants as available to assist in reducing losses due to other manmade hazards.

Coordinating Individual/Organization: Battalion Chief assigned to Emergency Preparedness, Fire Department

Potential Funding Source: Grants

Implementation Timeline: July 2010 – August 2014

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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	20,815	6,968	1,961,492	267	1,196,614	96	128,429
Earthquake (Annualized Loss - Includes shaking, liquefaction and landslide components)	52,439	16,362	1,355	123	360	52*/53**	1,723*/ 8,759
Flood (Loss)							
100 Year	1,873	572	161,018	46	206,158	12	1,726
500 Year	2,994	967	272,211	60	268,902	17	7,729
Rain-Induced Landslide							
High Risk	35	12	3,378	0	0	1	2,000
Moderate Risk	0	0	0	0	0	0	0
Tsunami	0	0	0	0	0	0	0
Wildfire / Structure Fire							
Extreme	0	0	0	0	0	0	0
Very High	222	89	25,054	3	13,445	1	1
High	2,658	938	264,047	18	80,671	3	2,005
Moderate	50,473	17,705	4,983,958	535	2,397,710	64	131,742

* 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:

- Dave Miller, Fire Division Chief - Operations
- Richard Mattick, Fire Deputy Chief - Administration
- Pedro Orso-Delgado, Director, Development Services
- Melanie Kush, City Planner
- Julie Procopio, Principal Civil Engineer
- Angela Reeder, Associate Planner
- Jeff Tamares, Associate Engineer

Once developed, City staff submitted the plan to CalEMA and FEMA for approval. Once approved city staff will take the plan to the City Council for adoption.

The draft plan was posted on the Office of Emergency Services Website to present these preliminary goals, objectives and actions to citizens and to receive public input Specific questions were asked and the public was requested to provide comments and suggestions regarding the draft plan and the proposed mitigation actions. An email address was provided for the public to send comments and suggestions to. This email address was checked daily for public input. The following sections present the hazard-related goals, objectives and actions as prepared by the City of 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 the following:

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.
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 currently adopted 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 ensure that structures and other facilities are constructed as designed.
Action 1.C.3	Continue to pursue code enforcement to ensure 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 require professional studies to evaluate specific hazards in hazard-prone areas and identify alternative site design criteria for new development to mitigate hazards to the maximum extent possible, as funding is available.
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.

Goal 2: Promote 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 (continued).	
Action 2.A.2	Continue to provide Household Hazardous Waste education regarding 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, such as using the clown firefighter program to spread fire safety ideas at schools and city functions.
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 staff 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 publicize the identification of hazards and the associated safety measures being implemented.
Action 2.D.2	Continue to use press releases to promote hazard mitigation.

Goal 2: Promote public understanding, support and demand for hazard mitigation (continued).	
Objective 2.E: Discourage activities that exacerbate hazardous conditions.	
Action 2.E.1	Continue to pursue code enforcement to ensure 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 National Incident Management System (NIMS).
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 National Incident Management System (NIMS) 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 National Incident Management System (NIMS).

Goal 4: Improve hazard mitigation coordination and communication with federal, state, local and tribal governments (continued).	
Objective 4.A: Establish and maintain closer working relationships with state agencies and local governments (continued).	
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 Emergency Services (OES).
Action 4.A.3	Continue to coordinate with SD County OES 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.	
Action 4.B.1	Continue to maintain a NIMS 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 National Incident Management System (NIMS).
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 floods.	
Objective 5.A: Minimize injuries, loss of life and property damage resulting from flood hazards.	
Action 5.A.1	The City should continue to require that site design for new development within the floodplain considers hazard potential and minimizes of flood hazards.
Action 5.A.2	All development proposed within a floodplain area shall continue 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.

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).	
Objective 5.A: Minimize injuries, loss of life and property damage resulting from flood hazards (continue).	
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.	
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.

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> (continued).	
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 <u>wildfires</u>.	
Objective 6.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to wildfires.	
Action 6.A.1	Continue to maintain automatic aid agreements for emergency response with all surrounding communities.
Action 6.A.2	Continue to require that proposed developments 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 identified in the Santee Municipal Code.
Action 6.A.5	Continue to require that emergency access routes in all developments be adequately wide to allow the entry and maneuvering of emergency vehicles, as necessary.
Action 6.A.6	Investigate permanent placement of fire fighting aircraft in San Diego East County.
Action 6.A.7	Evaluate under-grounding of utilities in areas that have high risk of wildfires.
Action 6.A.8	Investigate use of “controlled burns” in high-risk areas.

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</u> (continued).	
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 meet 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, lightning, 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 drainage away from structure foundations and into improved drainage facilities.

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, lightning, 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 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 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.	
Action 8.A.1	Continue to work with the San Diego County OES 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.

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).	
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 in the City's Geotechnical Seismic Hazard Study 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, which requires all significant environmental effects of a proposed project, including geologic and soil conditions, be identified and discussed, and adequate mitigation for any identified significant effects.
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), Note Number 41.
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 buildings as part of major renovations, consistent with California Building Code requirements.

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> (continued).	
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:

<u>Action Item #1</u>: 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 Brett Eldridge, 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 2010 though December 2015

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 Brett Eldridge, 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 2010 though December 2015

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 Dave Miller, Fire Department Operations

Potential Funding Source: City of Santee Fire Department adopted budget, City of Santee adopted budget, General Fund

Implementation Timeline: February 2010 though December 2015

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: Bob Stein, Public Services Manager, 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 2010 though December 2015

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 Dave Miller Fire Department Operations

Potential Funding Source: City of Santee Fire Department adopted budget, City of Santee adopted budget, General Fund

Implementation Timeline: February 2010 though December 2015

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 Brett Eldridge, Fire Marshal, Bob Stein, Public Services Manager, 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 2010 though December 2015

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 Brett Eldridge, 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 2010 though December 2015

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 Brett Eldridge, Fire Marshal, Bob Stein, Public Services Manager 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 2010 though December 2015

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 Brett Eldridge, Fire Marshal, Division Chief Dave Miller, 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 2010 though December 2015

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 Dave Miller, Fire Department Operations, Captain Patricia Duke, San Diego County Sheriff's Office, Bob Stein, Public Services Manager, 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 2010 through December 2015

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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	402	167	47,011	2	8,963	0	0
Dam Failure	40	17	4,786	2	8,963	0	0
Earthquake (Annualized Loss - Includes shaking, liquefaction and landslide components)	12,766	5,171	743	100	411	18*/18**	177*/ 1,706**
Flood (Loss)							
100 Year	1,124	574	161,581	13	58,262	1	192
500 Year	1,250	648	182,412	16	71,707	1	192
Rain-Induced Landslide							
High Risk	0	0	0	0	0	0	0
Moderate Risk	0	0	0	0	0	0	0
Tsunami	324	135	38,003	3	13,445	0	0
Wildfire / Structure Fire							
Extreme	0	0	0	0	0	0	0
Very High	46	33	9,290	1	4,482	1	2
High	50	22	6,193	1	4,482	0	0
Moderate	11,413	5,585	1,572,178	303	1,357,955	44	16,002

* 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
- **Wildfire**: climate and location
- **Earthquake**: proximity to local faults
- **Landslide**: coupled with above and earthquake/tsunami
- **Tsunami**: proximity to Pacific Ocean

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	Y	City Manager – Management Analyst

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	N
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, City Manager
- Dismas Abelman, Deputy Fire Chief
- Tina Christiansen, Director of Community Development
- Mo Sammak, City Engineer

Once developed, City staff submitted the plan to CalEMA and FEMA for approval. Once approved City Staff will take the plan to the City Council for adoption.

The draft plan was posted on the Office of Emergency Services Website to present these preliminary goals, objectives and actions to citizens and to receive public input Specific questions were asked and the public was requested to provide comments and suggestions regarding the draft plan and the proposed mitigation actions. An email address was provided for the public to send comments and suggestions to.

This email address was checked daily for public input. The following sections present the hazard-related goals, objectives and actions as prepared by the City of 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. 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.

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 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.

Goal 2: Improve hazard mitigation coordination and communication with federal, state, local and tribal governments (continued).	
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 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., FEMA, 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 within 100-year flood plain will be consistent with FEMA guidelines.
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 Cities of Del Mar and Encinitas and the Rancho Santa Fe Fire Protection District for 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.
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 <u>geological hazards</u>.	
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 local coastal plan development.
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

The City of Solana Beach is vulnerable to many different types of hazards. The Wildfires of 2007 threatened the eastern border of the City and the increased threat is reflected in the plan. Other threats include long term issues such as bluff erosion and human caused threats. The complexity of these hazards coupled with the long –term implications resulted in a lower prioritization than wildfire, which is a year

round threat that could have an impact on a large portion of the City. The result is the prioritization of the threats to address the most likely, with a desire to mitigate all that face the City.

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: 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: Implemented December, 2008

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: Implemented 2008

Action Item #5: Inspections to verify accuracy of existing Hazard Materials databases

Coordinating Individual/Organization: Dismas Abelman / Fire Department

Potential Funding Source: Fire Department Budget

Implementation Timeline: Completed annually

Action Item #6: 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 #7: Address identified data limitations regarding the lack of information about relative vulnerability of assets from floods. Work with regional agencies, (OES, 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, Encinitas and the Rancho Santa Fe Fire Protection Districts for joint training opportunities between staffs.

Coordinating Individual/Organization: Public Works

Potential Funding Source: General Fund

Implementation Timeline: On-going

Action Item #8: Protect existing assets with the highest relative vulnerability to the effects of other manmade hazards. Evaluate access levels to public facilities and restrict access where necessary. Evaluate infrastructure and facilities for additional security measures as required.

Coordinating Individual/Organization: Deputy City Manager

Potential Funding Source: General Fund and Grants

Implementation Timeline: On-going

Action Item #9: 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: Deputy City Manager

Potential Funding Source: General Fund

Implementation Timeline: On-going

Action Item #10: Discourage activities that exacerbate hazardous conditions. Make hazard mitigation part of the planning and approval process. Develop a checklist and inspection follow up in the flood plain, wildland urban interface and coastal bluff.

Coordinating Individual/Organization: Community Development & Code Enforcement

Potential Funding Source: General Fund

Implementation Timeline: On-going

Action Item #11: 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: On-going

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	553	215	60,523	16	71,707	4	2,384
Earthquake (Annualized Loss - Includes shaking, liquefaction and landslide components)	89,926	20,725	1,848	210	527	66*/66**	785*/3,727**
Flood (Loss)							
100 Year	1,988	635	178,753	94	421,280	5	6,005
500 Year	4,639	1,553	437,170	144	645,365	14	14,202
Rain-Induced Landslide							
High Risk	92	32	9,008	4	17,927	0	0
Moderate Risk	11	2	563	0	0	0	0
Tsunami	0	0	0	0	0	0	0
Wildfire / Structure Fire							
Extreme	13	5	1,408	0	0	0	0
Very High	654	217	61,086	7	31,372	2	100
High	792	277	77,976	12	53,780	4	3,001
Moderate	90,913	28,908	8,137,602	1,106	4,956,760	122	382,394

* 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	Y	Planning Department
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:

- Rick Snider, Building Department
- Eric Dennis, Building Department
- Gary Fisher, Fire Department
- Jeff Berg, Fire Department

Once developed, City staff presented submitted them to CalEMA and FEMA for approval. Once approved, City staff will take the plan to the City Council for adoption.

The draft plan was posted on the Office of Emergency Services Website to present these preliminary goals, objectives and actions to citizens and to receive public input Specific questions were asked and the public was requested to provide comments and suggestions regarding the draft plan and the proposed mitigation actions. An email address was provided for the public to send comments and suggestions to. This email address was checked daily for public input. The following sections present the hazard-related

goals, objectives and actions as prepared by the City of Solana Beach'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	Continue to update the Land Use, Community Facilities, and Safety Elements of the City's General Plan as needed to limit the impacts of development in hazard prone areas.
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	Continue the 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	Continue to 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	Continue to ensure that high fire hazard areas have adequate access for emergency vehicles.
Action 1.D.2	Continue to 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	Maintain 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	Continue to develop and revise public education curriculum to increase awareness among the residents of the City of Vista of disasters and pre-existing hazards.
Action 2.A.2	Continue to identify hazard specific issues and needs.
Action 2.A.3	Continue to provide timely information on City and Department websites.

Goal 2: Promote public understanding, support and demand for hazard mitigation (continued).	
Objective 2.B: Promote partnerships between the state, counties, and local governments to identify, prioritize, and implement mitigation actions.	
Action 2.B.1	Continue to 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.
Objective 2.C: Promote hazard mitigation in the business community.	
Action 2.C.1	Continue to 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 as city staff become 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 local officials.	
Action 3.A.1	Continue to update the City Emergency Plan every five years.
Action 3.A.2	Continue to Emergency Operations training with City Staff to highlight hazard existence, mitigation, and response.
Action 3.A.3	Continue to 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	Continue to build a team of community volunteers to work with the community before, during, and after a disaster by maintaining the Community Emergency Response Team (CERT) Program.

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	Continue the construction and equipping of a new City Emergency Operations Center (EOC) and Department Operations Centers (DOC) to act as command and control coordination centers during disasters.

Goal 4: Improve hazard mitigation coordination and communication with federal, state, local governments (continued).	
Objective 4.A: Establish and maintain closer working relationships with state agencies and local governments (continued).	
Action 4.A.2	Train employees and volunteers to operate the City EOC following the National Incident management System (NIMS), the Standardized Emergency Management System (SEMS) and the Incident Command System (ICS).
Action 4.A.3	Continue to update City Emergency Operations Plans to include coordination with County Wide Operations Plans.
Objective 4.B: Encourage other organizations to incorporate hazard mitigation activities.	
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	Continue to streamline policies to coordinate permitting activities
Action 4.C.2	Establish and staff a Disaster Preparedness Division within the City as funding becomes available.

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	Continue to review and compare existing flood control standards, zoning and building requirements.
Action 5.A.2	Continue to identify flood-prone areas utilizing GIS.
Action 5.B.3	Continue to develop pre-incident action plans for 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 <u>floods and other forms of severe weather</u> (continued).	
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 develop project proposals to reduce flooding and improve control in flood-prone areas.
Action 5.B.2	Continue to seek pre-disaster mitigation funding.
Action 5.B.3	Educate property owners in the flood prone areas about ways to reduce or prevent loss due to flooding.

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	Using GIS capabilities, continue to identify and designate Wildland Urban Interface Zones (WUI).
Action 6.A.2	Develop and maintain Weed Abatement and Fuel Modification Ordinances.
Action 6.A.3	Continue to 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 enforce City Sprinkler Ordinance.
Action 6.B.2	Continue to enforce standardized Defensible Space Clearance distances.
Action 6.B.3	Continue to research and support fuel modification techniques including mow/disc clearing and prescriptive burns.
Action 6.B.4	Continue the public education program to address fire dangers and mitigation measures.

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).	
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 CalFIRE and the 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	Maintain the City's Public Education Program.
Action 7.A.2	Continue to 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.
Action 7.A.5	Implement the 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 9 prioritized mitigation actions as well as an implementation strategy for each are:

Action Item #1: Complete construction equipping of a new 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: Current – December 2010

Action Item #2: Continue efforts to train city employees and volunteers to operate the City EOC following the National Incident Management System (NIMS), 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: On-going

Action Item #3: Continue to build a team of community volunteers to work with the community before, during, and after a disaster by maintaining the Community Emergency Response Team (CERT) Program.

Coordinating Individual/Organization: Fire Prevention/ Fire Department/Public Works

Potential Funding Source: Operating Budget

Implementation Timeline: On-going

Action Item #4: Continue to 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: On-going

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: On-going

Action Item #6: 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: On-going

Action Item #7: Maintain 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: On-going

Action Item #8: Implement the City Government Continuity Plan.

Coordinating Individual/Organization: City Manager/Fire Department

Potential Funding Source: Operating Budget/Grants

Implementation Timeline: June 2010-June 2011

Action Item #9: 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: On-going

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	0	0	0	0	0	0	0
Dam Failure	21,862	7,304	2,056,076	277	1,241,431	123	235,356
Earthquake (Annualized Loss - Includes shaking, liquefaction and landslide components)	410,798	126,360	11,077	639	1,452	949*/ 983**	304,940*/ 906,594
Flood (Loss)							
100 Year	10,125	3,358	945,277	195	873,932	34	6,733
500 Year	11,357	3,785	1,065,478	213	954,602	38	7,932
Rain-Induced Landslide							
High Risk	1,509	314	88,391	4	17,927	10	8,003
Moderate Risk	35,499	11,039	3,107,479	389	1,743,381	90	141,628
Tsunami	35	11	3,097	1	4,482	1	2
Wildfire / Structure Fire							
Extreme	2,251	628	176,782	23	103,079	1	4
Very High	41,461	10,036	2,825,134	180	806,706	97	221,802
High	8,086	2,504	704,876	76	340,609	26	303,171

* 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	14,512	3,686	1,037,609	135	605,030	123	325,258
Earthquake (Annualized Loss - Includes shaking, liquefaction and landslide components)	33,749	14,187	1,083	107	192	73*/74**	1,015*/ 12,147**
Flood (Loss)							
100 Year	7,276	3,661	1,030,572	137	613,993	107	629,073
500 Year	8,950	4,426	1,245,919	151	676,737	117	632,665
Rain-Induced Landslide							
High Risk	9,130	3,573	1,005,800	93	416,798	35	12,657
Moderate Risk	23,197	4,188	1,178,922	89	398,871	67	213,940
Tsunami	5,154	95	26,743	0	0	5	768
Wildfire / Structure Fire							
Extreme	13,286	5,254	1,479,001	187	838,078	160	446,630
Very High	47,816	18,209	5,125,834	658	2,948,959	739	3,070,660
High	8,518	3,197	899,956	108	484,024	165	817,703
Moderate	71,028	24,474	6,889,431	792	3,549,506	557	3,367,085

* 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 Storm-water, 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.
  - 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 pre-hospital 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; 5) Developing and providing preparedness materials for the public; 6) Staffing the Emergency Operations Center and 7) providing training to regional EOC staffs.
- 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 County 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 County's planning documents, codes, and ordinances. In addition, County 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 County departments involved in hazard mitigation planning, including Fire, Police, and Public Works provided input to the County LPG. The County LPG members were:

- Tom Amabile, County OES
- Nick Vent, DEH
- Ralph Steinhoff, County Fire Authority
- Matt Turner, DPLU
- Michael Robinson, DPW
- Lorrie Teats, San Diego County Water Authority
- Patrick Buttron, HHSA, EMS
- Once developed, County staff submitted the plan to CalEMA and FEMA for approval. Once approved the plan will be taken to the Unified Disaster Council and then to the San Diego County Board of Supervisors for adoption.

The draft plan was posted on the Office of Emergency Services Website to present these preliminary goals, objectives and actions to citizens and to receive public input Specific questions were asked and the public was requested to provide comments and suggestions regarding the draft plan and the proposed mitigation actions. An email address was provided for the public to send comments and suggestions to. This email address was checked daily for public input. The following sections present the hazard-related goals, objectives and actions as prepared by the County's LPG in conjunction with the Hazard Mitigation Working Group, locally elected officials and residents.

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 Goals 12, 13 and 14).

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. Liquefaction

Goal 12. Manmade Hazards

Goal 13. Nuclear Material Release

Goal 14. Hazardous Materials Release

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	Continue to identify high hazard areas using GIS.
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.
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	Continue to utilize multi-agency permitting and enforcement team.
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.

Goal 1: Promote disaster-resistant future development (continued).	
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	Continue to utilize Geographic Information Systems (GIS) capabilities to identify hazards.
Action 1.E.2	Continue to develop and update data sets that are necessary to test hazard scenarios and mitigation tools.
Action 1.E.3	Continue to use the Internet as a communications 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	Continue to gain public acceptance for avoidance policies in high hazard areas.
Action 1.F.2	Continue public education efforts to 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	Continue to 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.
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	Promote partnerships between the state, counties, local and tribal governments to identify, prioritize and implement mitigation actions.
Action 2.A.8	Support the County Fire Safe Council.

Goal 2: Increase public understanding and support for effective hazard mitigation (continued).	
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 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 countywide.	
Action 2.D.1	Continue to use the County website to publicize mitigation actions.
Action 2.D.2	Continue to create marketing campaigns.
Action 2.D.3	Continue to determine mitigation messages to convey.
Action 2.D.4	Continue to establish budget and identify funding sources for mitigation outreach.
Action 2.D.5	Continue to develop and distribute brochures, CDs and other publications.
Objective 2.E: Provide education on hazardous conditions.	
Action 2.E.1	Continue to 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.

Goal 3: Build and support local capacity and commitment to become less vulnerable to hazards (continued).	
Objective 3.A: Increase awareness and knowledge of hazard mitigation principles and practice among local officials.	
Action 3.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 update of the multi-jurisdictional plan.
Action 3.B.2	Continue to have the County Working Group 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	Continue to 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	Continue to use GIS to inventory by type and vegetation age class.
Action 3.D.2	Continue to define target class ranges.
Action 3.D.3	Continue to 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	Continue the program 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.
Action 4.A.3	Update the multi-jurisdictional/multi-hazard mitigation plan to include tribal governments and special districts.
Action 4.A.4	Maintain 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).	
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	Continue to 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	Continue to work to establish a requirement that all hazard mitigation projects submitted to the State must be reviewed by the County.
Action 4.C.3	Continue to 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 support affected agencies.
Action 4.D.2	Continue to 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	Maintain two Multi-hazard Assessment Teams (MAT).
Action 4.E.2	Maintain 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.
Action 5.A.2	Continue to participate in community awareness meetings.
Action 5.A.3	Continue to develop and distribute printed publications to the communities concerning hazards.

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).	
Objective 5.B: Protect existing assets with the highest relative vulnerability to the effects of a dam failure.	
Action 5.B.1	Continue to identify hazard-prone structures.
Action 5.B.2	Continue to 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	Continue to 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, as 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	Continue to participate in community awareness meetings.
Action 6.A.3	Continue to 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	Continue to identify hazard-prone structures through GIS modeling.
Action 6.B.2	Continue to build critical facilities that function after a major earthquake.
Action 6.B.3	Continue to 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	Continue to implement an ongoing public seismic risk assessment program.
Action 6.C.3	Continue to 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	Continue to assess countywide utility infrastructure with regard to earthquake risk.
Action 6.D.2	Develop and implement an incentive program for seismic retrofits.
Action 6.D.3	Continue to 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	Continue to 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 <u>coastal storm/erosion/tsunami</u> (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	Continue to 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	Continue to review and update plans that would include coordination with cities, special districts and county departments.
Action 7.C.2	Continue to streamline policies to eliminate conflicts and duplication of effort.
Action 7.C.3	Continue to 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	Using GIS continue to identify hazard-prone structures.
Action 7.D.2	Continue to 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>landslide</u>.	
Objective 8.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to landslide.	
Action 8.A.1	Continue to identify potential areas based upon historical data.
Action 8.A.2	Continue to participate in community awareness meetings.
Action 8. A.3	Continue to 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	Continue to review and update plans that would include coordination with cities, special districts and county departments.
Action 8.C.2	Continue to 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	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	Continue to 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 <u>floods</u> (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, when feasible, on floodway to prevent development.
Action 9.D.4	Seek pre-disaster mitigation funding.
Objective 9.E: Address perceived data limitations regarding the lack of information about the relative vulnerability of assets from flooding.	
Action 9.E.1	Continue to 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.
Action 10.A.4	Coordinate with and support existing efforts to mitigate structural fire/wildfire.
Action 10.A.5	Continue to develop partnerships for a countywide vegetation management program.
Objective 10.B: Protect existing assets with the highest relative vulnerability to the effects of structural fire/wildfire.	
Action 10.B.1	Enforce standardized Defensible Space Clearance distances.
Action 10.B.2	Work with community-based groups to pilot chipping programs.
Action 10.B.3	Continue to 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	Continue to 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.
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.

Goal 11: Reduce the possibility of damage and losses to existing assets, including people, critical facilities /infrastructure, and public facilities due to liquefaction.	
Objective 11.A: Protect existing assets with the highest relative vulnerability to the effects of liquefaction.	
Action 11.A.1	Identify hazard-prone structures through GIS modeling.
Action 11.A.2	Build critical facilities that function after a major earthquake.
Action 11.A.3	Study ground motion, landslide and liquefaction.

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: Update Operational Area Plan

Coordinating Individual/Organization: The Office of Emergency Services (OES) will work with the 18 incorporated cities to revise the Plan

Potential Funding Source: FEMA Grants/ General Funds for County and Cities.

Implementation Timeline: January 2010 – January 2011

Action Item #2: Continue to develop and maintain public education and outreach programs

Coordinating Individual/Organization: Office of Emergency Services and Office of Media and Public Relations

Potential Funding Source: General Fund/Federal or State Grants

Implementation Timeline: On-going

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: On-going

Action Item #4: Continue to streamline policies to eliminate conflicts and duplication of effort

Coordinating Individual/Organization: OES will continue to work with the County Departments and the 18 incorporated cities

Potential Funding Source: General Fund/Federal or State grants

Implementation Timeline: On-going

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: On-going

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: On-going

Action Item #7: Support public and private sector symposiums

Coordinating Individual/Organization: OES/appropriate County Departments/Cities

Potential Funding Source: General Fund/Federal or State Grants

Implementation Timeline: On-going

Action Item #8: Maintain multi-jurisdictional/multi-functional training and exercises to enhance hazard mitigation

Coordinating Individual/Organization: OES/appropriate county Departments/All 18 Cities

Potential Funding Source: Grant Funded

Implementation Timeline: On-going

Action Item #9: Continue to review and update plans that would include coordination with cities, special districts and County departments

Coordinating Individual/Organization: OES/appropriate county Departments/All 18 Cities

Potential Funding Source: General Fund/Federal or State grants.

Implementation Timeline: On-going

Action Item #10: Continue to 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: On-going

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5.22 RANCHO SANTA FE FIRE PROTECTION DISTRICT

The Rancho Santa Fe Fire Protection District (Fire District) 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, Local Planning Groups (LPG) were supplied with exposure/loss estimates for the Fire District summarized in Table 5.22-1. See Section 4.0 for additional details.

Table 5.22-1
Summary of Potential Hazard-Related Exposure/Loss
in Rancho Santa Fe Fire Protection District

		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	15,384	622	719,512	81	111,830	24	32,202
Earthquake (Annualized Loss - Includes shaking, liquefaction and landslide components)	31,908	3,561	3,783,427	72	81,275	368	7,367
Floods (Loss)							
100 Year	4,956	31	72,478	26	47,536	6	10,581
500 Year	4,977	61	63,613	26	47,536	6	10,581
Rain-Induced Landslide							
High Risk	6	6	28,508	0	0	0	0
Moderate Risk	3,670	206	314,273	9	31,099	2	23,600
Tsunami	0	0	0	0	0	0	0
Wildfire/ Structure Fire							
Extreme	0	0	0	0	0	0	0
Very High	26,640	1,474	1,563,410	36	98,491	27	94,220
High	19,897	716	750,531	11	77,017	11	48,271
Moderate	35,648	3,043	4,015,674	112	119,014	54	35,115

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

- **Geologic (Earthquake, Landslide, Liquefaction)**: Geographic extent of this hazard is District wide. A greater percentage of the District'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 (4.5 miles west of the Fire District 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 Fire District. A magnitude 6.9 earthquake on the Rose Canyon Fault could potentially result in a peak ground acceleration of .40 within the western portion of the Fire District. These areas of the Fire District are more likely to suffer heavier damage and lower human losses than elsewhere, because of the presence of older buildings (constructed prior to 1991) and more sparse population density. The landslide threat is focused around steep canyon slopes of known slide potential. The threat of liquefaction is relatively low and could occur in the alluvial areas of the Escondido Creek and San Dieguito River channels.

- **Wildfire**: The seasonal climatic conditions during late summer and fall create numerous serious difficulties regarding the control and protection against fires in the Fire district. The hot, dry weather typical of this area in summer and fall, coupled with Santa Ana winds and low humidity frequently results in wildfires that threaten or could threaten residents and homes. A significant number of the Fire District residents live within the wildland-urban interface (WUI). Residential homes that abut the WUI are susceptible to wildfire because they are situated near open space and steep canyons containing flammable, native vegetation. 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, or hazardous materials incidents. Recent wildfire events in the Fire District include the Witch Creek Fire of October 2007, which resulted in the loss of 61 homes and evacuation of all residents within the Fire District boundaries.

- **Dam Failure**: The geographic extent of this hazard is limited to the persons and properties within the inundation path surrounding Escondido Creek, La Orilla Creek, and San Dieguito River. The dam inundation paths are larger than the respective 100-year or 500-year floodways and a greater number of people and properties are exposed to this hazard compared to flooding. Major road arterials and bridges within the inundation path include El Camino Del Norte, La Bajada, and El Apajo, and Via de la Valle (County road S6). The most significant damage to property would occur from a failure of Lake Hodges Dam, which was built in 1918. 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, allowing for aggressive warning and evacuation measures to be initiated by the County of San Diego.

- **Flooding**: The geographic extent of this hazard is limited to the low-lying areas in Escondido Creek, La Orilla Creek, and San Dieguito River which are the principle streams that originate or traverse through the Fire District. These areas are susceptible to flooding because of the wide, flat floodplains surrounding riverbeds and the structures that are built in the floodplains. Flooding has occurred in the past from heavy rainfall in both Escondido Creek and San Dieguito River Valley. The most recent event occurred when rain-swollen Lake Hodges Reservoir overflowed in February 2005, sending water downstream into San Dieguito River Valley and to the Pacific Ocean in Del Mar, California. The overflow did not cause massive flooding problems.

5.22.1 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 Fire District's fiscal capabilities that may be applicable to providing financial resources to implement identified mitigation action items.

5.22.1.1 Existing Institutions, Plans, Policies and Ordinances

The main entities that are responsible for ensuring the health and public safety in the Rancho Santa Fe Fire Protection District are California Department of Forestry and Fire Protection (CalFire), the Fire District, and the County of San Diego.

The following is a summary of the County's and Fire District's existing departments 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 each entity, as shown in Table 5.22-2, 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 Geographical Information System (GIS) skills and scientists familiar with hazards in the community.

- Rancho Santa Fe Fire Protection District
  - The Rancho Santa Fe Fire Protection District, one of 16 Fire Protection Districts in the County of San Diego (County), was established on October 14, 1946. The Fire District stretches between Interstates 5 and 15, just North of San Diego's City limits and covers approximately 42 square miles. Elevation ranges from 100 to about 1200 feet above sea level. The Fire District provides services to approximately 30,000 people living in primarily residential areas with some industrial and retail. The Fire district provides structural and wildland fire protection, though wildland responsibility largely remains with CalFire, Emergency Medical Services (Basic Life Support and Advance Life Support (ALS) first-response), rescue, prevention, and community education. The Fire District operates from four fire stations. ALS ambulance transport service is provided through County Service area 17.
- San Diego County Department of Planning and Land Use
  - 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 County 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.

  - Community Development Division Manager: Our key service programs include: improving 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 respond 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 pre-hospital 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's 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.

- California Department of Forestry and Fire Protection
  - CalFire is an emergency response and resource protection department that responds to more than 5,600 wildland fires that burn over 172,000 acres in the State each year. In addition, department personnel respond to more than 300,000 other emergency calls, including structure fires, automobile accidents, medical aid, swift water rescues, civil disturbance, search and rescue, floods, and earthquakes. CalFire is the State's largest fire protection organization, whose fire protection team includes extensive ground forces, supported by a variety of fire-fighting equipment. CalFire has joined with Federal and local agencies to form a statewide mutual aid system. This system insures a rapid response of emergency equipment by being able to draw on all available resources regardless of jurisdiction.

Table 5.22-2
Rancho Santa Fe Fire Protection District: Administrative and Technical Capacity

Staff/Personnel Resources	Y/N	Department/Agency and Position
K. Planner(s) or engineer(s) with knowledge of land development and land management practices	N	
L. Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	N	
M. Planners or Engineer(s) with an understanding of natural and/or manmade hazards	N	
N. Floodplain manager	N	
O. Surveyors	N	
P. Staff with education or expertise to assess the community's vulnerability to hazards	Y	Fire Prevention Bureau
Q. Personnel skilled in GIS	Y	Emergency Response Map Committee
R. Scientists familiar with the hazards of the community	N	
S. Emergency manager	Y	Fire Chief
T. Grant writers	Y	Public Relations Coordinator./Dept. Staff

The legal and regulatory capabilities of the Fire District are shown in Table 5.22-3, which presents the existing ordinances and codes that affect the physical or built environment of the Fire District. Examples of legal and/or regulatory capabilities can include: Fire District's Fire or Wildland Urban Interface (WUI) Ordinances and the County's building codes, health and safety 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 5.22-3
Rancho Santa Fe Fire Protection: Legal and Regulatory Capability

Regulatory Tools (ordinances, codes, plans)	Local Authority (Y/N)	Does State Prohibit? (Y/N)
Q. Building code	Y	N
R. Fire and WUI Codes & Ordinances	Y	N
S. Zoning ordinance	N	N
T. Subdivision ordinance or regulations	N	N
U. Special purpose ordinances (floodplain management, storm water management, hillside or steep slope ordinances, hazard setback requirements)	N	N
V. Growth management ordinances (also called "smart growth" or anti-sprawl programs)	N	N
W. Site plan review requirements	Y	N
X. General or comprehensive plan	N	N
Y. A capital improvements plan	Y	N
Z. An economic development plan	N	N
AA. An emergency response plan	Y	N
BB. A post-disaster recovery plan	N	N
CC. A post-disaster recovery ordinance	N	N
DD. Real estate disclosure requirements	N	N

5.22.1.2 Fiscal Resources

Table 5.22-4 shows specific financial and budgetary tools available to the Fire District 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 5.22-4
Rancho Santa Fe Fire Protection District: Fiscal Capability

Financial Resources	Accessible or Eligible to Use (Yes/No)
J. Community Development Block Grants (CDBG)	Yes
K. Capital improvements project funding	Yes
L. Authority to levy taxes for specific purposes	Yes - Vote Required
M. Fees for water, sewer, gas, or electric service	No
N. Impact fees for homebuyers or developers for new developments/homes	No
O. Incur debt through general obligation bonds	Yes
P. Incur debt through special tax and revenue bonds	Yes - Vote Required
Q. Incur debt through private activity bonds	No
R. Withhold spending in hazard-prone areas	No

5.22.2 Goals, Objectives and Actions

Listed below are Fire District'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 Fire District 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 Fire District's and County's planning documents, codes, and ordinances. In addition, Fire District representatives met with County OES to specifically discuss these hazard-related goals. The Fire District LPG members were:

- James Ashcraft, President, Fire District Board of Directors
- Nicholas G. Pavone, Fire Chief
- Tony Michel, Deputy Chief
- Cliff Hunter, Fire Marshal
- Jim Sturtevant, Battalion Chief
- Michael Gibbs, Battalion Chief
- Fred Cox, Battalion Chief
- Bret Davidson, Battalion Chief- Training
- Michael Scott, Urban Forester
- Julie Taber, Public Relations Coordinator

Once developed, the LPG staff presented them to the Fire District Board 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 the Fire District's LPG in conjunction with the Hazard Mitigation Working Group, locally elected officials, and local citizens.

5.22.2.1 Goals

The Fire District has developed the following nine Goals for their Hazard Mitigation Plan (See Attachment A for Goal 9).

Goal 1. Promote safer development in hazard areas.

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

Goal 3. Build and support local capacity and commitment to 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 due to":

Goal 5. Dam Failure

Goal 6. Geological Hazards

Goal 7. Floods

Goal 8. Structural Fire/Wildfire

Goal 9. Man-caused Hazards (See Attachment A).

5.22.2.1.1 Objectives and Actions

The Fire District developed the following broad list of objectives and actions to assist in the implementation of each of their nine, identified goals. The Fire District 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 5.22.2. Man-caused hazard goals and objectives can be found in Attachment A.

Goal 1: Promote safer development in hazard areas.	
Objective 1.A: Facilitate the adoption of building and fire codes that protect existing assets and manage new development in hazard areas.	
Action 1.A.1	Review Fire District codes and ordinances every 3 years.
Action 1.A.2	Adopt local County building codes to address local building issues in hazard areas, as funding is available.
Action 1.A.3	Actively participate in the County, State and Nation-wide building code development groups to ensure that development issues in hazard areas are properly addressed, as funding is available.
Objective 1.B: Facilitate consistent enforcement of general plans, zoning ordinances, and building codes.	
Action 1.B.1	Staff enforcement personnel to an education level and knowledge to ensure compliance.
Action 1.B.2	Develop standard processes for evaluating and approving proposed development in hazard areas, as funding is available.
Action 1.B.3	Maintain ongoing training for Fire Prevention personnel on development procedures and zoning and building code interpretation, as funding is available..
Objective 1.C: Address identified data limitations regarding the lack of information about new development and build-out potential in hazard areas.	
Action 1.C.1	Use hazard event overlays to identify hazard-prone for new development, as funding is available.
Action 1.C.2	Update GIS databases with particular attention to maintaining hazard event overlay layers. Require electronic submittals of all reports and data in electronic form.

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	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 information to the public on the Fire District's website.
Action 2.A.3	Provide Fire District citizens with Community Emergency Response Team training opportunities to increase public awareness of hazards and response to hazards, as funding is available.
Objective 2.B: Promote partnerships between the state, counties, local governments to identify, prioritize, and implement mitigation actions.	
Action 2.B.1	Actively participate in the San Diego County Multi-Hazard Mitigation Plan process.
Action 2.B.2	Coordinate with regional efforts to share resources and knowledge.
Action 2.B.3	Support the local FireSafe Councils.
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	Coordinate hazard mitigation education/training with routine inspections of businesses utilizing code enforcement and fire prevention inspections, as funding is available.
Action 2.C.2	Encourage businesses to develop and implement hazard mitigation actions.
Action 2.C.3	Explore opportunities to work with public-private partnerships.
Objective 2.D: Monitor and publicize the effectiveness of mitigation actions implemented district-wide.	
Action 2.D.1	Utilize the Fire District's website, *Fire Wire*, press releases, and public meetings.
Action 2.D.2	Train and review with staff implanted programs as part of regular training.
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	Continuously demonstrate the importance of pre-disaster mitigation planning to the Fire Board members and other public officials, such as the County Board of Supervisors.
Action 3.A.2	Continue to conduct EOC training annually

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	Continue to participate in regional hazard mitigation activities.
Action 4.A.2	Promote mutual aid agreements and interagency dialogue related to hazard mitigation planning
Objective 4.B: Encourage other organizations to incorporate hazard mitigation activities.	
Action 4.B.1	Work with business and environmental community to understand importance of hazard mitigation planning.
Action 4.B.2	Continue to assist local entities, such as School District's, Homeowner Associations, and County Sheriff in developing plans for hazard mitigation and disaster preparedness.
Action 4.B.3	Streamline policies to eliminate conflicts and duplication of effort.
Objective 4.C: Improve the Fire District's capability and efficiency at administering pre- and post-disaster mitigation.	
Action 4.C.1	Support regional planning efforts for hazard mitigation and disaster recovery planning.

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 GIS dam inundation maps every five years.
Action 5.A.2	Participate in dam failure tabletop disaster exercises with County OES and first responders.
Action 5.A.3	Work with County of San Diego OES to implement an alerting system for residents within the dam inundation pathway.

Goal 6: Reduce the possibility of damage and losses to existing assets, including people, critical facilities/infrastructure, and public facilities due to <u>geological hazards</u>.	
Objective 6.A: Protecting existing Fire District assets with the highest relative vulnerability to the effects of earthquakes.	
Action 6.A.1	Seismically upgrade Fire Station #3 to meet existing building codes.
Objective 6.B: Educate citizens about seismic risks, the potential impacts of earthquakes and opportunities for mitigation actions.	
Action 6.B.1	Participate in community awareness meetings.
Action 6.B.2	Develop and distribute printed publications to the communities concerning earthquakes.
Action 6.B.3	Provide volunteers with CERT training opportunities to provide search and rescue activities after an earthquake, as funding is available.
Action 6.B.4	Encourage the public to prepare an evacuation plan and maintain a 3-day preparedness kit for home and work.
Action 6.B.5	Encourage the public to prepare an evacuation plan and maintain a 3-day preparedness kit for home and work.
Action 6.B.7	Develop and implement hazard awareness program.

Goal 7: Reduce the possibility of damage and losses to existing assets, including people, critical facilities/infrastructure, and public facilities due to <u>floods</u>.	
Objective 7.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to floods.	
Action 7.A.1	Update flood-prone area GIS map every five years.
Action 7.A.2	Participate in flooding tabletop disaster exercises with County of San Diego OES and first responders.
Objective 7.B: Protect existing assets with the highest relative vulnerability to the effects of floods within the 100-year floodplain.	
Action 7.B.1	Build new, Fire Station #3 so that it is above 100 year floodplain.
Action 7.B.2	Improve hazard warning and response time.

Goal 8: 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 8.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to structural fire/wildfire.	
Action 8.A.1	Continue to update the Fire District's Wildland-Urban Interface Code every three years.
Action 8.A.2	Continue to conduct fire safety inspections to reduce the risk of wildfire/structural fire.
Action 8.A.3	Continue to enforce the Fire District's Vegetation Management (i.e., weed abatement) Ordinance.
Action 8.A.4.	Continue to incorporate the Shelter-in-Place policy for new developments.
Action 8.A.5.	. Maximize utilization of outside firefighting resources through regional relationships, agreements, and cooperative initiatives.
Action 8.A.6.	Annually review and update wildland pre-fire plans for firefighting forces

Goal 8: 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 8.B: Prevent the loss of life in wildland fires.	
Action 8.B.1	Continue to develop and promote public education programs in wildland fire safety and survival for all residents in the Fire District.
Action 8.B.2	Continue the CERT WUI curriculum for training of residents and workers in the Fire District.
Action 8.B.3	Continue to improve local community evacuation plans.
Objective 8.C: Prevent the ignition of structures by wildland fires.	
Action 8.C.1	Develop a program that incorporates cost effective ignition-resistant building materials and construction methods for retrofitting existing homes.
Action 8.C.2	Continue partnerships with CalFire, County of San Diego, Homeowner Associations, local FireSafe Councils, and Forest Area Safety Taskforce Working Group to plan and implement District-wide vegetation management programs as funding becomes available.
Action 8.C.3	Pursue State and Federal cost share grants for the elimination of combustible roofs for existing homes in the Fire District.
Objective 8.D: Address identified data limitations regarding the lack of information about the relative vulnerability of assets from structural fire/wildfire.	
Action 8.D.1	Maintain and Update GIS database, annually.
Action 8.D.2	Establish home sales inspection with local realtors.

5.22.2.3 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 ten prioritized mitigation actions as well as an implementation strategy for each are:

Action Item #1: Replace existing fire station #3 with a new building that complies with seismic and 100 year flood building codes..

Coordinating Individual/Organization: Rancho Santa Fe Fire Protection District.

Potential Funding Source: General and Fire Mitigation Funds.

Implementation Timeline: 2 Years

Action Item #2: Update all Fire District Ordinances every three years

Coordinating Individual/Organization: Fire Marshal, Rancho Santa Fe Fire Protection District.

Potential Funding Source: General Fund

Implementation Timeline: 3 years

Action Item #3: Promote cooperative vegetation management programs that incorporate hazard mitigation..

Coordinating Individual/Organization: Urban Forester, Rancho Santa Fe Fire Protection District

Potential Funding Source: General Fund/Federal or State Grants/FAST/FireSafe Councils

Implementation Timeline: 1 - 3 years

Action Item #4: Prepare a District-wide Community Wildfire Protection Plan

Coordinating Individual/Organization: Urban Forester/Rancho Santa Fe Fire Protection District/FireSafe Councils/County of San Diego

Potential Funding Source: General Fund/Federal or State grants

Implementation Timeline: 1 - 2 years

Action Item #5: Educate homeowners how best to use ignition-resistant building materials and construction methods for existing homes.

Coordinating Individual/Organization: Fire Prevention/Rancho Santa Fe Fire Protection District

Potential Funding Source: General Fund/Federal or State grants

Implementation Timeline: 1 - 3 years

Action Item #6: Review early warning systems for residents in 100 year flood plain and dam inundation areas. Conduct a table top exercise.

Coordinating Individual/Organization: County of San Diego/ OES/Rancho Santa Fe Fire Protection District

Potential Funding Source: General Fund/Federal or State grants.

Implementation Timeline: 1 year

Action Item #7: Develop a combustible roof replacement program.

Coordinating Individual/Organization: Rancho Santa Fe Fire Protection District/County Department of Planning and Land Use

Potential Funding Source: General Fund/Federal or State Grants.

Implementation Timeline: 2 - 5 years

Action Item #8: Encourage the public to prepare an evacuation plan and maintain a 3-day preparedness kit for home and work.

Coordinating Individual/Organization: OES/ Media & Public Relations/CERT Volunteers

Potential Funding Source: General Fund/Federal or State grants

Implementation Timeline: 1 - 3 years

Action Item #9: Develop a combustible roof replacement program.

Coordinating Individual/Organization: Rancho Santa Fe Fire Protection District/County Department of Planning and Land Use

Potential Funding Source: General Fund/Federal or State Grants.

Implementation Timeline: 2 - 5 years

Action Item #10: Maintain and update GIS database.

Coordinating Individual/Organization: Rancho Santa Fe Fire Protection District

Potential Funding Source: General Fund/Federal or State grants

Implementation Timeline: 1 year

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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 annaully 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 STAPLEE 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 the State of California 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).

The region has adopted a comprehensive risk management strategy to maintain and increase the resiliency of our community. This Plan will be used as a primary tool to manage the mitigation component of the region's overall risk management strategy. This will complement the other two major components of the region's strategy, which are to Prepare for Response and to Prepare for Recovery.

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 continue to be publicized and available for review on the County OES website, as will the dedicated email address set up for public comments. OES will continue to monitor the email address daily. 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.

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SECTION 1: HAZARD MITIGATION WORKING GROUP MEETING AGENDAS AND SUMMARIES

Group Meeting #1: Wednesday April 1, 2009, 9:00 AM

Meeting Summary

Tom Amabile (TA) gave an introduction that discussed the working group goals. The group went around and identified themselves and their agencies. The audience consisted of representatives from various local water agencies as well as from several fire protection districts. Agencies represented at the meeting were:

- Alpine Fire Protection District
- County Water Authority
- North County Fire Protection District
- Padre Dam Municipal Water District
- Rainbow Municipal Water District
- Rancho Santa Fe Fire Protection District
- Rincon del Diablo Municipal Water District
- Vallecitos Water District

TA 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 revise the Plan for San Diego County. It was stressed that participation from special districts, especially fire protection districts and water districts was strongly encouraged and welcome.

The presentation also entailed an explanation of the benefits and requirements of participating in the Hazard Mitigation Plan process. The special districts were told that this was an excellent time for them to become engaged with the hazard mitigation planning process. Because the plan was set for revision, they could become part of the process and have their plans incorporated into the multi-jurisdictional plan by simply participating and developing a plan. TA went on to describe the benefits of having a plan, specifically the ability to apply for hazard mitigation grants. He explained that the grant process was competitive and having a hazard mitigation plan did not guarantee a grant award.

The schedule of work group meeting was discussed. The work group will meet monthly to begin with. Thursday afternoon was the time preferred by the majority of attendees. The next meeting date was schedule for May 28, 2209 at 1:30 pm. At that meeting all participating jurisdictions (cities, county and special districts) will begin the actual process of updating and revising the multi-jurisdictional hazard mitigation plan.

Attendees were requested to return to their agencies and determine their desire to participate in the process.

Group Meeting #2: Thursday May 28, 2009, 1:30 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
- Liquefaction

What's Next?

- Step 2: Profile Hazard Events
- Step 3: Inventory Assets
- Step 4: Estimate Losses

Next Meeting – Time and Location

June 25, 2009 0900 – 1200

OES

Tom Amabile (TA) gave an introduction that discussed the working group goals. The group went around and identified themselves and their agencies. The audience consisted of representatives from the incorporated cities, the County of San Diego, various local water agencies and fire protection districts. Agencies represented at the meeting were:

- Chula Vista Fire Department
- Chula Vista Police Department
- City of San Diego Office of Homeland Security
- County Office of Emergency Services
- County Water Authority
- Encinitas Fire Department
- National City Fire Department
- Oceanside Fire Department
- Padre Dam Municipal Water District
- Rainbow Municipal Water District
- Rancho Santa Fe Fire Protection District
- Rincon del Diablo Municipal Water District
- San Marcos Fire Department
- Vallecitos Water District

TA 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 revise the Plan for San Diego County. It was stressed that participation from special districts, especially fire protection districts and water districts was strongly encouraged and welcome.

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. Data sources were discussed as well as the limitations of GIS data. The presentation reviewed the mitigation planning process and the resources available such as the FEMA "How To" guides. TA 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.

The hazards identified in the 2004 plan were discussed, both those included for mitigation actions and those omitted. Discussion focused on whether the identified hazards were still applicable or of some need to be removed from considerations and replaced by other, newer emergency threats. A meeting schedule was established.

6/25/09
7/30/09
9/17/09
11/19/09

Additional meetings may be scheduled as needed to for the project.

Action Items

Each member was requested to review the identified hazards and determine their continued applicability to their jurisdiction. They were also asked to determine if any new hazards had been identified that could potentially impact their City or Special District.

The following three action items were requested of the Working Group members:

1. Each Working Group member was requested to identify a jurisdiction-level Local Mitigation Planning Team. Members could include: police, fire, emergency services, community development/planning, public works, transportation, economic development, public works and emergency response/services personnel within their City. Special Districts were encouraged to recruit key decision-makers in their working groups. 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 jurisdiction should convene these jurisdiction-level Local Mitigation Planning Teams as soon as possible in order to provide City or district-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 Working Group for risk and mitigation priorities for that City.

2. Working 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 (for the past five years since we have data for at least ten years prior to that in the original plan).

Group Meeting #3: Thursday, June 25, 2009, 9:00 AM

AGENDA

Introductions

Schedule

- Key Dates/Near-Term, Long-Term
- Schedule

Planning Process – Where Are We Now ?

- Assessing Risks – Steps 1-4
- List of Major Disaster/Hazard Events

Profiling Hazards

- Assessing Risks
- Hazards Identified – FOUO and NFOUO

What's Next ?

- Step 3: Inventory Assets
- Step 4: Estimate Losses

Next Meeting – Time and Location

July 30, 2009 0900 – 1200

OES

Meeting Summary

Tom Amabile gave an introduction that discussed the working group goals. Members went around the room and introduced themselves.

Tom Amabile reviewed the time-line for the project. The planning process was reviewed along with current action items. He then 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: A map was presented showing areas subject to high winds and surf during coastal storms and coastal areas prone to erosion. The Working Group agreed that this hazard should continue to be profiled for the Plan and that tsunamis should continue to be consolidated into this category because the same communities in the County would be affected.

Dam Failure: A map was presented showing the dams located in the County. TA indicated that OES has dam inundation zones maps and that these maps would again be used unless an individual city provided more current information that the city desired to be used instead. The Working Group indicated that this hazard should continue to be profiled for the Plan.

Drought/Water Supply: It was mentioned that all 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". This was generally considered to be a resource management issue and not a hazard mitigation issue.

The Working Group reached consensus that drought would not be included in the revised Plan.

Earthquake: A map showing the earthquake zones in the County was presented. The Working Group acknowledged that earthquakes are a major issue in the region and indicated that this hazard should continue to be included in the plan.

Flooding: A map was presented 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 continue to be included in the plan.

Wildfire/Structure Fire: A map showing the wildfire hazard areas in the County was presented. The Working Group agreed with the recommendation that wild fires and structural fires should continue to be addressed in the Plan as one category.

Landslides: A map showing areas of steep slopes, liquefaction/slide prone areas, as well as known landslide areas in the County was presented. The Working Group acknowledged that landslides should continue to be included in the plan

Hazardous Materials: The Working Group agreed that hazardous materials need to continue to be included in the Plan, in the FOUO Attachment A.

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. In addition, the Emergency Planning Zone (EPZ) identified by the NRC for the San Onofre Nuclear Generating Station (SONGS) was 10 miles. This is, by NRC definition, the area most at risk from an incident at the power plant. The EPZ in San Diego County resides entirely on Marine Corps Base Camp Pendleton. Local jurisdictions have no control over activities onboard MCB Camp Pendleton. The County currently maintains emergency plans dealing with an incident at SONGS. It also works (along with the City of San Diego) with the U.S. Navy regarding their nuclear vessels. It was determined that the Plan would continue to address this issue by identifying the mitigation and regulatory programs that are in place for these entities.

Terrorism: The working group consensus was that this would continue to be included in the FOUO portion of the plan – Attachment A.

Action Items

Public works department to provide flood data if desired.

1. Worksheets 1 and 2 (Inventory of Assets – Confidential/Non-Confidential).

2. Individual jurisdictions may add a level of detail to the hazard analyses to be included in the plan by providing City-specific information.

   Each City was requested to provide this information for their City if they desired it to be included in the Plan. Tom Amabile requested that the Cities and Special Districts advise if this information would be forthcoming for each jurisdiction.

Group Meeting #4: Thursday July 30, 2009, 9:00 AM

AGENDA

Introductions

Schedule

- Key Dates/Near-Term, Long-Term

Collect Homework Assignments/Action Item Status

Assessing Risk

- Inventory Assets
- 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

Tom Amabile gave an introduction that discussed the working group goals.

He then gave a brief overview of the hazard mitigation planning process. Tom explained that the project just passed the risk assessment stage and was in the beginnings of the capabilities assessment process. Each City and Special District was tasked to review their assets and capabilities.

The process to be used in determining Loss Estimations was gone over in detail. The steps to be used are:

I. Proportion of Buildings Located in the Hazard Area

Step A: Estimate the number of buildings and people in your community

1. Determine the total number of buildings in side you community
2. Determine the total estimated value of the buildings inside your community
3. Determine the total number of people inside your community

Step B: Estimate the total number of buildings, their value and the total number of people in the hazard zones

1. Determine the total number of buildings in the hazard zone
2. Determine the total estimated value of the buildings inside the hazard zone
3. Determine the total number of people inside the hazard zone

Step C: Calculate the proportion of assets located within the hazard area

Divide the number or value in the hazard area by the number or value in the community

$$\frac{\text{\# buildings in the hazard area}}{\text{Total \# buildings in the community}} \qquad \frac{\text{\# people in the hazard area}}{\text{Total \# people in the community}}$$

Step D: Determine the location of expected growth in your community. Do they live in a hazard area?

II. Compile Detailed Inventory of What Can be Damaged

Step A: Priorities

- Critical Facilities
  - Essential (to health & welfare of the population)
  - Transportation Systems
  - Lifeline Utility Systems
  - High potential Loss facilities (Nuclear Power Plants, Dams, Military Bases)

- Vulnerable Populations
- Economic Elements
- Special Considerations
- Historic/Cultural/National Resource areas
- Other Important Facilities (Government, Banks, Major employers, etc.)

The meeting concluded with a discussion of what's upcoming in the planning process. It was mentioned that the County is in the process of updating hazards and critical facilities for input into HAZUS for the Loss Estimation step.

OES passed out handouts. The first was a description of loss estimation priorities. The second was federal Replacement value for various assets. The third was a Functional Use Value Chart. The fourth was an example of Goals and Objectives, as found in the original Plan.

Action Items

- OES will email to work group copies of the Action Items Worksheet, and all Worksheets in excel or
- Jurisdictions to review profiling maps, including critical facility information, and contact OES with updates
- County 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: Wednesday November 4, 2009, 9:00 AM

This meeting was held to make the County GIS staff (Matt Turner) working on the data and the risk analysis portion of the plan available to the Working Group members to allow them to ask any questions they might have. There was no set agenda.

The data analysis process was discussed. As part of this process data sources and analytical tools were explained. The working Group was told that most of the data sources used in the original plan were used for the revision. Much of the data had changed significantly, although certain portions had not. New HAZUS runs were being done to generate the at risk numbers for the tables in chapter five.

Several questions were asked regarding specific data for individual layers and jurisdictions (i.e., dam inundation maps, flood plains in individual cities, etc.). The cities' concerns were addressed.

Individual Meetings

OES staff met with the local planning groups of several cities in order to assist them with the planning process. These meetings were informal working sessions designed to aid the individual jurisdictions with developing goals, objectives and action items. These meetings were held between November 2009 and January 2010.

COUNTY OF SAN DIEGO

NEWS RELEASE

FOR IMMEDIATE RELEASE
November 20, 2009
Contact: Yvette Urrea Moe (858) 245-9366

PUBLIC INPUT SOUGHT ON REGIONAL HAZARD MITIGATION PLAN

Residents Invited to Review Draft Multi-Jurisdictional Plan Update

Have you ever wondered about what the region is doing to prevent serious damage and harm to residents from earthquakes, floods or dam failures? The County is updating the region's Multi-Jurisdictional Hazard Mitigation Plan which evaluates natural disasters and man-made hazards that could potentially impact the San Diego area. San Diego County residents are encouraged to review the draft update and provide input as needed.

The Multi-Jurisdictional Hazard Mitigation Plan was originally developed in 2004 and is updated every five years by the San Diego County Unified Emergency Services Organization, along with multiple regional partners, including all 18 incorporated cities and many special districts.

In 2007, the County was a recipient of a National Association of Counties (NACO) Achievement Award for the current Hazard Mitigation Plan.

The public can view a draft version of the region's plan online at http://www.co.san-diego.ca.us/oes/emergency_management/oes_jl_mitplan.html . Residents can learn about strategies and actions to reduce the threat and minimize potential damage. Questions have been included in the link to serve as a guide while reviewing the plan.

All comments and suggestions will be reviewed and incorporated into the plan if appropriate. Residents have until Dec. 31 to submit their suggestions through e-mail online via the link above.

After the public input period, the Hazard Mitigation Plan Working Group will finalize the plan and bring it to the San Diego County Board of Supervisors for adoption.

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OFFICE OF EMERGENCY SERVICES
5555 OVERLAND AVENUE, SUITE 1911 • SAN DIEGO, CA 92123-1294
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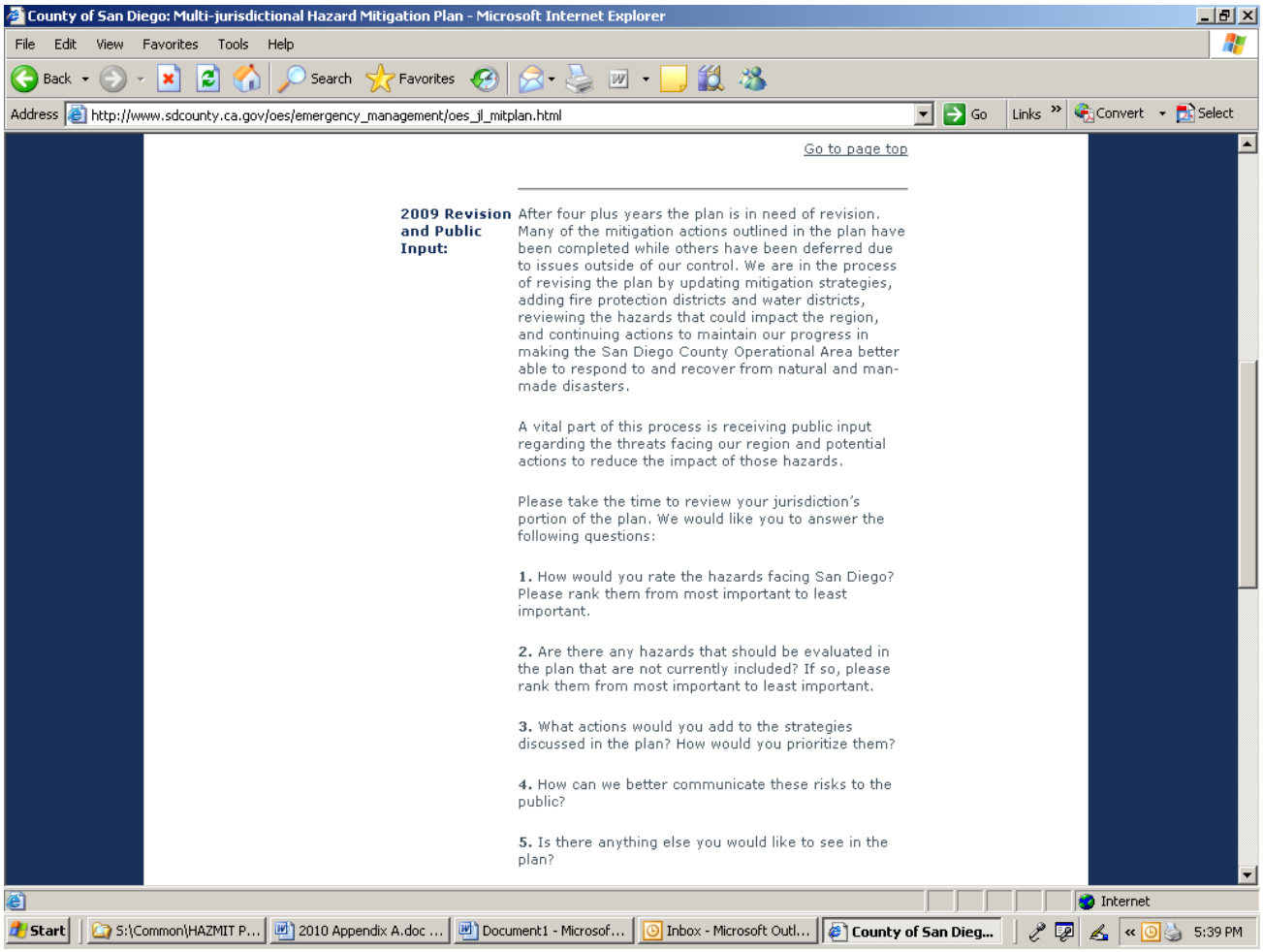
Press releases were sent to the following television stations and newspapers:

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:

SECTION THREE: Website

The draft plan was posted on the OES website for public comment. Screen shots of the website are provided below:



County of San Diego: Multi-jurisdictional Hazard Mitigation Plan - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Search Favorites

Address http://www.sdcounty.ca.gov/oes/emergency_management/oes_jl_mitplan.html Go Links Convert Select

Go to page top

2009 Revision and Public Input: After four plus years the plan is in need of revision. Many of the mitigation actions outlined in the plan have been completed while others have been deferred due to issues outside of our control. We are in the process of revising the plan by updating mitigation strategies, adding fire protection districts and water districts, reviewing the hazards that could impact the region, and continuing actions to maintain our progress in making the San Diego County Operational Area better able to respond to and recover from natural and man-made disasters.

A vital part of this process is receiving public input regarding the threats facing our region and potential actions to reduce the impact of those hazards.

Please take the time to review your jurisdiction's portion of the plan. We would like you to answer the following questions:

1. How would you rate the hazards facing San Diego? Please rank them from most important to least important.

2. Are there any hazards that should be evaluated in the plan that are not currently included? If so, please rank them from most important to least important.

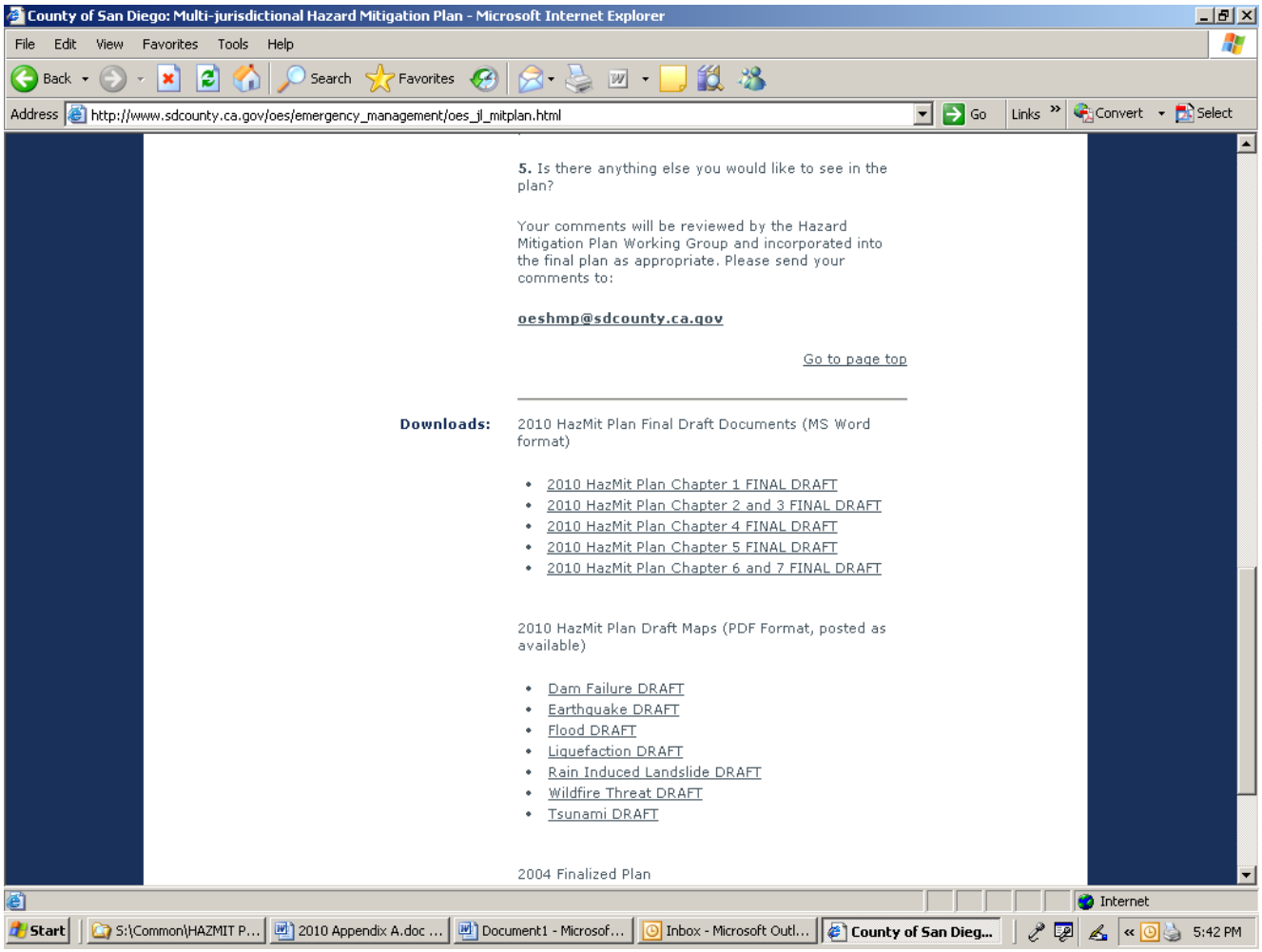
3. What actions would you add to the strategies discussed in the plan? How would you prioritize them?

4. How can we better communicate these risks to the public?

5. Is there anything else you would like to see in the plan?

Internet

Start S:\Common\HAZMIT P... 2010 Appendix A.doc ... Document1 - Microsof... Inbox - Microsoft Outl... County of San Dieg... 5:39 PM



The text contained on the webpage is:

"After four plus years the plan is in need of revision. Many of the mitigation actions outlined in the plan have been completed while others have been deferred due to issues outside of our control. We are in the process of revising the plan by updating mitigation strategies, adding fire protection districts and water districts, reviewing the hazards that could impact the region, and continuing actions to maintain our progress in making the San Diego County Operational Area better able to respond to and recover from natural and man-made disasters.

A vital part of this process is receiving public input regarding the threats facing our region and potential actions to reduce the impact of those hazards.

Please take the time to review your jurisdiction's portion of the plan. We would like you to answer the following questions:

1. How would you rate the hazards facing San Diego? Please rank them from most important to least important.

2. Are there any hazards that should be evaluated in the plan that are not currently included? If so, please rank them from most important to least important.

3. What actions would you add to the strategies discussed in the plan? How would you prioritize them?

4. How can we better communicate these risks to the public?

5. Is there anything else you would like to see in the plan?

Your comments will be reviewed by the Hazard Mitigation Plan Working Group and incorporated into the final plan as appropriate. Please send your comments to:

oeshmp@sdcounty.ca.gov "

One public comment was received which resulted in a change to the draft plan. The email is printed below:

Hi Tom:

I wanted to check in with you about the draft of the HMP and offer any assistance or resources that might be helpful in considering a climate change section in the plan. I'd be happy to speak with you any time about interest in the region around climate change adaptation and resources that we have developed out of adaptation initiatives around the Country.

In the meantime, I'm attaching the relevant section from the State Hazard Mitigation Plan—the sort of "placeholder" approach that might be appropriate here as well, given the advanced stage of your plan development.

Best regards,

Brian

Brian Holland
Program Officer

ICLEI – Local Governments for Sustainability USA
c/o City of Chula Vista
Department of Conservation
276 Fourth Avenue, Building 300
Chula Vista, CA 91910
Tel: +1 (619) 476-5364
Fax: +1 (619) 476-5310
www.icleiusa.org

The document Mr. Holland provided is below:

State of California Multi-Hazard Mitigation Plan Chapter 5 – Part 1-Risk Assessment Overview
October 2007

5.2.8 Response
For purposes of this Plan, the term "response" means actions taken to respond to the disaster, such as rescuing survivors, mass evacuation, feeding and sheltering victims, and restoring communications.

5.2.9 Recovery

For purposes of this Plan, the term "recovery" means restoring people's lives and creating new opportunities for the future. It includes such actions as: restoration of essential transportation, utilities, and other public services; repair of damaged facilities; provision of both temporary and replacement housing; restoration and improvement of the economy; and long-term reconstruction which improves the community.

5.3 Climate Change – An Emerging Issue

An emerging topic affecting disaster management is climate change caused by global warming. Scientific literature developing over the past several decades has confirmed that release of greenhouse gases—such as CO_2, methane, chlorofluorocarbons (CFCs) and nitrous oxide—is creating changes to the earth's climate leading to a variety of negative impacts. Impacts of these meteorological changes have been under observation by risk management and natural hazards researchers for several decades.

In Understanding Globalization, published in 2003, Robert Schaeffer summarized the recent history of global warming and climate change as both a scientific and public policy challenge. He pointed out that rising temperatures leading to polar ice melt is contributing to sea level rise affecting low lying island countries. Noting that most scientists agreed that global warming was real, Schaeffer attributed automobile dependence as an important cause of rising carbon dioxide (CO_2) levels contributing to climate change. He pointed out further that the U.S. was not one of the countries signing on to the Kyoto Protocol which set 2012 emissions reduction targets for developed countries, but that some American companies were already pursuing their own technological solutions to greenhouse gas reduction measures in order to lower costs and remain competitive.

5.3.1 International Panel on Climate Change
The most recent scientific literature has confirmed the likelihood that such changes in climate are anthropogenic (human-caused). At its Paris meeting of February 2007, the Working Group I on physical science of the Intergovernmental Panel on Climate Change

(IPCC) observed that carbon dioxide and nitrous oxide emissions in the past century and a half have increased more rapidly than in preceding centuries, and that these emissions have resulted in global warming having long-term impacts on the world's climate and environment.

Key findings from the IPCC Working Group I report include the following:

[1.] …Global atmospheric concentrations of carbon dioxide, methane and nitrous oxide have increased markedly as a result of human activities since 1750 and now far exceed pre-industrial values determined from ice cores spanning many thousands of years…
[2.] …The global increases in carbon dioxide concentration are due primarily to fossil fuel use and land-use change, while those of methane and nitrous oxide are primarily due to agriculture...
[3.] …Warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global average sea level...
[4] …Most of the observed increase in globally averaged temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic greenhouse gas concentrations....
[5] …Continued greenhouse gas emissions at or above current rates would cause further warming and induce many changes in the global climate system during the 21st century that would very likely be larger than those observed during the 20th century.

A more recent report released by the IPCC Working Group II on April 6, 2007, predicts a wide range of negative impacts on the global environment, together with accumulating evidence that changes in many physical and biological systems are linked to anthropogenic warming. Projected impacts of climate change include more severe storms and flooding, food and water shortages, increases in the range of insect pests and diseases presently found in tropical areas, and desertification of presently temperate regions. The Working Group III report Climate Change 2007: Mitigation of Climate Change was published in May 2007. It outlines broad short-range, mid-range, and long-range mitigation efforts that will be needed to combat global warming and climate change through proactive countermeasures in the future.

5.3.2 California Initiatives

In advance of these most recent international scientific findings, California state government has undertaken several initiatives to address climate change challenges.
Governor Schwarzenegger in June 2005 signed Executive Order S-03-05 which established climate change emission reduction targets for the State for the purpose of mitigating global warming. The Executive Order established Greenhouse Gas (GHG) targets as follows:

- *By 2010, reduce to 2000 emission levels*
- *By 2020, reduce to 1990 emission levels*
- *By 2050, reduce to 80 percent below 1990 levels*

Subsequent to this, the California legislature in 2006 passed and the Governor signed Assembly Bill 32, known as the California Global Warming Solutions Act of 2006. The law establishes a comprehensive program to achieve quantifiable, cost-effective reductions of

greenhouse gases on a scheduled basis. It requires the California Air Resources Board (ARB) to develop regulations and market mechanisms that will ultimately reduce California's greenhouse gas emissions by 25 percent by 2020.
Mandatory caps begin in 2012 for significant sources. Specifically, AB 32 requires the ARB, among other things, to:

- *Establish a statewide greenhouse gas emissions cap for 2020, based on 1990 emissions by January 1, 2008;*
- *Adopt mandatory reporting rules for significant sources of greenhouse gases by January 1, 2009;*
- *Adopt a plan by January 1, 2009, indicating how emission reductions will be achieved from significant greenhouse gas sources via regulations, market mechanisms and other actions;*
- *Adopt regulations by January 1, 2011 to achieve the maximum technologically feasible and cost-effective reductions in greenhouse gas, including provisions for using both market mechanisms and alternative compliance mechanisms.*

A report on early action to mitigate climate change in California was published by the California Air Resources Board in April 2007. The ARB received more than 70 suggestions from stakeholders for early action. These have been vetted by appropriate agencies and are initially discussed in this report.

Measures similar to AB 32 have been adopted by 11 states, with California leading the way. In response to an industry challenge to one of these state laws, the United States Supreme Court ruled in a recent decision that greenhouse gases should be considered pollutants. This decision emphasized the Court's view that the federal Environmental Protection Agency has a responsibility to pass nationwide regulations governing such emissions. A response from EPA is pending. Meanwhile, California is proceeding with implementation of AB 32.

Related Emissions Reduction Programs

Pursuant to Proposition 1B passed by the voters in November 2006, the state Business Transportation and Housing Agency (BTH) and Cal/EPA on January 11, 2007, jointly released the Goods Movement Action Plan (GMAP). The GMPA outlines a comprehensive strategy to address the environmental issues associated with moving goods via the state's highways, railways, and ports. It has been sent to the California Transportation Commission (CTC) and the ARB and the Maritime Transportation Security Council for their consideration as they deliberate allocation of the Proposition 1B funds. The GMAP identifies projects for consideration in the CTC's allocation of the $2 billion for infrastructure investment. The ARB will allocate the remaining $1 billion for emission reduction projects related to goods movement. A range of funding sources and mechanisms will be used to leverage Proposition 1B funds. See url:
http://www.arb.ca.gov/gmp/docs/gmap-1-11-07.pdf

5.3.3 Implications for Hazard, Vulnerability, and Risk Assessment

These events have a twofold implication for emergency management and hazard mitigation. Discussions of climate change and risk management have begun to appear in the professional literature focusing on systematic development of solutions capable of reducing risks to within critical impact thresholds.[17] It was not until Hurricane Katrina drew the attention of the news media to scientific evidence on intensification of storm events that climate change was recognized as an emergency management topic.
It is now clear that in coming decades natural disasters are broadly expected by members of the scientific community to intensify due to climate change. Emergency managers, planning agencies, private companies, and communities especially affected by climate change will be challenged to adapt their planning to take into account an increasing array of related natural hazards. Disasters expected to be more widely experienced in the future include: avalanches, coastal erosion, flooding, and sea level rise; extreme heat and prolonged drought; mudslides and landslides; severe weather and storms; and wildland fires.

In this risk assessment, climate change is recognized somewhat as a place-holder, with more refined understanding of impacts to be forthcoming during the next three-year SHMP planning cycle. For now, climate change impacts are recognized as having an effect on primary hazards such as flooding and wildfires described in Chapter 5, Part 2; secondary hazards such as levee failure and landslides described in Chapter 5, Part 3; and other climate-related hazards described in Part 4, Section 5.9.

A second aspect of this emerging issue is the urgency of broadening effective means of minimizing release of greenhouse gases into the atmosphere. This involves not only technological but also life-style changes, including a variety of energy conservation, transportation, power production, and land use changes. Although CO_2 emissions can be reduced through automotive technology innovations, the need will intensify for planning innovations reducing greenhouse gas emissions, such as energy-conserving green building design, development of urban areas with greater residential densities, more mixed use, expanded mass transit options, and pedestrian-oriented development.

SAN DIEGO COUNTY OFFICE OF EMERGENCY SERVICES
Hazard Mitigation Working Group (HAZMITWG)
May 28, 2009

SIGN-IN SHEET

NAME	AGENCY	ADDRESS	PHONE	E-MAIL
Vicki Wing	Rincon		(760) 745-5522	vwing@rinconwater.org
Gloria Dechert	Rainbow		(760) 728-1178	gdechert@rainbowmwd.com
✓ Lorrie Teates	SDCWA		760 233-3226	lteates@sdcwa.org
✓ Mike Scott	RSFFPD		858-756-6006	scott@rsf-fire.org
✓ Scott McClintock	San Marcos		760 594-2959	smcclintock@san-marcos.net
✓ Jerome Janus	Vallecitos Water District		760-744-0460	jjanus@vwd.org
✓ Kristen Miggans	CVPD		619-409-5938	kmiggans@chulavistapd.org
✓ Tom Gallup	Encinitas		760-633-2825	tgallup@ci.encinitas.ca.us
✓ Karla Fisher	Vallecitos Water		760 505-1095	kfisher@vwd.org
✓ Jon Sherwood	Vallecitos H2O		(760) 744-0460	jsherwood@vwd.org
✓ Ken Matsunaga	Oceanside FD		(760) 435-4272	kmatsunaga@ci.oceanside.ca.us
✓ Darin Golden	CVFD		(619) 691-5055	dgolden@ci.chula-vista.ca.us
✓ Diana Levin	Padre Dam MWD		619 258-4678	dlevin@padre.org

SAN DIEGO COUNTY OFFICE OF EMERGENCY SERVICES
Hazard Mitigation Working Group (HAZMITWG)
May 28, 2009

SIGN-IN SHEET

NAME	AGENCY	ADDRESS	PHONE	E-MAIL
✓ Eugene Ruzzini	City SD OHS		619 533 6785	ERuzzini@sandiego.gov
✓ Greg Matthews	City of SD OHS		619-533 6987	GMatthews@sandiego.gov
✓ Dave Miller	City of Santee		619-258-4100/202	dmiller@ci.santee.ca.us

AGENDA May 28, 2009

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
- Liquefaction

What's Next ?

- Step 2: Profile Hazard Events
- Step 3: Inventory Assets
- Step 4: Estimate Losses

Next Meeting – Time and Location

June 25, 2009 0900 – 1200

OES

Hazard Mitigation Plan Meeting
June 25, 2009

PRINT NAME	AGENCY	EMAIL ADDRESS	INITIAL
JEROME JANUS	VWD	jjanus@vwd.org	
JON SHERWOOD	VWD	jsherwood@vwd.org	
EUGENE RUZZINI	CITY SD OHS	ERuzzini@sandiego.gov	
DARIN GOLDEN	C.VFD	dgolden@ci.chula-vista.ca.us	DG
KEN MATSUMOTO	OFD	kmatsumoto@ci.oceanside.ca.us	KM
LORRIE TEATES	WATER AUTHORITY	lteates@SDCWA.ORG	
Kristen Miggans	CVPD	kmiggans@chulavistapd.org	KM
Walter Dancer	NCFD	wancer@nationalcity.ca.gov	WD
Camille Passon	PDC	camillep@projectdesign.com	CP
Gillian Molina	PDC	gillianm@projectdesign.com	GM

AGENDA June 25, 2009

Introductions

Schedule

- Key Dates/Near-Term, Long-Term
- Schedule
-

Planning Process – Where Are We Now ?

- Assessing Risks – Steps 1-4
- List of Major Disaster/Hazard Events

Profiling Hazards

- Assessing Risks
- Hazards Identified – FOUO and NFOUO

What's Next ?

- Step 3: Inventory Assets
- Step 4: Estimate Losses

Next Meeting – Time and Location

July 30, 2009 0900 – 1200

OES

AGENDA July 30, 2009

Introductions

Schedule

- Key Dates/Near-Term, Long-Term

Collect Homework Assignments/Action Item Status

Assessing Risk

- Inventory Assets
- 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

Data Matrix

Letters of Participation

Will be provided when all letters are received.

Appendix D
2005 – 2009 Priority Action Item Implementation Status
City of Carlsbad

Priority	Action Item Number	Description	Status
1.	1.A.3 2.A.1 1.E.2	Work with Communications Officer to create public awareness and knowledge of hazard mitigation principles and practices. Coordinate production of brochures.	A preparedness section has been added to the City's website.
2.	6.A.3	Continue with Hosp Grove trimming and replanting effort.	Delayed
3.	6.A.1	Review and evaluate City Landscape Design Manual (remove fire suppression zone and move to Fire Code)	Manual was reviewed. It was decided to leave the fire suppression zone language in the manual until the next fire code adoption, scheduled.
4.	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.	Ordinance updated August, 2006. Annual weed abatement schedules developed.
5.	1.B.2	Develop, implement and support an Open Space Management Plan (database)	Delayed
6.	2.C.1	Incorporate GIS mapping and modeling in to EOC	
7.	3.A.1	Update inundation maps every 10 years.	Delayed
8.	Attach. A 1,B.1	Coordinate with County Hazardous Materials Division (previously Hazardous Materials Management Division)	On-going
9.	1.A.1	Maintain hazardous materials business plans in duty battalion chief vehicles	Completed. On-going
10.	4.A.3	Continue periodic updates of local building codes, public works construction codes, zoning and grading ordinances to reflect legislative changes.	Completed

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City of Chula Vista

Priority	Action Item Number	Description	Status
1.	1.A.1	Update City's General Plan periodically and recommend improvements to the Safety Element, as funding is available.	Completed, on-going
2.	5.A.3	Update Drainage Element of General Plan based upon actual, developed conditions (General Plan, GMOC Section) as funding is available.	Completed, on-going.
3.	5.D.1	Periodically review City compliance with NFIP requirements as funding is available.	On schedule, on-going.
4.	5.D.3	Update flood layers in GIS upon FEMA approval of LOMRs/LOMAs.	Completed.
5.	1.E.1	Use hazard overlays to identify hazard-prone new development, as funding is available.	Completed.
6.	2.B.2	Actively participate in the San Diego County Multi-Hazard Mitigation Plan process.	Completed, on-going.
7.	5.A.4	Continue to review applications for new development within the City in compliance with 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.	Completed, on-going.
8.	2.A.2	Provide Chula Vista citizens with CERT training opportunities to increase public awareness of hazards and response to hazards, as funding is available.	Completed. CERT program established in 2006 and is on-going.
9.	5.B.1	Continue to require structural flood control improvements of new development where flooding is already a problem.	Completed, on-going.
10.	Attach. A 1.B.2	Fire Department via it's 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.	Completed, on-going.

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City of Coronado

Priority	Action Item Number	Description	Status
1.	7.A.1	Provide public education through CERT training.	Complete, on-going
2.	Attach A 1.A.2	Inspections to verify accuracy of existing Hazardous Materials database.	On-going.
3.	Attach. A 1.B.1	Pre-incident plan to mitigate hazards and maximize response.	Completed. Hardcopy in each first responder vehicle.
4.	2.B.1	Participate in Multi-Hazard Mitigation Plan planning process. Adopt and implement as much of the plan as practical.	On-schedule, on-going.
5.	2.A.2	Use an emergency preparedness newsletter to educate the public.	Completed. Distribution on-going.
6.	2.B.1	Community forum to educate the public on hazardous materials and terrorism.	Delayed
7.	4.B.1	SEMS training for City personnel.	Completed, on-going
8.	4.B.2	Conduct EOC drills	Completed, on-going.
9.	3.C.1	Update Emergency Preparedness information on the City of Coronado website.	Completed, on-going.
10.	3.A.1	Include other agencies in the EOC drills.	Completed, on-going.

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City of Del Mar

Priority	Action Item Number	Description	Status
1.	5.A.1 5.A.2	Explore strategies to develop an early warning/public emergency notification system. Finish development of a comprehensive evacuation plan.	Complete.
2.	5.B.1 5.B.2	Continue efforts to relocate the train tracks off the coastal bluff region. Develop plans to retrofit the coast highway bridge to existing EQ standards. Monitor existing protective measures to assure continued improvement and effectiveness in addressing the effects of geological hazards local land mass and infrastructure.	
3.	4.B.1	Coordinate with and support existing efforts to mitigate wildfire hazards. Develop mitigation measures to enhance protection of homes along And in Crest Canyon area. Work in conjunction and cooperation with the applicable regulatory governmental agencies. Coordinate with other agencies to ensure consistency among standards.	On-going.
4.	4.A.1 4.A.2 4.A.3	Annually review and update wildland pre-plans for fire-fighting forces. Maximize utilization of outside firefighting equipment and staff resources. Implement Fire Code enhancements for wildland-urban interface.	On-going.
5.	Attach A 1.A.1 1.A.2	Coordinate with other agencies on training and planning for terrorist related activities. Maintain communications links with regards to threat assessments and dissemination of information.	On-going
6.	3.D.1 3.D.2 3.D.3	Work with regional agencies to accurately map affected areas. Share and train with acquired information with all City departments and personnel. Coordinate with City of Solana Beach joint training opportunities between staffs.	On-going. Del Mar now partnering with City of Encinitas for joint training.
7.	Attach A 2.A.1 2.A.2	Evaluate access levels to public facilities, restrict access where necessary. Evaluate infrastructure and facilities for additional security measures as required.	Completed, on-going. Del Mar participates in the CIPP.
8.	1.D.1 1.D.2	Utilize City newsletter, press releases and public meetings. Train and review with staff implemented programs as part of regular training.	Completed, on-going.
9.	1.E.1 1.E.2	Make hazard mitigation part of the planning and approval process. Step up Code Enforcement activities targeting these conditions.	Completed, on-going.

City of Del Mar (cont)

Priority	Action Item Number	Description	Status
10.	2.C.1 2.C.2 2.C.3	Find additional training opportunities for staff. Establish training schedule for tabletop exercises. Make this institutional for the staff.	Completed, on-going.

City of El Cajon

Priority	Action Item Number	Description	Status
1.		Evaluate security for City-owned facilities and provide plans for protecting assets	Completed.
2.	3.A.1	Train employees in potential hazards.	Initial training completed, on-going.
3.	2.C.1	Provide public education to area service groups.	Completed, on-going.
4.	2.C.2	Include hazard mitigation information in business license documents.	On-schedule, on-going.
5.		Include hazard mitigation information in public education activities.	Completed, on-going.
6.	2.A.1	Use established media including web page, newsletter, and City correspondence to educate the public.	Completed, on-going
7.	2.A.3	Inform public regarding hazard mitigation activities.	Completed. City added a PIO position.
8.	3.B.1	Include on City's website methods for hazard reporting.	Completed.
9.	Attach A 2.C.1	Establish a GISD component in the City EOC, including site-specific information.	Completed.
10.		Improve the City's capability and efficiency at administering pre- and post-disaster mitigation.	Completed.
11.		Evaluate all City-owned facilities for seismic stability and recommend for mitigation if so indicated.	Completed.

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City of Encinitas

Priority	Action Item Number	Description	Status
1.	3.B.1	Seismically upgrade Fire Stations #1, #2 (originally constructed in 1957 and 160, respectively) to meet existing building codes	Station 2 is currently in the design review process with construction expected to be completed in 2011. Reconstruction of Station 1 is contingent on available funding after completion of Station 2.
2.	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 in a seismic event.	Completed.
3.	4.A.2	Institute a wildfire hazard reduction pilot project that reduces fuels in high-risk areas.	Completed.
4.	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 mitigation strategies.	Complete.
5.	3.E.2	Develop and provide the managers of mobile home parks and owners of multi-unit buildings with an EQ mitigation and safety guide, with information on how to improve the seismic performance of mobile homes and buildings.	Delayed
6.	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 low cost options to retrofit unreinforced masonry buildings.	On-going
7.	4.E.3	Develop A CERT curriculum for training volunteers to assist evacuation efforts in their neighborhoods.	Completed, on-going.
8.		As funding becomes available, conduct a study to determine the types and amounts of materials transported by rail through the City.	On schedule for completion summer of 2010.

City of Encinitas (cont)

Priority	Action Item Number	Description	Status
9.	2.A.2	Develop business resumption plan for city operations.	Completed.
10.		Develop SOPs and checklists for recovery operations for use by city's emergency management team with the EOC.	Delayed

City of Escondido

Priority	Action Item Number	Description	Status
1.	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.	Delayed due to environmental concerns and cost of project.
2.	6.C.1	Ensure the City's MHCP Sub-area Plan maintains incorporates current fire protection measures and implement fire measure in Daley Ranch, consistent with the existing Conservation Agreement and the Daley ranch Master Plan.	Delayed due to unrealistic expectations regarding environmental monitoring.
3.	6.C.2	Coordinate prescriptive burns in conjunction with CalFire in accordance with the City's MHCP, Daley Ranch Conservation Agreement and the Daley Ranch Master Plan.	Not completed. Replaced by #10.
4.	7.C.1	Develop timeframes and funding mechanism for the ultimate replacement or renovation of the Dixon and Wohlford dams.	Deleted due to prohibitive cost. Replaced with #11
5.	Attach A 1.C.1	Encourage use of alternate technologies.	Deleted. Replaced with #12.
6.	Attach A 1.C.2	Require the "timely" disposal of spent material.	Deleted. Considered duplicative with County efforts. Replaced by #13.
7.	Attach A 1.D.2	Limit transportation to hours of less traffic congestion as determined necessary through the environmental and developmental review process.	Never implemented. Replaced with #14
8.	Attach A 1.D.3	Inspect all transports for compliance with any measures identified by the environmental or developmental review processes to mitigate a potentially significant effect.	
9.	Attach A 1.F.1	Perform annual "table top" exercise.	Completed.
10.	6.A.4	Improve emergency vehicle access in Daley Ranch	Delayed due to funding
11.		Monitor and maintain Wohlford and Dixon dams	On-going.
12.		Implement a community emergency notification system.	Completed.

City of Escondido (cont)

Priority	Action Item Number	Description	Status
13.	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.	Completed
14.		Continue to assist local residents and businesses with their disaster preparedness plans, including regular disaster education presentations.	Not implemented due to lack of staff.

City of Imperial Beach

Priority	Action Item Number	Description	Status
1.	Attach A 1.F.1 1.F.2	Develop plan for upgrading City EOC. Install emergency management software in the City EOC. Incorporate GIS mapping and modeling into the City EOC.	Completed.
2.	Attach A 1.C.2	Conduct training and exercises for all employees.	Completed, on-going.
3.	8.D.3	Seek pre-disaster mitigation funding.	Completed.
4.	2.A.2	Provide information to the public on the City website, Newsletter, Citywide mail outs, Prevention Program and in conjunction with Special Events.	Completed, on-going.
5.	6.D.3	Encourage the public to prepare and maintain a 3-day preparedness kit for home and work.	On-going
6.	2.A.8	Establish and maintain CERT program for the City,	Completed, ongoing. CERT established April, 2006
7.	3.B.1	Coordinate the development of a multi-jurisdictional plan.	On-going.
8.	4.A.1	Encourage and assist in development of multi-jurisdictional/multi-functional training and exercises to enhance hazard mitigation.	Completed, on-going
9.	8.C.2	Improve hazard warning and response planning.	Completed.
10.		Form City Working Group to update and monitor the HMP.	Not implemented due to lack of staff.

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City of La Mesa

Priority	Action Item Number	Description	Status
1.	1.A.1	Continue to update plans and ordinances to stay current with mitigation responsibilities.	Completed, on-going.
2.	2.A.2	Through print media and the City website, continue to make available information regarding hazard mitigation in the City of La mesa.	Completed, on-going.
3.	2.B.1	Continue to use County and State OES (now CalEMA) to coordinate and assist in implementation of mitigation awareness and efforts.	On-going.
4.	6.B.1	Continue current practice of weed abatement in all city areas that are vulnerable.	On-going.
5.	6.C.1	Continue to participate in Zone, County and State mutual and automatic aid agreements.	Completed, on-going
6.	Attach A 1.A.1	Coordinate with other agencies and departments on training and planning for terrorist activities.	On-going. City has participated in several regional terrorism exercise.
7.	Attach A 1.A.2	Maintain communication links that disseminate intelligence information.	On-going.
8.	8.A.1	Continue use of Uniform (now California) Building Code in all areas of new construction and remodel activity within the City.	Completed, on-going
9.	3.A.2	Continue to conduct annual EOC drills at the city level.	On-going
10.	3.B.1	At the regional level, continue to be a part of the development of the regional plan.	On-going.

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City of Lemon Grove

Priority	Action Item Number	Description	Status
1.	2.A.1	Build and support local partnerships, such as the Unified Disaster Council (UDC) and the Homeland Preparedness Coordination Council (HPCC) and the coordination of mutual aid agreements.	On-going.
2.	2.A.3	Build hazard mitigation concerns into City of lemon Grove planning and budgetary process.	On-going
3.	2.C.1	Publish educational information in the City newsletter and on the City's website.	Newsletter established 10/06. Website up 3/07. On-going.
4.	3.A.2	Encourage development of standardized Emergency Operations Plans within the City of Lemon Grove that coordinate with countywide Emergency Operations Plans.	On-going
5.	3.B.2	Streamline policies to eliminate conflicts and duplication of effort.	On-going.
6.	3.B.3	Exchange resources and work with other agencies.	On-going
7.	4.A.1	Review and compare existing flood control standards, zoning and building requirements.	On-going
8.	4.A.2	Adopt policies that discourage growth in flood-prone areas.	On-going
9.	5.A.1	Update Building Codes to reflect current standards.	Completed, on-going
10.	5.A.2	Identify hazard-prone areas.	On-going.

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City of National City

Priority	Action Item Number	Description	Status
1.	7.B.1	Maintain response times, pumping capacity and apparatus and equipment deployment objectives.	On-going.
2.	7.A.7	Maintain/update all Arson Registrants with required registration and conditions of probation or parole.	On-going
3.	Attach A 1.E.3	Work with the Anti-terrorism Advisory Council (ATAC)	Completed. Began participating in the Joint Terrorism Task Force in 1/06.
4.	1.B.3	Adopt and implement lead based paint ordinance.	
5.	6.A. 2	Continue maintenance of the storm water system in operable conditions.	On-going.
6.	2.E.1	Implement code enforcement for buildings without permits.	Completed.
7.	7.A.3	Maintain a fire prevention program.	Delayed
8.	7.D.1	Implement GIS Program.	Completed.
9.	1.A.1	Continue to update General Plan periodically.	Completed, on-going
10.	1.A.2	Continue to update Land Use Code periodically.	Completed, on-going.

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City of Oceanside

Priority	Action Item Number	Description	Status
1.	1.A.1	Adoption of most current Building, Engineering and Fire Codes.	
2.	1.B.1	Pursue vegetation management within river and creek channels	On-going
3.	2.A.1	Enhance public awareness of hazard mitigation efforts utilizing Oceanside's local public access channel (KOCT) and available print medias.	On-going annual production.
4.	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. Use of the City's quarterly magazine.	On-going quarterly production.
5.	2.A.3	Promote "Personal Preparedness" by production and distribution of video and print materials through public access TV and local libraries.	On-going annual production.
6.	4.A.1	Plan, practice, exercise and operate the City's Emergency Operations Center (EOC) following the Standardized Emergency Management System (SEMS) and the Incident Command System (ICS).	On-going.
7.	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.	Cancelled.
8.	5.A.2	Replacement of Oceanside Fire Stations #1 and #7 with modern, hazard resistant, emergency self-supported, facilities.	Delayed.
9.	5.A.3	Replace underground fuel storage tanks with above ground tanks at all City facilities.	Cancelled due to lack of space at city facilities for the above ground tanks.
10.	5.A.1	Develop an integrated communications/notification plan utilizing 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.	Cancelled.

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City of Poway

Priority	Action Item Number	Description	Status
1.	Attach A 1.C.1	Update Emergency response Plan.	Completed.
2.	3.A.3	Initiate plan to acquire access and evacuation routes in City, particularly in the High valley area.	On-going.
3.	3.B.3	Remove excess sediment from channels and make structural improvements.	Completed. On-going annual project.
4.	3.A.6	Update Water Master Plan including fire protection upgrades if necessary.	Completed.
5.	3.C.4	Purchase emergency generators for Public Works Department.	Completed.
6.	3.C.5	Evaluate and implement a plan to make the Public Works Operations site into a second EOC in addition to the City Hall/Fire Station 1 location.	In progress.
7.	3.C.1	Develop and initiate an action plan to prevent and prepare for potential rockslides on Poway Grade and Pomerado Road.	On-going annual project.
8.	3.A.5	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.	Completed.
9.	3.A.1 1.A.2	Update FEMA maps and planning overlay maps regarding flood risk and potential wildfire areas.	On-going. This was determined to be a routine staff effort.
10.	3.C.10	Acquire treated water connection from San Diego County Water Authority for use in emergency.	Cancelled.

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City of San Diego

Priority	Action Item Number	Description	Status
1.	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.	Completed.
2.	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.	Completed.
3.	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.	Completed
4.	8.A.2	Develop a means of providing water for firefighting when water service is disrupted	On schedule for completion in 2010.
5.	3.A.4	Build hazard mitigation concerns into the City' of San Diego planning and budgetary processes.	Delayed.
6.	5.A.3	Provide to critical City of San Diego facilities backup electrical power, fuel, and necessary supplies in case of major power outages.	Completed.
7.	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.	Completed.
8.	5.A.2	Develop a post-disaster construction and demolition ordinance, which includes alternate recycling and disposal sites.	Completed.

Priority	Action Item Number	Description	Status
9.	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.	On-going.
10.	4.C.1	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.	Completed. On-going 3 year exercise cycle.
11.	4.B.1	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.	On-going.
12.	4.A.2	Encourage development of standardized Emergency Operations Plans within the City of San Diego that coordinate with County-wide Emergency Operations Plans.	
13.	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).	On-going.
14.	1.A.1	Update the Public Facilities, Services, and Safety elements of the City's General Plan.	Completed.
15.	5.A.4	Replace all underground petroleum storage tanks with above ground tanks at critical City facilities.	Long-term project. On schedule.
16.	3.A.2	Build a team of community volunteers to work with the community before, during, and after a disaster.	Completed.
17.	2.B.1	Utilize SANDAG to assist in gathering and/or providing information for regional hazard mitigation.	Completed.

City of San Diego (cont)

18.	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.	In progress.
19.	6.A.1	Work with Federal and State authorities regarding regulations that add expense and time to flood control measures and maintenance activities.	
20.	7.A.1	Utilize SANGIS to develop GIS-based severe weather zone mapping.	
21.	9.A.1	Enhance the Open Space Brush Management Program to ensure compliance with brush management requirements.	On-going.
22.	9.A.2	Establish an urban/wild land fire technical working group in conjunction with County and State representatives.	Completed.

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City of San Marcos

Priority	Action Item Number	Description	Status
1.	6.A.1	Implement a public education program to increase the awareness of the public to the threat of wildfire to the City of San Marcos.	On-going
2.	6.A.2	Increase fuel modification requirements for new development from 100 feet to 150 feet.	Completed.
3.	6.A.5	Increase Fire Prevention Staff as appropriate	Completed.
4.	6.B.1	Develop pre incident plans for high vulnerability wildland urban interface areas.	Delayed.
5.	8.A.1	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.	Delayed.
6.	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.	Completed.
7.	Attach A 1.A.5	Pursue State and/or Federal grants as available to assist in reducing losses due to other manmade hazards.	On-going.
8.	6.B.7	Develop map showing parcel ownership information to assist with identifying available funding for vegetation clearance.	Completed.
9.	Attach A 1.B.3	Equip and train personnel on use of hazardous materials release mitigation tools and equipment.	Cancelled.
10.	5.A.1	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.	Delayed.

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City of Santee

Priority	Action Item Number	Description	Status
1.	6.A.3	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.	On-going.
2.	6.B.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	On-going.
3.	6.C.1	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.	Completed, on-going.
4.	7.A.1 7.A.2 7.A.3	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.	On-going.
5.	8.A.1 8.A.2 8.B.2	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.	Delayed.

City of Santee (cont)

Priority	Action Item Number	Description	Status
6.	9.A.1 9.A.2	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.	Completed, on-going.
7.	9.A.3 9.A.4	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.	On-going.
8.	9.B.1 9.B.2	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.	On-going.

City of Santee (cont)

9.	Attach A 1.A.1 1.A.2 1.A.3	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.	Completed, on-going.
10.	Attach A 2.C.1 2.C.2	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	Completed, on-going.

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City of Solana Beach

Priority	Action Item Number	Description	Status
1.	5.A.1 5.A.2 5.B.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.	
2.	5.B.1 5.B.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.	
3.	4.B.1 4.B.2 4.B.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.	
4.	4.A.1 4.A.2 4.A.3	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.	
5.	Attach A 1.A.1 1.A.2	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.	

City of Solana Beach (cont)

Priority	Action Item Number	Description	Status
6.	3.D.1 3.D.2 3.D.3	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 departments and personnel. Coordinate with City of Del Mar joint training opportunities between staffs.	
7.	Attach A 1.B.1 1.B.2	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.	
8.	1.A.1 1.D.1 1.D.2	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.	
9.	1.E.1 1.E.2	Discourage activities that exacerbate hazardous conditions. Make hazard mitigation part of the planning and approval process. Step up Code Enforcement activities targeting these conditions	
10.	2.C.1 2.C.2 2.C.3	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.	

City of Vista

Priority	Action Item Number	Description	Status
1.	4.A.1	Establish a City Emergency Operations Center (EOC) and Department Operations Centers to act as command and control coordination centers during disasters.	Delayed due to funding.
2.	4.A.2	Train city employees and volunteers to operate the City EOC following the Standardized Emergency Management System (SEMS) and the Incident Command System (ICS).	Completed, on-going.
3.	4.A.3	Update City Emergency Plan	On schedule to be revised with County-wide EOP during 2010.
4.	2.A.1	Develop public education curriculum to increase awareness of disasters and pre-existing hazards.	Completed, on-going.
5.	2.B.1	Promote cooperative vegetation management programs that encompass hazard mitigation in the city and unincorporated areas that threaten the city.	On-going.
6.	3.A.4	Build a team of community volunteers to work with the community before, during, and after a disaster.	Completed.
7.	Attach a 1.A.2	Ensure city personnel are properly equipped for emergency response and self-protection from incidents of terrorism.	Completed, on-going.
8.	1.E.1	Develop Geographic Information Systems (GIS) capabilities to identify hazards and general hazard areas.	Completed.
9.	7.A.5	Develop a City Government Continuity Plan.	In progress.
10.	5.B.1	Develop project proposals to reduce flooding and improve control of storm waters in flood-prone areas.	On-going.

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County of San Diego

Priority	Action Item Number	Description	Status
1.	3.B.1	Coordinate the development of a multi-jurisdictional plan.	Plan completed 2006, will be revised 2010.
2.	4.E.1	Develop two Multi-hazard Assessment Teams (MAT).	
3.	10.A.1	Update the County Consolidated Fire Code every three years.	On-going.
4.	2.B.3	Promote cooperative vegetation Management Programs that incorporate hazard mitigation	On-going.
5.	2.A1	Publicize and encourage the adoption of appropriate hazard mitigation actions.	Completed, on-going.
6.	6.A.1	Update Building Codes to reflect current earthquake standards.	Completed.
7.	9.A.1	Review and compare existing flood control standards, zoning and building requirements.	On-going.
8.	Attach A 1.C.3	Develop a Business Continuity Plan for each county department.	Completed.
9.	10.C.2	Develop partnerships for a countywide vegetation management program.	Completed, on-going.
10.	Attach A 1.E.1	Encourage the public to prepare and maintain a 3-day preparedness kit for home and work.	Completed, on-going.

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