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RESOLUTION NO. 2016-209

RESOLUTION OF THE MAYOR AND COMMON COUNCIL OF THE CITY OF SAN BERNARDINO APPROVING AND ADOPTING THE CITY'S UPDATED LOCAL HAZARD MITIGATION PLAN (LHMP) AND AUTHORIZING SUBMITTAL OF THE LHMP TO THE REGIONAL FEDERAL EMERGENCY MANAGEMENT AGENCY OFFICE

WHEREAS, the Disaster Mitigation Act of 2000 (OMA 2000) (Public Law 106-390) amended the Robert T. Stafford disaster Relief and Emergency Assistance Act by repealing the previous mitigation planning section (Section 409) and replacing it with Section 322;

WHEREAS, to implement the OMA 2000 planning requirements, the Federal Emergency Management Agency (FEMA) published Interim Final Rules (IFRs) in the Federal Register on February 26, 2002 and October 1, 2002;

WHEREAS, these IFR's established the mitigation planning requirements for local governments and required that in order to remain eligible to receive funding for both pre-disaster and post-disaster mitigation project funding, a local government must have a FEMA approved and locally adopted Local Hazard Mitigation Plan written in accordance with section 322 of the Act;

WHEREAS, the Local Hazard Mitigation Plan was developed and updated by San Bernardino County Fire, Office of Emergency Services in accordance with above mentioned Federal, State, and County guidelines;

WHEREAS, the Mayor and Common Council hereby confirm that the City's Local Hazard Mitigation Plan has been prepared in accordance with above mentioned guidelines; and

NOW THEREFORE, BE IT RESOLVED BY THE MAYOR AND COMMON COUNCIL OF THE CITY OF SAN BERNARDINO AS FOLLOWS:

SECTION 1. The Mayor and Common Council hereby approve and adopt the City's updated Local Hazard Mitigation Plan, a copy which is attached as Exhibit "A" and incorporated herein by reference.

SECTION 2. The City Manager or his designee is authorized to submit the City's updated Local Hazard Mitigation Plan to the Regional office of the Federal Emergency Management Agency.

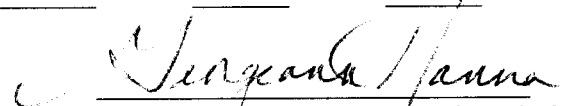
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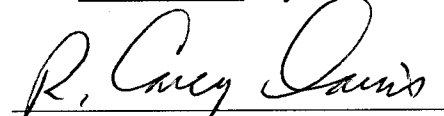
RESOLUTION OF THE MAYOR AND COMMON COUNCIL OF THE CITY OF SAN BERNARDINO APPROVING AND ADOPTING THE CITY'S UPDATED LOCAL HAZARD MITIGATION PLAN (LHMP) AND AUTHORIZING SUBMITTAL OF THE LHMP TO THE REGIONAL FEDERAL EMERGENCY MANAGEMENT AGENCY OFFICE

I HEREBY CERTIFY that the foregoing Resolution was duly adopted by the Mayor and Common Council of the City of San Bernardino at a joint adjourned regular meeting thereof, held on the 10th day of October, 2016, by the following vote, to wit:

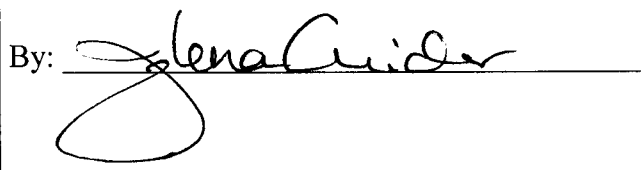
COUNCILMEMBERS:	AYES	NAYS	ABSTAIN	ABSENT
MARQUEZ	<u>X</u>	_____	_____	_____
BARRIOS	_____	_____	_____	<u>X</u>
VALDIVIA	_____	_____	_____	<u>X</u>
SHORETT	<u>X</u>	_____	_____	_____
NICKEL	<u>X</u>	_____	_____	_____
RICHARD	_____	_____	_____	<u>X</u>
MULVIHILL	<u>X</u>	_____	_____	_____


 Georgeanna Hanna, CMC, City Clerk

The foregoing Resolution is hereby approved this 14th day of October, 2016.


 R. Carey Davis, Mayor
 City of San Bernardino

Approved as to form:
 Gary D. Saenz, City Attorney

By: 



Hazard Mitigation Plan Update

City of San Bernardino

May 1, 2016

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RESOLUTION

Place Holder for City Council Resolution

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Section 1. Introduction

The LHMP update is a “living document” that should be reviewed, monitored, and updated to reflect changing conditions and new information. As required, the LHMP must be updated every five (5) years to remain in compliance with regulations and Federal mitigation grant conditions. In that spirit, this Local Hazard Mitigation Plan (LHMP) is an update of the City of San Bernardino LHMP approved by FEMA on April 29, 2005. This LHMP presents updated information regarding hazards faced by the City of San Bernardino. The Plan also presents mitigation measures taken to help reduce consequences from hazards, and outreach/education efforts within the City’s incorporated area since 2005.

City of San Bernardino

The incorporated Area of City of San Bernardino has a population of 213,295 (2012 census estimate) persons and covers 59.6 square miles. There are 65,401 housing units in the City with an average of 3.35 persons per household. Median household income in 2011 was \$40,161. Median value of owner occupied housing units (51.7%) is \$202,400. Percent of population below the poverty level in 2011 was 28.6%. The City of San Bernardino is the County Seat for the County of San Bernardino. Services provided by the City of San Bernardino to the residents and citizens of the area include Law Enforcement, Fire Protection, Building and Safety Services, Library, Parks and Recreation, and Human Services (social services). Two Interstate Highways and three inter-continental railroad lines cross the City, providing vital transportation links from southern California to the remainder of the United States.

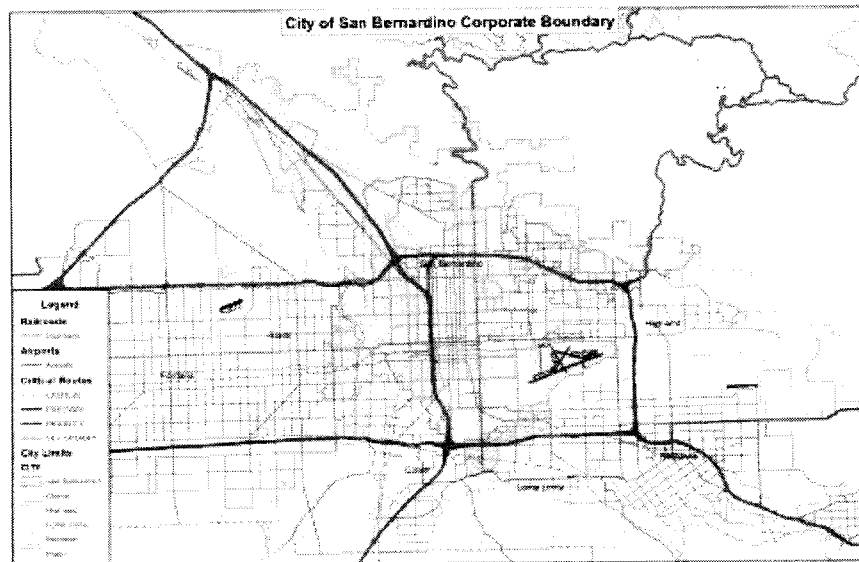


Figure 1 Corporate Boundary for City of San Bernardino

1.1. Purpose of the Plan

The intent of hazard mitigation is to reduce and/or eliminate loss of life and property. Hazard mitigation is defined by FEMA as *“any action taken to reduce or eliminate the long-term risk to human life and property from natural hazards.”* FEMA defines a *“hazard”* as *“any event or condition with the potential to cause fatalities, injuries, property damage, infrastructure damage, agricultural loss, environmental damage, business interruption, or other loss.”*

The purpose of the Local Hazard Mitigation Plan (LHMP) is to demonstrate the plan for reducing and/or eliminating risk in the City of San Bernardino. The LHMP process encourages communities to develop goals and projects that will reduce risk and build a more disaster resilient community by analyzing potential hazards. By cooperatively and jointly together as a Local Planning team, the partners were able to develop common goals and objectives for mitigation efforts. The individual stakeholders can then take the goals and objectives back to their individual Special Districts for discussion, ranking and project development, and then bring the resulting projects back to the Local Planning Team. The Local Planning Team can then integrate all projects into the appropriate project listing to be acted upon by the most appropriate special District for the listed project.

After disasters, repairs and reconstruction are often completed in such a way as to simply restore to pre-disaster conditions. Such efforts expedite a return to normalcy; however, the restoring of things to pre-disaster conditions sometimes result in feeding the disaster cycle; damage, reconstruction, and repeated damage. Mitigation is one of the primary phases of emergency management specifically dedicated to breaking the cycle of damage. Hazard mitigation is distinguished from other disaster management functions by measures that make City development and the natural environment safer and more disaster resilient. Mitigation generally involves alteration of physical environments, significantly reducing risks and vulnerability to hazards by altering the built environment so that life and property losses can be avoided or reduced. Mitigation also makes it easier and less expensive to respond to and recover from disasters.

Also with an approved (and adopted) LHMP, the City and its Special Districts are eligible for federal disaster mitigation funds/grants (Hazard Mitigation Grant Program, Pre-Disaster Mitigation, and Flood Management Assistance) aimed to reduce and/or eliminate risk.

1.2. Authority

In 2000, FEMA adopted revisions to the Code of Federal Regulations. This revision is known as “Disaster Mitigation Act (DMA).” DMA 2000, Section 322 (a-d) requires that local governments, as a condition of receiving federal disaster mitigation funds, have a Local Hazard Mitigation Plan (LHMP) that describes the process for assessing hazards, risks and vulnerabilities, identifying and prioritizing mitigation actions, and engaging/soliciting input from the community (public), key stakeholders, and adjacent jurisdictions/agencies.

1.3. Community Profile

Physical Setting

The City is bounded by the City of Highland on the east, the San Manuel Indian Reservation and the San Bernardino National Forest on the north, the Cities of Rialto and Fontana on the west, and the cities of Redlands, Loma Linda, and Colton on the south.

The City of San Bernardino covers 59.7 square miles and is geographically the fourth largest city in the County of San Bernardino. The City lies in the San Bernardino foothills and the eastern portion of the San Bernardino Valley, roughly 60 miles (97 km) east of Los Angeles. Some major geographical features of the City include the San Bernardino Mountains, the San Bernardino National Forest, in which the city's northernmost neighborhood, Arrowhead Springs, is located, and the Cajon Pass adjacent to the northwest border. City Creek, Lytle Creek, San Timoteo Creek, Twin Creek, Warm Creek (as modified through flood control channels) feed the Santa Ana River, which forms part of the city's southern border south of San Bernardino International Airport.

San Bernardino is unique among Southern Californian cities because of its wealth of water, which is mostly contained in underground aquifers. A large part of the city is over the Bunker Hill Groundwater Basin, including downtown. This fact accounts for a historically high water table in portions of the city, including at the former Urbita Springs, a lake that no longer exists and is now the site of the Inland Center Mall. Seccombe Lake, named after a former mayor, is a manmade lake at Sierra Way and 5th Street. The San Bernardino Valley Municipal Water District ("Muni") has plans to build two more large, multi-acre lakes north and south of historic downtown in order to reduce groundwater, mitigate the risks of liquefaction in a future earthquake, and sell the valuable water to neighboring agencies.[citation needed]

The City has several notable hills and mountains; among them are: Perris Hill (named after Fred Perris, an early engineer, and the namesake of Perris, California); Kendall Hill (which is near California State University); and Little Mountain, which rises among Shandin Hills (generally bounded by Sierra Way, 30th Street, Kendall Drive, and Interstate 215).

Freeways act as significant geographical dividers for the city of San Bernardino. Interstate 215 is the major east-west divider, while State Route 210 is the major north-south divider. Interstate 10 is in the southern part of the city. Other major highways include State Route 206 (Kendall Drive and E Street); State Route 66 (which includes the former U.S. 66); State Route 18 (from State Route 210 north on Waterman Avenue to the northern City limits into the mountain communities), and State Route 259, the freeway connector between State Route 210 and I-215. The Santa Ana River originates in the San Bernardino Mountains and flows southwest to the ocean. The Santa Ana Watershed includes streams flowing south from the San Gabriel Mountains and streams flowing north and west from the San Jacinto Mountains in Riverside County.

The neighborhoods of San Bernardino are not commonly named. Some reflect geographical regions that existed before annexation, and others originated with specific housing developments. Arrowhead Springs extends from the historic Arrowhead Springs Hotel and Spa in the north to I-210 in the south and from Shandin Hills in the west to east Twin Creek in the east. Del Rosa is the area generally between the foothills and Highland, Mountain and Arden Avenues. Delmann Heights is the area north of Highland Avenue, west of I-215, and east of the unincorporated area of Muscoy, California (which is within the city's sphere of influence for annexation as well as Devore). Some portions of Highland are within the city of San Bernardino, generally consistent with the portions of historical "West Highlands" north of Highland Avenue. The city also contains the post office for Patton, California, the area coextensive with Patton Hospital. Mountain Shadows is the development name for the area between Palm Avenue and Highland Avenue to State Route 330. The "West Side" is used generically to refer to the areas West of I-215. North Loma Linda is the area west of Mountain View Acres (the border with Redlands), south of the Santa Ana River, north of the San Bernardino Freeway (I-10), and east of Tippecanoe Avenue. The area north of Northpark Boulevard from University Parkway to Electric Avenue, and the area north of 40th Street from Electric Avenue to Harrison Street is called Newberry Farms. The area west of University Parkway and north of Kendall Drive to the north city area is called Verdemont. The "Bench" or "Rialto Bench" refers to the area with Rialto mailing addresses between Foothill Boulevard and Base Line Street.

San Bernardino is divided into several districts. Many hotels, restaurants, and retail establishments have been built around Hospitality Lane in the southern part of the city, creating an informal business district. Downtown is its own district with shopping and government buildings. In the foothills of the San Bernardino Mountains lies the University District, which is a commercial area designed to support the California State University with shopping, dining, and high-density residential space. On the southern side of I-215 and the University District is the Cajon Pass light-industrial district where warehouses are situated to take advantage of this important connection between Southern California and the rest of the United States. On the opposite side of the city is the San Bernardino International Gateway, which encompasses the San Bernardino International Airport (SBD) and the Alliance California Logistics campus (air cargo hub). Nearby is the Burlington Northern Santa Fe rail hub. The combination of these assets (airport; rail hub; extensive freeway system; and, Cajon Pass) makes the city important in the movement of goods and people between Southern California and the rest of the United States.

The City of San Bernardino is in the process of developing an historic district around the 1918 Santa Fe Depot, which recently underwent a \$15.6 million restoration. When completed, this area will connect to the downtown district with period streetlights and street furniture, historic homes and other structures, a new museum, coffee bars and, a Mercado (market) with an architectural style in keeping with the Mission Revival station.

City of San Bernardino

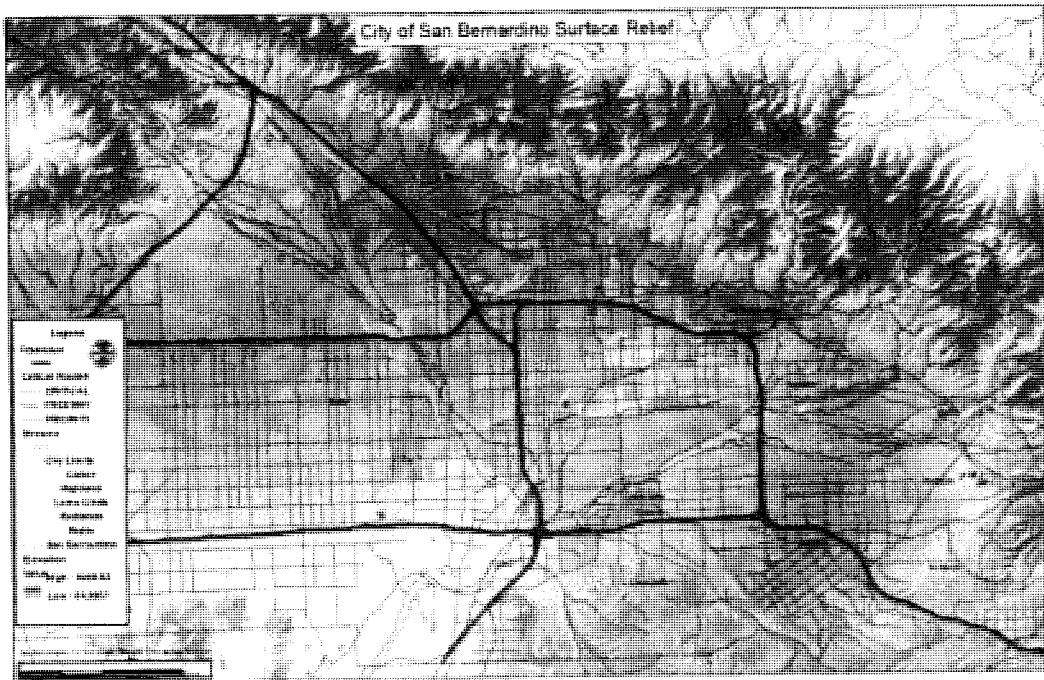


Figure 2. Topographic Features in City of San Bernardino

History

Paleo-Indian sites dating from c. 10,000 BC show that the City of San Bernardino area inhabited for at least 12,000 years. Artifacts in the nearby Calico area suggest much earlier human occupation, but this has not been confirmed. In the past three thousand years, various Indian tribes flourished in the area: the Gabrielenos occupied the West Valley; the Serranos lived in the foothills of the San Bernardino Mountains; the Vanyumes lived along the Mojave River; the Mohave lived along the Colorado River; and the Chemehuevi occupied the Mojave Desert.

The first European explorers to enter the area were Pedro Fages, Military Commander of California, in 1772 and Fr. Francisco Garces, a missionary priest, in 1774. On May 20, 1810, Franciscan missionary Francisco Dumatz, of the San Gabriel Mission, led his company into a valley. In observance of the feast day of St. Bernardine of Siena, Dumatz named the valley San Bernardino. This name was later given to the nearby mountain range, and later the city and county.

In 1842, the Lugo family was granted the Rancho San Bernardino, a holding of 37,700 acres encompassing the entire San Bernardino Valley. Captain Jefferson Hunt, of the Mormon Battalion, led a group of settlers into San Bernardino and founded a Mormon Colony. In 1851, the Mormon Colony purchased the Rancho from the Lugo family.

In 1850, California was admitted into the United States. On April 26, 1853, City of San Bernardino was created from parts of Los Angeles, San Diego, and Mariposa Counties. In 1854, the City of San Bernardino was incorporated as the county seat.

City of San Bernardino

In 1857, three orange trees were set out on a farm in Old San Bernardino. By 1882, a rail car load of oranges and lemons grown in the East Valley was shipped to Denver, Colorado. As early as the 1840s, vineyards were planted in the Cucamonga area and in the 1870 census; City of San Bernardino was credited with producing 48,720 gallons of wine.

In 1860, gold was discovered in Holcomb and Bear Valleys in the San Bernardino Mountains, and placer mining began in Lytle Creek. Silver was being mined at Ivanpah in 1870, and the rich silver mines of the Calico district were developed in the 1880s. Borax was first discovered in 1761 at Searles Dry Lake near Trona, and transported out by twelve-, eighteen- or twenty-mule team wagons. All these mining operations received supplies, support from City businesses, and used the City as a shipping point for their products.

Except for a brief period after World War I when silver prices were high, low metal prices and inflation put a damper on mining in the 1920s. However, with the Great Depression of the 1930's and an increase in the price of gold by nearly \$15 an ounce, many small operators reactivated old mines. The region around Barstow, Vanderbilt, Stedman, and Dale were the principal centers of mining activity until World War II.

During World War II, iron was extracted from the Vulcan Mine in the Providence Mountains, and the Bagdad Chase Mine remained active. Since the war, there has been sporadic mining of gold, silver, and tungsten in the county. A major new mine opened during the 1950s, the Mountain Pass rare earth mine. Recently, exploration has outlined potential large tonnage molybdenum properties in the New York and Ord Mountains, copper in the Cooper Basin area of the Whipple Mountains and gold in the Clark Mountains.

After World War II, the citrus industry slowly declined. However, dairies relocating out of Los Angeles County settled in the Chino Valley area, creating a robust dairy industry that included the City of San Bernardino. Elsewhere in the Valley region, suburbs grew as moderate priced housing developments were built. By the late 1980's, the city had grown into a bedroom community and warehousing center for southern California.

Climate

San Bernardino features a somewhat cooler version of a Mediterranean climate with cool to chilly winters (frost is common during this time of the year) and hot, dry summers. Relative to other areas in Southern California, winters are colder, with frost and with chilly to cold morning temperatures common. The particularly arid climate during the summer prevents tropospheric clouds from forming, meaning temperatures rise to what is considered by NOAA scientists as Class Orange. Summer is also a lot warmer with the highest recorded summer temperature at 117 °F (47.2 °C) in 1971. In the winter, snow flurries occur upon occasion. San Bernardino gets an average of 16 inches (406 mm) of rain, hail, or light snow showers each year. Arrowhead Springs, San Bernardino's northernmost neighborhood, gets snow, heavily at times due to its elevation of about 3,000 feet (910 m) above sea level.

The seasonal Santa Ana winds are felt particularly strongly in the San Bernardino area as warm and dry air is channeled through nearby Cajon Pass at times during the autumn months. This phenomenon

markedly increases the wildfire danger in the foothills, canyon, and mountain areas of the City that the cycle of cold, wet winters and dry summers helps create.

Demographics

The 2010 United States Census reported that San Bernardino had a population of 209,924. The population density was 3,519.6 people per square mile (1,358.9/km²). The racial makeup of San Bernardino was 95,734 (45.6%) White, 31,582 (15.0%) African American, 2,822 (1.3%) Native American, 8,454 (4.0%) Asian, 839 (0.4%) Pacific Islander, 59,827 (28.5%) from other races, and 10,666 (5.1%) from two or more races. Hispanic or Latino of any race were 125,994 persons (59.0%). Non-Hispanic Whites were 20.0% of the population in 2010, compared to 65.6% in 1970.

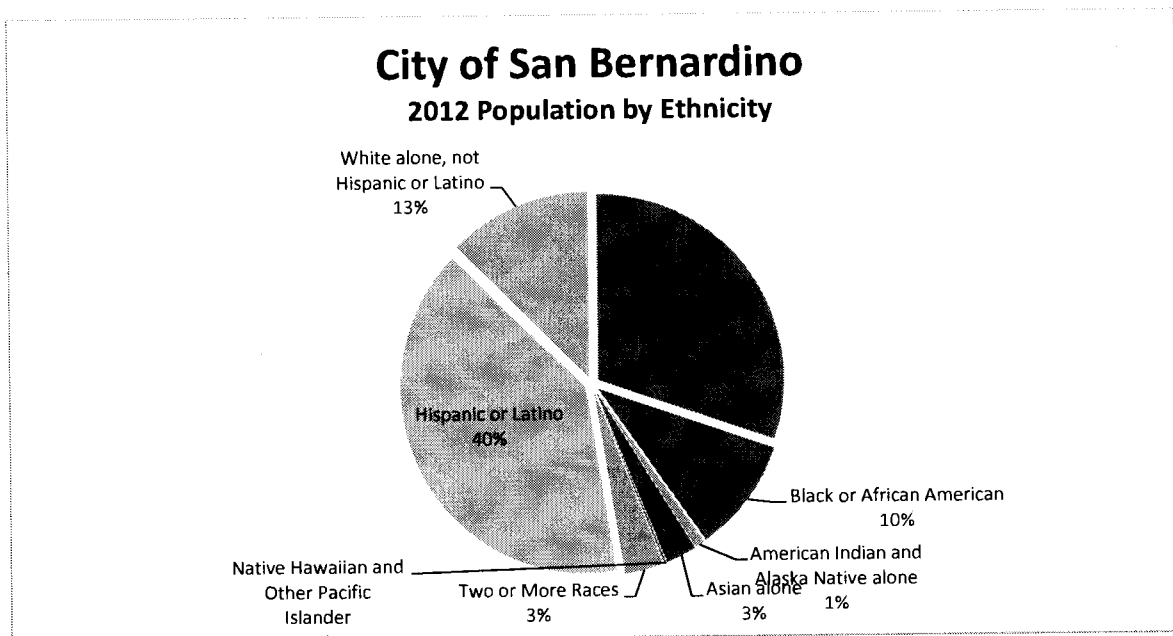


Figure 3 Population By Ethnicity

The Census reported that 202,599 people (96.5% of the population) lived in households, 3,078 (1.5%) lived in non-institutionalized group quarters, and 4,247 (2.0%) were institutionalized.

There were 59,283 households, out of which 29,675 (50.1%) had children under the age of 18 living in them, 25,700 (43.4%) were opposite-sex married couples living together, 13,518 (22.8%) had a female householder with no husband present, 5,302 (8.9%) had a male householder with no wife present. There were 5,198 (8.8%) unmarried opposite-sex partnerships, and 488 (0.8%) same-sex married couples or partnerships. 11,229 households (18.9%) were made up of individuals and 4,119 (6.9%) had someone living alone who was 65 years of age or older. The average household size was 3.42. There were 44,520 families (75.1% of all households); the average family size was 3.89.

The population was spread out with 67,238 people (32.0%) under the age of 18, 26,654 people (12.7%) aged 18 to 24, 56,221 people (26.8%) aged 25 to 44, 43,277 people (20.6%) aged 45 to 64, and 16,534

City of San Bernardino

people (7.9%) who were 65 years of age or older. The median age was 28.5 years. For every 100 females there were 97.2 males. For every 100 females age 18 and over, there were 94.0 males.

There were 65,401 housing units at an average density of 1,096.5 per square mile (423.4/km²), of which 29,838 (50.3%) were owner-occupied, and 29,445 (49.7%) were occupied by renters. The homeowner vacancy rate was 3.2%; the rental vacancy rate was 9.5%. 102,650 people (48.9% of the population) lived in owner-occupied housing units and 99,949 people (47.6%) lived in rental housing units.

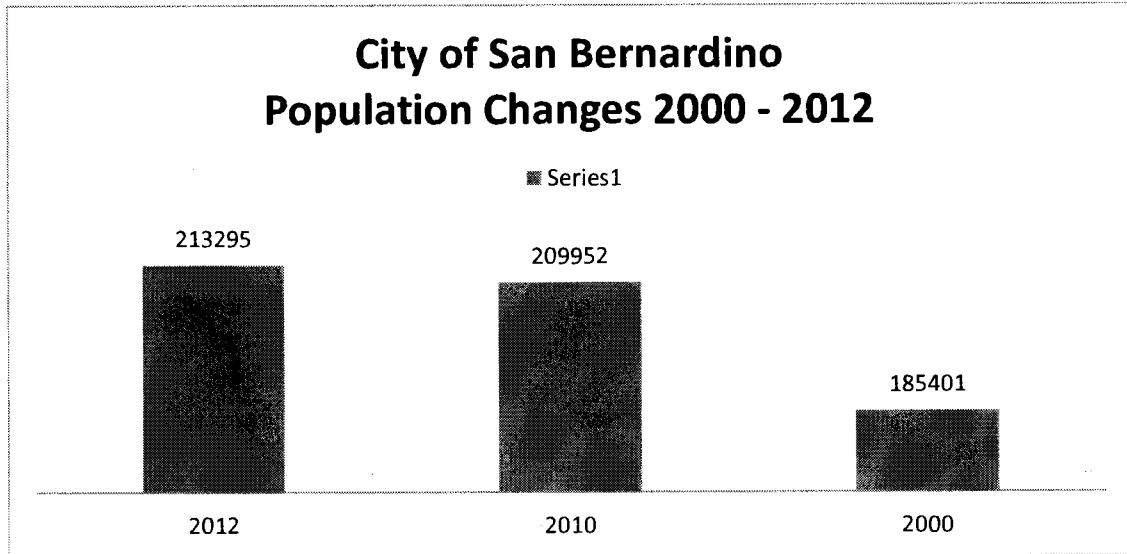


Figure 4 Population Changes 2000 - 2012

Existing Land Use

See map below for land use within the City of San Bernardino.

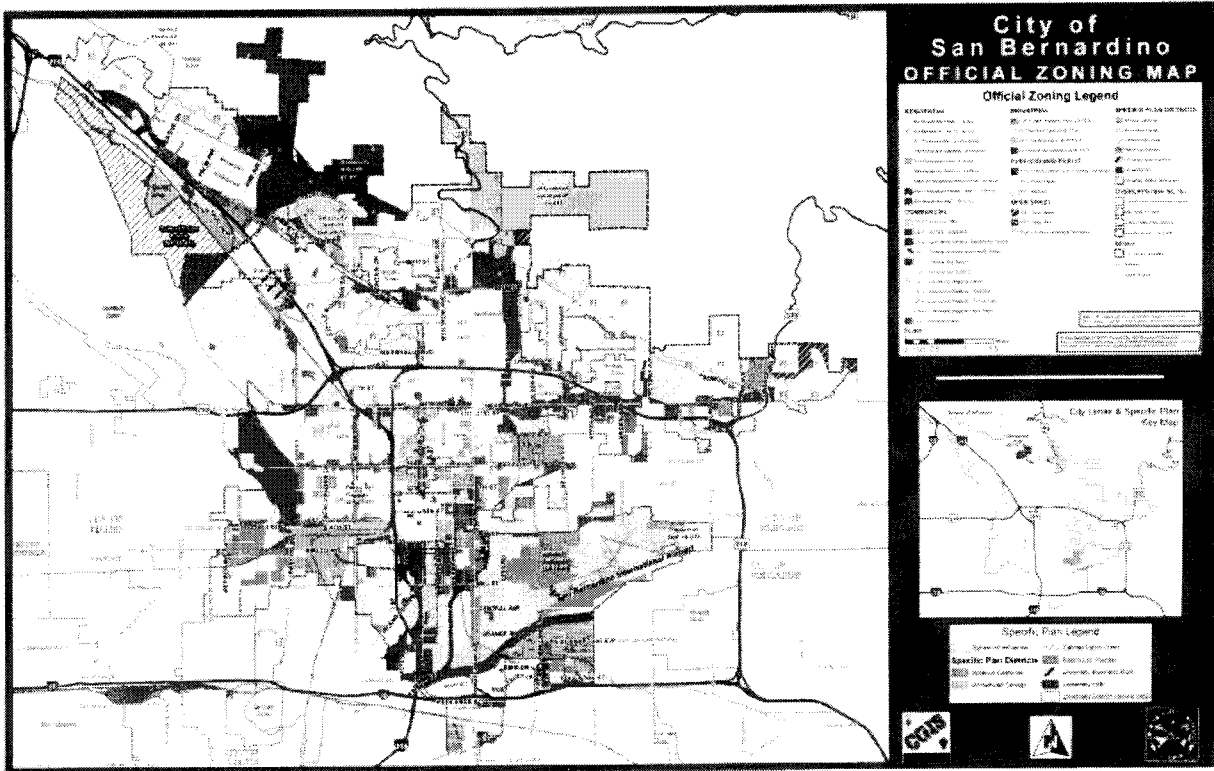


Figure 5. City of San Bernardino Zoning Map

Development Trends

No major developments occurred in the city since the 2005 LHMP was adopted. The limited development that did occur was scattered throughout the city; with no one area being singled out. All development was in accordance with the pre designated Land Use Zones development zones and complied with all Fire, Flood, and Seismic codes of the City and State at the time of development. This includes commercial, industrial, and residential developments.

The City is optimistic about the potential for future development. Many commercial areas are under development for logistics use. The largest area undergoing development is the former Norton Air force Base, now known as the San Bernardino International Airport. Major tenants include:

- Amazon Distribution Center
- Stater Brothers
- Mattel
- Kohl's
- Pep Boys

Additionally, with the completion of the Alameda Corridor and the emergence of the Ports of Los Angeles and Long Beach as the largest ports in the U.S., shipping trans-Pacific goods from the booming Asian economies, City of San Bernardino has evolved as the logistics and distribution hub for the 20 million resident Southern California market and into the rest of the nation. As the international economy recovers amidst tightening land availability for warehousing and transit, City of San Bernardino is better positioned than other areas in the region to harness the opportunity to become an even more important logistics hub. Logistics facilities have been completed or are under development in the areas along the I215, I15, and I210 corridors. These include:

- FedEx Distribution Center
- Palm Industrial Distribution Center
- Cajon Ancillary Truck Trailer Storage Area
- Cajon Creek Logistic Park
- Dollar General Distribution Warehouse
- National Orange Show Industrial Project
- Shipping Container Storage Yard
- Interchange Business Center

Residential Development continued with projects located throughout the City. Developments include:

- The Trails at Pine Avenue
- The Colony - San Bernardino

- Spring Trails
- University Hills
- Waterman Gardens
- Numerous single new homes built on individual lots

While all of these development trends may not be recognized over the next 5 years, all future development that will take place is planned to occur in accordance with the General Plan Land Use Zones and will consider all potential hazards identified within this plan. Additionally, all development will be in compliance with all Fire, Flood, and Seismic codes of the City and State at the time of development.

Section 2. Plan Adoption

2.1. Adoption by Local Governing Body

The City of San Bernardino City Council is responsible for the review, approval, and adoption of the Local Hazard Mitigation Plan (LHMP) update for the City of San Bernardino. It is also the intent of the City of San Bernardino City Council to take appropriate actions to ensure the updated LHMP remains as a part of the City of San Bernardino General Plan.

2.2. Promulgation Authority

The Promulgator Authority for the adoption of the Local Hazard Mitigation Plan by the City of San Bernardino and incorporation of the LHMP into the City of San Bernardino General Plan is:

R. Carey Davis	Mayor
Virginia Marquez	First Ward Council Member
Benito J. Barrios	Second Ward Council Member
John Valdivia	Third Ward Council Member
Fred Shorett	Fourth Ward Council Member
Henry Nickel	Fifth Ward Council Member
Bessine L. Richard	Sixth Ward Council Member
James Mulvihill	Seventh Ward Council Member

2.3. Primary Point of Contact

The Point of Contact for information regarding this LHMP is:

Eric Fyvie, Sergeant
 City of San Bernardino Police Department
 710 North D Street
 San Bernardino, CA, 92401
 (909) 384-5742

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Section 3. Planning Process

3.1. Preparing for the Plan

Local Hazard Mitigation Planning is a process State, Tribal, and local governments use to identify risks and vulnerabilities associated with natural disasters, and to develop long-term strategies for protecting people and property from future hazard events.

Planning creates a way to solicit and consider input from diverse interests. Involving stakeholders is essential to building community-wide support for the plan. In addition to emergency managers, the planning process involves other government agencies (e.g., zoning, floodplain management, public works, community, and economic development), businesses, civic groups, environmental groups, and schools.

To assist with the updating of the Local Hazard Mitigation Plan (LHMP), a Local Planning Team (Planning Team) was established. The Planning Team was the lynchpin for all activities to update the LHMP. The Planning Team defines and identifies the strategies, goals, activities, and development of the LHMP. The Planning Team represents a comprehensive team of subject matter experts from a range of areas affected by the plan or could provide great benefit to the team. Members of the Planning Team are from City of San Bernardino Departments, with technical assistance provided by the San Bernardino County Fire Department Office of Emergency Services.

The Local Planning Team members worked together to jointly determine and rank the risks facing the six participating agencies, develop goals and objectives to mitigate the risks, and identify which of the Departments would be most appropriate for leading any particular project area identified by the Local Planning Team. The individual Planning Team members then returned to their respective Departments where discussions occurred, input sought, and potential projects developed and ranked for each of the Planning Team identified risks and projects relevant to the Department. The Planning Team members then returned to the Local Planning Team and provided the Planning Team with their vetted, prioritized list of potential projects and budgets to include in the Local Hazard Mitigation Plan. These projects and budgets were integrated into the Local Hazard Mitigation Plan. Upon approval, each Department would then be able to apply for grant funding for their prioritized projects without interference from another participating jurisdiction as funding became available.

The Planning Team was led by a representative from the City of San Bernardino Police Department. This representative took on the responsibilities of a Project Manager and facilitated and coordinated activities. This effort included providing technical support, establishing a platform to encourage the exchange of ideas, and help coordination among Departments. The Project Manager was responsible for attending meetings and incorporating the material into their planning process.

One of the resource materials provided through the San Bernardino County Fire Department/Office of Emergency Services was a suggested Table of Contents (TOC). The purpose of the TOC was to ensure all aspects of the LHMP requirements were being met and could be found in the appropriate sections in the updated LHMP.

The Planning Team reviewed this sample TOC and incorporated elements into the City's LHMP update efforts. Using the TOC, the Planning Team decided to conduct a section by section; page by page review of the 2005 LHMP. A proposed project timeline was developed To assist with this effort. The proposed Project Timeline illustrates the windows when each section of the 2005 LHMP will be reviewed and the section revised.

Based on the TOC, the Planning Team divided the update process into seven (7) phases; one for each section of the TOC. This approach allowed for a very focused review of the material and provided an organized method to introduce new or updated material. The Project Manager led the discussion, solicited comments, took notes, and incorporated results in the LHMP. Additionally, the Project Manager collected and summarized material provide by Planning Team members. During the Planning Team meetings, some members were assigned tasks or action items, which were to be completed prior to the next meeting.

Staff assigned to the LHMP Update reviewed the 2005 LHMP and provided comments referencing updated information such as current population statistics, new HAZUS-MH MR3 analysis of floods and earthquakes, and provide suggestions for updating the LHMP. The Planning Team then reviewed the update information and validated/identified Goals, Objectives, and Projects. This step included discussion of how the projects would be prioritized.

Project prioritization involved comprehensive consideration of criteria/factors.

While there is not a standard process followed by each of City of San Bernardino Departments they all considered social, technological, administrative, political, legal, economic, and environmental factors. The City department representatives participated on the Planning Team then took the risks, goals, objectives and projects back to their respective departments for discussion and vetting. After vetting, the individual Planning Team members returned to the Planning Team where the individual materials were combined into a single Local Hazard Mitigation Plan. This effort resulted in goals, objectives and projects for all participants being listed under the appropriate hazard sections and not by individual participants. This reflects the overall City philosophy of allowing the department with the most expertise to suggest and/or manage a project that may affect another department who does not have expertise in the hazard.

Planning Team

The Planning Team is comprised of representatives from each of the City of San Bernardino Departments, who specialize in mitigation type activities/planning. The Planning Team members represented select aspects of the community and thought of as liaisons to the greater community. Each Planning Team member was responsible for communicating the direction and status of the planning effort to their outside members and in return, they are expected to bring to the team outside perspectives. Additionally, the individual Planning Team members acted as liaisons for their respective

 City of San Bernardino

Departments and were responsible for ensuring that the Department provided appropriate input from their respective internal planning processes. Potential projects/budget meetings were held where potential projects were developed and prioritized along with budget development for the individual participating Departments. Additional prioritization after budgets were developed to ensure proper Benefit Cost Analysis (BCA) techniques were applied. Representation was present on the Local Planning Team from various City Departments.

Planning Team included representatives from all the participating City of San Bernardino Departments:

- **City Manager's Office**
Allen J. Parker
- **City Administrative Services**
David Cain
- **Building and Safety/Community Development/Planning**
Aron Liang
- **City Fire Department**
Batt. Chief Alan Duggan
- **Police Department**
Chief Jarrod Burguan
Lt. David Green
- **Finance Department**
Lorena Gonzales
O Macias
- **Public Works Dept./Solid Waste Management Division**
Robert Eisenbeisz
- **Public Works Dept./Operations & Maintenance**
Randy Nolfo
- **Parks and Recreation Department**
Mickey Valdiva
- **County of San Bernardino Fire Department - Office of Emergency Services**
Michael Antonucci
Cindy Serrano
Miles Wagner

There were a series of meeting held with the Planning Team. Each meeting had a primary focus and provided an opportunity to discuss updates and exchange ideas. Below is a list of the Planning Team meetings:

Date	Activity
September 19, 2013	Initial meeting of City Planning Team. Scope of project and timelines presented. Importance of all City Departments participation emphasized. Hazard Mitigation Plan and Crosswalk from 2005 handed out to Planning Team members. Approval process for HMP reviewed.
November 14, 2013	Second meeting of Planning Team. Risk and hazard assessment discussed. Potential hazards reviewed and ranked. Risk assessment table populated.
January 21, 2014	Review of changes/updates to Sections 1 and 2 of the HMP. Validated updated material in Section 3 Planning Process and assigned updated information as needed. Assigned Section 4 Risk and Hazard Assessments as needed. Discussed Public Input.
February 25, 2014	Continued review of Sections 3 and 4. Project List from 2004 HMP reviewed and updates assigned to different departments.
March 10, 2014	Met to discuss updates and review completed Sections. Finance Department and Fire Department sections reviewed and inserted into HMP
March 31, 2014	Reviewed Risk Assessment Section updates, project list updates and deadline for completion, and scheduling of public meetings for HMP updates.
May 15, 2014	Reviewed submitted projects lists by Department, determined additional public meeting need for final review by public of draft Hazard Mitigation Plan, determined next steps.
June 24, 2014	Final Planning Team meeting prior to completing Draft Hazard Mitigation Plan for submittal to the Governor's Office of Emergency Services for review.

3.2. Coordination with Other External Jurisdictions, Agencies, and Organizations

Internal Coordination

Because of the size and geographical location of the city area, there are many jurisdictions, agencies, and organizations that are affected by or have influence on the City. As part of the planning process, the Planning Team, and particularly the Project Manager, took great efforts to engage and include as many members as possible. These members were drawn from City of San Bernardino Departments.

One of the first efforts that were made was when the Planning Team was being established. The Planning Team members gave special considerations as to what they thought needed to be in the LHMP and attempted to identify a person who could representative that area. This consideration went beyond the City departments.

As mentioned above, in addition to being required to participate in the Planning Team meetings, the Planning Team members were also required to liaison with other groups including their own departments

City of San Bernardino

planning and project staff and with cooperating agencies to provide updates on the project and to bring to the team the different perspectives and comments. The Planning Team conducted a very extensive outreach effort. This was done mostly through leveraging of existing meetings and efforts. In this liaison role, the Planning Team members coordinated with CalFire; the United States Forest Service - San Bernardino National Forest, and the neighboring cities and towns. This allowed the Planning Team to capture a larger perspective; while keeping the Planning Team at a manageable level. The information was then brought back to the Local Planning Team by the individual Planning Team members. At these meetings, potential cooperative projects were discussed, categorized, and prioritized for inclusion in the Local Hazard Mitigation Plan.

Those asked to participate in the HMP development process for the City of San Bernardino were:

David Daniely	Administrative Analyst	City of Highland, CA
Fay Glass	Emergency Operations Manager	City of Redlands, CA
Debra Kreske	Emergency Services Coordinator	City of Loma Linda, CA
Debra Kreske	Emergency Services Coordinator	City of Colton, CA
Frank Bekkar	Battalion Chief	City of Rialto, CA
Miles Wagner	Emergency Services Officer	County of San Bernardino

Three of those invited to participate in the HMP planning process provided input and/or review of the City of San Bernardino Local Hazard Mitigation Plan. They were Fay Glass, Debra Kreske, and Miles Wagner. The other did not respond to the invitation or declined to participate due to workload and conflicting priorities.

External Coordination

3.3. Public Involvement/Outreach

Public involvement was solicited throughout the process. Since the 2005 LHMP approval, the City took several steps to educate the public on the hazards facing the City and had several public forums where mitigation projects were discussed and identified. At all events, public opinion and comments are solicited.

The Planning Team also considered the possibility of including public members on the Planning Team. However, because of the size of the City and the volume of possibilities, it was determined that having the Planning Team members liaison with the public would better serve and capture the public interest.

During this process, the City also used several platforms to reach out and inform the public of the LHMP update. Wherever possible, a joint effort was made by the Planning Team members to include discussion for each Department's hazards, goals, and objectives. These joint meetings resulted in joint leverage of the planning effort and a resulting joint benefit of goals/objectives, and project development for the LHMP development. Public Involvement consisted of meetings for City Departments that gave the public the direct opportunity to comment on the City LHMP, meetings of City Department advisory committees where hazard specific information and possible projects were discussed, updates on the City website, press releases regarding the LHMP, and public hearing regarding the LHMP. All participants collectively supported the following public outreach meetings. Below is a summary list of the public outreach:

Public Meetings

- **Parks and Recreation Commission**

201 N. E St, San Bernardino, CA

April 17, 2014

1:00 p.m.

This was a Monthly meeting of the Commission. Attended by 8 Commissioners and 6 members of the general public. The update of the Hazard Mitigation Plan was explained and the need for the Parks and Recreation Commission and Department to be involved was reviewed. A risk analysis of Parks and Recreation facilities was completed and the public attendee input was sought. See Section 8.3 for detailed tables and information.

- **Parks and Recreation Commission**

201 N. E St, San Bernardino, CA

June 19, 2014

3:00 p.m.

This was a Monthly meeting of the Commission. Attended by 8 Commissioners and 6 members of the general public. The update of the Hazard Mitigation Plan was explained and the need for the Parks and Recreation Commission and Department to be involved was reviewed. A risk analysis of

Parks and Recreation facilities was completed and the public attendee input was sought. See Section 8.3 for detailed tables and information.

Press Releases

A Press Release explaining the Local Hazard Mitigation Plan Update Process with links to the Executive Summary for the LHMP Update was released by the City Parks and Recreation Department Public Information Officer on behalf of the City on May 21, 2014 and on June 9, 2014. Comments were received from the general public at the April 17, 2014 Parks, Recreation and Community Services Commission meeting. The comments were incorporated into the LHMP. The Press Release was also posted on the City's website. A copy of the Press Release is in **Annex 8.5**.

Web Posting

The Press Release was posted on the City of San Bernardino website on April 14, 2014. The public was invited to submit comments on the Local Hazard Mitigation Plan Update. A copy of the Web Page posting is in **Annex 8.6**.

CERT Teams

The Press Release and Executive Summary were forwarded to the CERT Team leaders for those CERT Teams located in City area. The Team Leaders forwarded the LHMP Press Release and Executive summary to their team members with the request for comments on the LHMP.

The CERT Teams within the City include:

Team 1	32 members
Team 2	14 members

Public Hearing Process

The City Council will review, approve, and adopt the Local Hazard Mitigation Plan for the City at their Date meeting. The City Council will issue a Letter of Promulgation and Resolution denoting approval of the Local Hazard Mitigation Plan for the City.

Prior to the *Council Meeting Date* Hearing, the Plan will be posted on the City of San Bernardino website as part of the Agenda for the meeting. The Agenda with all attachments is posted the *Wednesday* prior to the hearing date. Members of the public are invited to review and make comments at the meeting on *Council Meeting Date*. The Local Hazard Mitigation Plan for the City will be on the City Council agenda for review and adoption at their regularly scheduled meeting on *Council Meeting Date*. Any resident of the City may make comments or request information on the Local Hazard Mitigation Plan during the

regularly scheduled meeting. Only after the public has an opportunity to review and comment on the Plan will the City Council take action on the City Council Agenda items.

3.4. Assess the Hazard

As discussed, the planning process was organized around the Table of Content (TOC). One of the main sections in the TOC is Risk Assessment. The Risk Assessment section include four (4) basic step; 1) hazard identification and screening; 2) hazard profiling; 3) hazard exposure; and, 4) hazard vulnerability. The Project Manager, working with the Planning Team, facilitated discussions around these steps.

The first step in this process was to identify all of the natural hazards present in the community. The Planning Team started with the 2005 LHMP and augmented as necessary. This augmentation considered both adding and removing of hazards to develop a list of potential natural hazards in the community. The Planning Team utilized several sources to ensure they were considering all potential hazards. A summary of the list of material reviewed is: the 2005 City of San Bernardino Operational Area LHMP, the State of California LHMP, FEMA "How-to Guides," and several surround community LHMPs. After the list of potential hazards in the community is generated, the hazards were screened.

The intent of screening of hazards is to help prioritize which hazard creates the greatest concern in the community. Because the 2005 LHMP process used to rank hazards (Critical Priority Risk Index (CPRI) software) is not being utilized again, an alternative approach was implemented.

The Planning Team agreed to utilize a non-numerical ranking system for the LHMP update process. This process consists of generating a qualitative ranking (High, Medium, or Low) rating for: 1) probability; and, 2) impact from each hazard. To further assist with the process, the following definition of "High", "Medium", and "Low" probability and impacts are being provided (NOTE: these definitions we utilized in the 2005 LHMP process):

Probability

High-	Highly Likely/Likely
Medium-	Possible
Low-	Unlikely

Impact

High-	Catastrophic/Critical
Medium-	Limited
Low-	Negligible

The hazards were then placed into a matrix with the appropriate/corresponding box/cell. The table below is an example of how the process will capture the results.

		Impact		
		High	Medium	Low
Probability	High			
	Medium			
	Low			

After all hazards had been analyzed, the Planning Team then determined which Probability and Impact category (i.e., High Impact; High Probability, Medium Impact) the community will focus on over the next five (5) years. An example of how the hazards may be prioritized is below (Red equaling high priority):

		Impact		
		High	Medium	Low
Probability	High			
	Medium			
	Low			

After identifying the “higher” priority hazards in the community, each of the “high” priority hazards were profiled. The hazard profiling include the incorporation of all new information, material, and reports to better help the Planning Team and the community understand the hazard.

Additionally, for each of the profiled hazards, the Planning Team then analyze the community’s exposure to each hazard (inventory of assets) and the potential impact under scenario events. The Planning Team will use HAZUS and a recent project completed within City of San Bernardino to produce this information.

3.5. Set Goals

Goal setting was approached by the Planning Team as a two layered process. The first layer involved the stakeholders acting together as the Planning Team. The second layer involved the City Departments working internally to coordinate those goals identified by the Planning Team with the goals identified internally by the Special Districts The Planning Team validated and identified new Goals and Objectives for the LHMP update. The Planning Team reviewed the hazard exposure and scenario impacts developed during the Risk Assessment portion of the process. With a firm understanding of the risk the community is potentially facing, the Planning Team then re-evaluated the 2005 Local Hazard Mitigation Plan Goals and Objectives; assessed their status and effectiveness in meeting the 2005 Mitigation Measures and identified new Goals and Objectives.

As part of this process, the Planning Team also reviewed the City’s General Plan, the State of California LHMP, the SB County Operational Area LHMP, Floodplain Management Plans, Task Force After Action,

and/or documents, and adjacent local jurisdiction LHMPs to ensure the Goals and Objectives were comprehensive and compatible.

3.6. Review and Propose Mitigation Measures

After the Goals and Objectives were established, the Planning Team then turned to identifying projects under each Goal and Objective that could be implemented to help reduce and/or eliminate the impacts from the priority hazards. As part of this process, the Planning Team reviewed the projects in the 2005 LHMP to determine which are completed, which are ongoing, and which were deferred. For projects that were not completed the Planning Team validated whether or not the project was necessary.

With a firm understanding of past accomplishments and a good understanding of the potential exposure and scenario impacts from the Risk Assessment section, the Planning Team then started to identify projects that will help reduce and/or eliminate the risk for the high priority hazards. Again, a two-layer approach was used. The Planning Team as a whole identified common projects. These common projects were then coordinated internally by the Special Districts and the City to develop a common list of projects. After a list of all possible projects has been identified, the Planning Team then went through the process of prioritizing the projects.

To assist with this effort the Planning Team adopted the STAPLEE methodology. STAPLEE stands for:

- **Social**—The public must support the overall implementation strategy and specific mitigation actions. Therefore, the projects will have to be evaluated in terms of community acceptance.
- **Technology**—It is important to determine if the proposed action is technically feasible, will help to reduce losses in the long term, and has minimal secondary impacts. Determine whether the alternative action is a whole or partial solution, or not a solution at all.
- **Administrative**—Under this part of the evaluation criteria, examine the anticipated staffing, funding, and maintenance requirements for the mitigation action to determine if the jurisdiction/special district has the personnel and administrative capabilities necessary to implement the action or whether outside help will be needed
- **Political**—Understanding how your current community and State political leadership feels about issues related to the environment, economic development, safety, and emergency management. This will provide valuable insight into the level of political support you may have for the mitigation activities and programs. Proposed mitigation objectives sometimes fail because of a lack of political acceptability.
- **Legal**—Without the appropriate legal authority, the action cannot lawfully be undertaken. When considering this criterion, determine whether your jurisdiction has the legal authority at the State, or local level to implement the action, or whether the jurisdiction must pass new laws or regulations. Each level of government operates under a specific source of delegated authority. As a general rule, most local governments operate under enabling legislation that gives them the power to engage in different activities. Identify the unit of government undertaking the mitigation action, and include an analysis of the interrelationships between local, regional, State, and Federal governments. Legal authority is likely to have a significant role

later in the process when your State, or community will have to determine how mitigation activities can best be carried out, and to what extent mitigation policies and programs can be enforced.

- **Economic**—Every local government experiences budget constraints at one time or another. Cost-effective mitigation actions that can be funded in current or upcoming budget cycles are much more likely to be implemented than mitigation actions requiring general obligation bonds or other instruments that would incur long-term debt to a community. Local communities with tight budgets or budget shortfalls may be more willing to undertake a mitigation initiative if it can be funded, at least in part, by outside sources. “Big ticket” mitigation actions, such as large-scale acquisitions and relocation, are often considered for implementation in a post-disaster scenario when additional Federal and State funding for mitigation is available.
- **Environmental**—Impact on the environment is an important consideration because of public desire for sustainable and environmentally healthy communities and the many statutory considerations, such as NEPA, to keep in mind when using Federal funds. The Planning Team needed to evaluate whether, when implementing mitigation actions, there would be negative consequences to environmental assets such as threatened and endangered species, wetlands, and other protected natural resources.

In addition to the STAPLEE methodology, the Planning Team incorporated other criteria/factor questions into the process to help engage and solicit input from members. Examples of these criteria/factor questions are:

- Does the Action:
 - Solve the problem?
 - Address Vulnerability Assessment?
 - Reduce the exposure or vulnerability to the highest priority hazard?
 - Address multiple hazards?
- Address more than one (1) Goal/Objective?
 - Benefits equal or exceed costs?
- Can the Action:
 - Be implemented with existing funds?
 - Be implemented by existing state or federal grant programs?
 - Be completed within the 5-year life cycle of the LLHMP?
 - Be implemented with currently available technologies?
- Will the Action:
 - Be accepted by the community?
 - Be supported by community leaders?
 - Adversely impact segments of the population or neighborhoods?
 - Require a change in local ordinances or zoning laws?
 - Result in legal action such as a lawsuit?
 - Positively or negatively impact the environment?

- Comply with all local, state, and federal environmental laws and regulations?
- Is there:
 - Sufficient staffing to undertake the project?
 - Existing authority to undertake the project?

After going through this process for each and every project, the Planning Team will then have the ability to identify the higher priority projects.

3.7. Draft the Local Hazard Mitigation Plan

The Local Hazard Mitigation Plan Update was drafted by the Project Manager, based on input and comments provided by the Planning Team. As indicated previously, the Planning Team used the 2005 LHMP as a starting point but revised it to reflect updated information and the new Table of Content (TOC). The proposed TOC is closely related to the 2005 LHMP format but there are slight differences. The Planning Team deemed this revision prudent and felt that it provided a better format of the LHMP update. In addition to the TOC, the Planning Team also uses the FEMA Guidance and materials provided by the County Fire Department Office of Emergency Services. This material aided in the Planning Team's understanding of the level of detail and type of information that is expected in each section.

This process started with the City Departments providing information to the Planning Team through their liaison on the Planning Team. After the Planning Team ranked and prioritized the materials, the liaisons returned to their respective Departments to vet the Planning Team's work. The Planning Team then worked together with the vetted materials to produce the draft LHMP. As mentioned earlier, each section was reviewed and updated as necessary. While some Planning Team members are responsible for the updating select sections, all members are responsible for reviewing and commenting on the entire LHMP. The Planning Team Project Manager was responsible for version control and distribution of the final LHMP for review.

Once the LHMP update was drafted, the Planning Team provided opportunities for the public to review and comment on the plan. After the public comment period was closed, the Planning Team finalized the plan and forwarded to Cal OES and FEMA for approval.

3.8. Adopt the Plan

The City of San Bernardino City Council created each of the Departments to provide a specific service to a particular area/population of City of San Bernardino. The City Council takes action on behalf of each Department whenever governance items are necessary.

City of San Bernardino City Council is responsible for the review, approval, and adoption of the Local Hazard Mitigation Plan (LHMP) update for the City of San Bernardino. It is also the intent of the City of San Bernardino City Council to ensure the LHMP update remains a part of the City of San Bernardino General Plan.

After Cal OES and FEMA have approved the HMP update, it will be adopted by the City of San Bernardino City Council. Currently, the adoption process is scheduled for September 2014. The item will

be part of the consent calendar subject to a public hearing if necessary. The HMP will be listed on the agenda with the plan being made available electronically to the general public for at least three (3) business days prior to the City Council's meeting date. Any member of the public can make comments on the Plan during the meeting prior to any action by the City Council.

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Section 4. Risk Assessment

The goal of mitigation is to reduce and/or eliminate the future impacts of a hazard including property damage, disruption to local and regional economies, and the amount of public and private funds spent to assist with recovery. However, mitigation should be based on an assessment of the risk.

This Risk Assessment Section evaluates the potential loss from a hazard event by assessing the vulnerability of buildings, infrastructure, and people. It identifies the characteristics and potential consequences of hazards, how much of the City could be affected by a hazard, and the impact on City area assets. Our Risk Assessment approach consists of four (4) components:

- **Hazard identification** – Identification and screening of hazards (Section 4.1)
- **Hazard profile** – Review of historic occurrences and assessment of the potential for future events (Section 4.2)
- **Asset inventory** – Identification of exposed buildings, infrastructure and population (Section 4.3)
- **Vulnerability assessment** – Determination of potential losses or impacts to buildings, infrastructure and population (Section 4.4)

4.1. Hazard Identification

Hazard Screening Criteria

The first step in this process was to identify which natural hazards exist in the City area. To assist with this identification, an extensive data collection and document review effort was conducted. Identifying new or emerging hazards, obtaining updated hazard maps, hazard probability research studies and reports, reviewing data from new or updated local plans (i.e. Safety Element of the City of San Bernardino 2005 General Plan, threat assessments, disaster planning scenarios, community wildfire protection plans, etc.) and obtaining information about emergencies or disasters that have occurred since the 2005 LHMP provided valuable insights into which parts of the risk assessment, and the overall LHMP, warranted updates.

Starting with the 2005 LHMP and augmenting as necessary, the Planning Team identified the following thirteen (13) hazards:

- | | |
|----------------------------------|---------------------------------|
| ■ Wildfires | ■ Lightning |
| ■ Flood | ■ Extreme Heat |
| ■ Earthquake/Geologic Hazards | ■ Extreme Cold |
| ■ Dam Inundation | ■ Hail |
| ■ Infestation | ■ Tornado |
| ■ Drought | ■ Winter Storm (Heavy Snowfall) |
| ■ High Winds/Straight Line Winds | |

This list represents an update to the list of hazards used in the 2005 LHMP; hazards added to the current list include Dam Inundation, Extreme Cold, and Winter Storm (Heavy Snowfall). Severe Thunderstorms¹ have been removed as a stand-alone hazard, as the more damaging hazards caused by thunderstorms (high winds, lightning, hail, and tornado) are captured individually.

Hazard Assessment Matrix

The intent of assessing the hazards is to help prioritize which hazard(s) create the greatest concern(s) in the City area. All of the identified hazards were ranked in the 2005 LHMP using the Critical Priority Risk Index (CPRI) software developed by Visual Risk Technologies. Because the process used to rank hazards in the 2005 Local Hazard Mitigation Plan development process (the Critical Priority Risk Index (CPRI) software) was not utilized for the LHMP update, an alternative approach was used.

The Planning Team implemented a qualitative ranking system for the LHMP update process; a non-numerical rating (High, Medium, or Low) was determined for both the 1) probability and 2) expected impact from each screened hazard.

Using the hazard rankings from the 2005 LHMP, information on hazard occurrences during the last five years, and available data on specific hazard probabilities, the Planning Team assessed each hazard. A discussion of each hazard is provided below.

The following definitions of “High,” “Medium,” and “Low” probability and impacts were used. (NOTE: these categories were also utilized in the 2005 LHMP process):

Probability:

- **High:** Highly Likely/Likely. There may or may not have been historic occurrences of the hazard in the community or region but experts feel that it is *likely* that the hazard will occur in the community. Citizens feel that there is a likelihood of occurrence.
- **Medium:** Possible. There may or may not have been a historic occurrence of the hazard in the community or region but experts feel that it is *possible* that the hazard could occur in the community. Citizens may feel that there is a likelihood of occurrence.
- **Low:** Unlikely. There have been no historic occurrences of the hazard in the community or region and both experts and citizens agree that it is highly *unlikely* that the hazard will occur in the community.

Impact:

- **High:** Catastrophic/Critical. Both experts and citizens feel that the consequences will be significant in terms of building damage and loss of life.

¹ The National Weather Service (NWS) defines a severe thunderstorm as “A thunderstorm that produces a tornado, winds of at least 58 mph (50 knots), and/or hail at least ¼” in diameter. Structural wind damage may imply the occurrence of a severe thunderstorm. A thunderstorm wind equal to or greater than 40 mph (35 knots) and/or hail of at least ¼” is defined as approaching severe.” (<http://www.weather.gov/glossary/index.php?letter=s>)

- **Medium:** Limited. Consequences are thought to be modest in terms of building damage and loss of life, limited either in geographic extent or magnitude.
- **Low:** Negligible

The hazard assessments for the thirteen (13) hazards identified by the Planning Team are summarized below:

Wildfire: *Probability—High, Impact-Medium*

Wildfires present a significant potential for disaster in City of San Bernardino, a region with relatively high temperatures, low humidity, and low precipitation during the summer, followed by a fall season that includes high velocity, very dry “Santa Ana” winds. Between 2005 and 2013, 1966 wildfires burned over 3309 acres in City of San Bernardino. Wildfires have the potential to cause significant damage and potential loss of life, as demonstrated by the 2003 Old Fire that resulted in \$16.8 million in damage and one fatality, the total number of fire whose costs, including both property loss and fire suppression, totaled more than \$1.8 million. The Planning Team agreed that the probability of future wildfire events was High, with the potential for very significant impacts.

Flood: *Probability—High, Impact—High*

Destructive flooding is a common occurrence in City of San Bernardino; severe storms and heavy rainfall have caused 20 flood events since 2005. Most of the City has the potential for flooding, as shown by the Flood Hazard Areas mapped by FEMA in the recently updated Flood Insurance Rate Map (FIRM), **Figure 6**. In addition, much of the City is expected to be at risk for alluvial fan flooding, as mapped by the Alluvial Fan Task Force (**Figure 7**). Consequently, the Planning Team determined that the Probability of future flood events is High, with the potential for very significant (High) impacts.

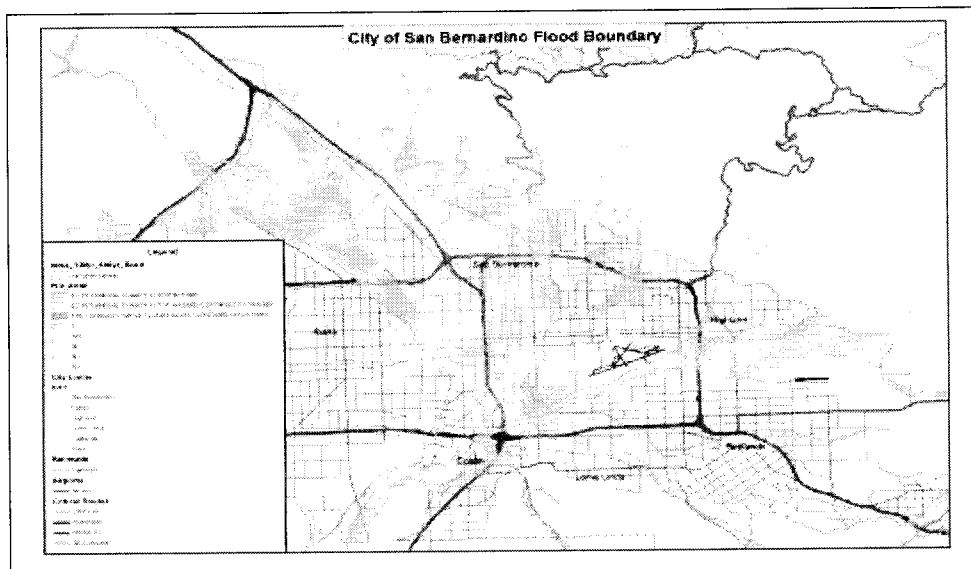


Figure 6. FEMA Flood Hazard Areas for City of San Bernardino

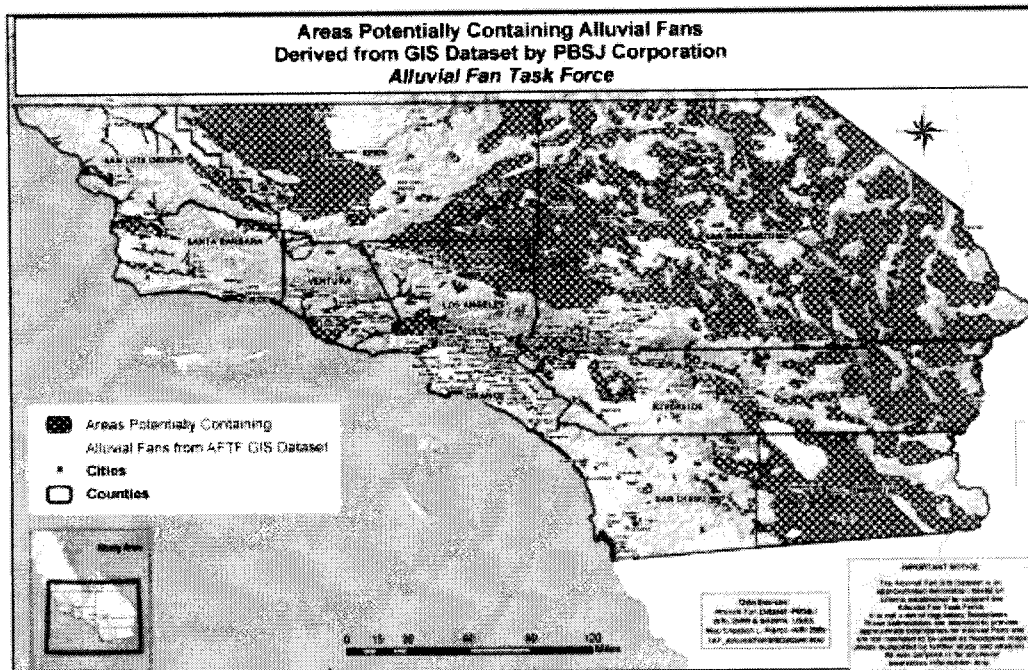


Figure 7. Areas Potentially Containing Alluvial Fans as mapped by the Alluvial Fan Task Force (2010)

Earthquake/Geologic Hazards: *Probability—High, Impact—High*

The City lies in a seismically active region of southern California that has been subjected to earthquakes in the past and will be subject to earthquakes in the future. Numerous known active and potentially active faults traverse the City. An earthquake occurring on one or more of these faults is perhaps the most threatening geologic hazard to the City with respect to life and property loss. Seismic hazards resulting from earthquakes include ground shaking, ground surface rupture, landslides and slope instability, liquefaction, differential seismic settlement, seiche, and dam inundation.

The probability of a significant (M6.7 or greater) earthquake occurring in Southern California in the next 30 years has been estimated to be 97% by the 2007 California Working Group on Earthquake Probabilities², as shown in **Figure 8**. Earthquakes have the potential to cause widespread building damage, economic loss, and population impacts such as injury, death, and displacement. For the M7.8 “ShakeOut” scenario earthquake on the Southern San Andreas Fault, building damage in City of San Bernardino is expected to exceed \$13 billion (see Section 4.4 for additional information on the ShakeOut and other earthquake scenarios modeled for the risk assessment). Accordingly, the Planning Team agreed that the probability of future earthquake events is High, with the potential for catastrophic impacts.

² 2007 Working Group on California Earthquake Probabilities (2007 WGCEP), 2008, *The Uniform California Earthquake Rupture Forecast, Version 2 (UCERF 2)*: U.S. Geological Survey Open-File Report 2007-1437 and California Geological Survey Special Report 203 [<http://pubs.usgs.gov/of/2007/1437/>].

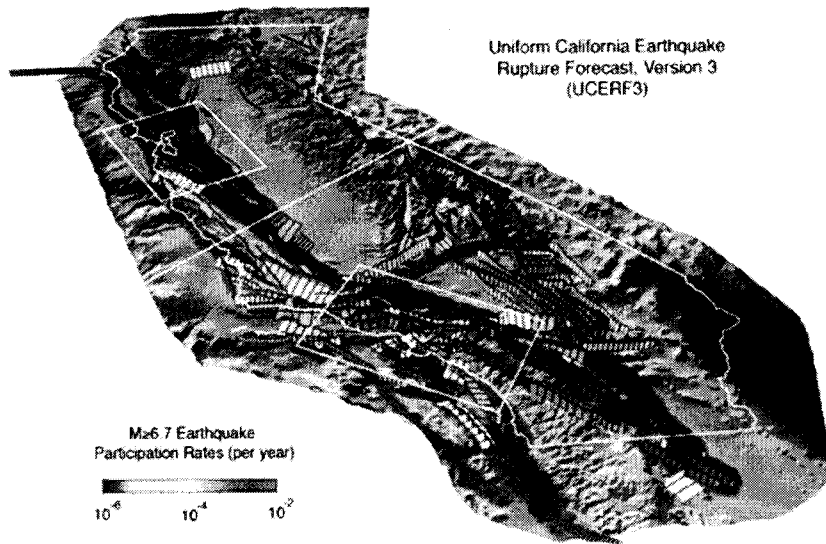


Figure 8. California Area 30-Year Earthquake Probabilities (USGS Open-File Report 2007-1437)

Dam Inundation: Probability—Low, Impact—High

As mapped for City of San Bernardino’s General Plan, there one area of dam inundation potentially impacting the low laying areas of City of San Bernardino, as shown in **Figure 9**. However, there were no dam inundation occurrences in City of San Bernardino between 2005 and 2013. Accordingly, dam failure or inundation resulting from over-topping was considered by the Project Team to be highly unlikely (Low Probability), with the resulting potential impacts assumed to be severe (High Impact). As this dam is a flood control dam that is normally dry and the inundation map is for a catastrophic failure of a full capacity dam, (highest level was 43,000-acre feet or less than 1/3 capacity in 2005).

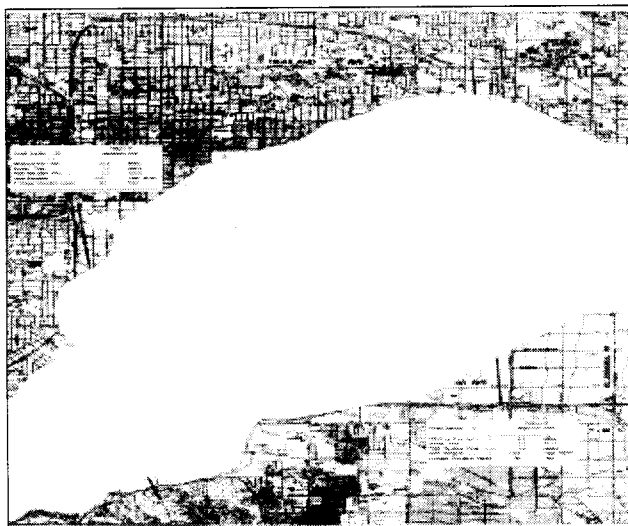


Figure 9. Seven Oaks Dam Inundation Area in City of San Bernardino

Infestation: Probability—Low, Impact—Low

Emergencies related to insect infestation have only impacted the City of San Bernardino to a minor degree in the last decade, including the mosquito-borne West Nile Virus in 2007.

Future infestation issues were determined by the Planning Team to be possible (Low), with the impact generally expected to be low (Low Impact).

Drought: Probability—Medium, Impact—Medium

Drought emergencies have been declared in California as recently as 2009, but have primarily affected agricultural areas of the Central Valley. . There were no significant drought events in City of San Bernardino between 2005 and 2013. The Planning Team decided that while the potential for future drought events was Medium, the local impact of drought is expected to be limited (Medium Impact).

High Winds/Straight Line Winds: Probability—High, Impact—Low

Straight-line winds are any winds not associated with the rotation of a tornado. Straight-line winds are responsible for most thunderstorm wind damage³. Straight-line winds can exceed 125 mph, and knock down trees and power lines. Damaging high wind events occurred in the City in 2007, when high winds and thunderstorms brought down trees and fences, and in 2010, when straight-line winds exceeding 60 miles per hour felled trees and damaged power lines.

Another type of high winds are the “Santa Ana” winds, which commonly occur between October and February, and can reach speeds of more than 100 miles per hour. Santa Ana winds are warm, dry winds that descend from the high desert, down the mountains into the Southern California Basin⁴. The most significant hazard associated with Santa Ana winds is an increased wildfire danger, but Santa Ana winds can also cause downed trees and power lines, and property damage, as well as causing potentially hazardous conditions for aircraft and boaters.

The Planning Team concluded that the probability of experiencing future damaging winds is High, with low potential for Impacts. The City of San Bernardino has experienced 9 significant high wind events in the time frame of 1/2005-11/2011.

Lightning: Probability—High, Impact—Medium

Relative to most of the U.S., lightning strikes occur less frequently in Southern California, as shown in the annual lightning incidence map available from the National Weather Service (see **Figure 10**). The average lightning flash density in the City of San Bernardino area is very low, between 0.0 and 1.0 flashes per square kilometer per year. In 2009, there were 2 fatalities from lightning strikes statewide, of the 34 total

³ “Thunderstorms, Tornadoes, Lightning... Nature’s Most Violent Storms”, NOAA/NWS, <http://www.weather.gov/os/severeweather/resources/tt17-09.pdf>

⁴ <http://www.theweatherprediction.com/weatherpapers/049/index.html>

throughout the US⁵. Although there were no significant lightning events in City of San Bernardino between 2005 and 2013, the Planning Team determined that the probability of future lightning events was High, but that such events would have only limited impacts (Medium Impact).

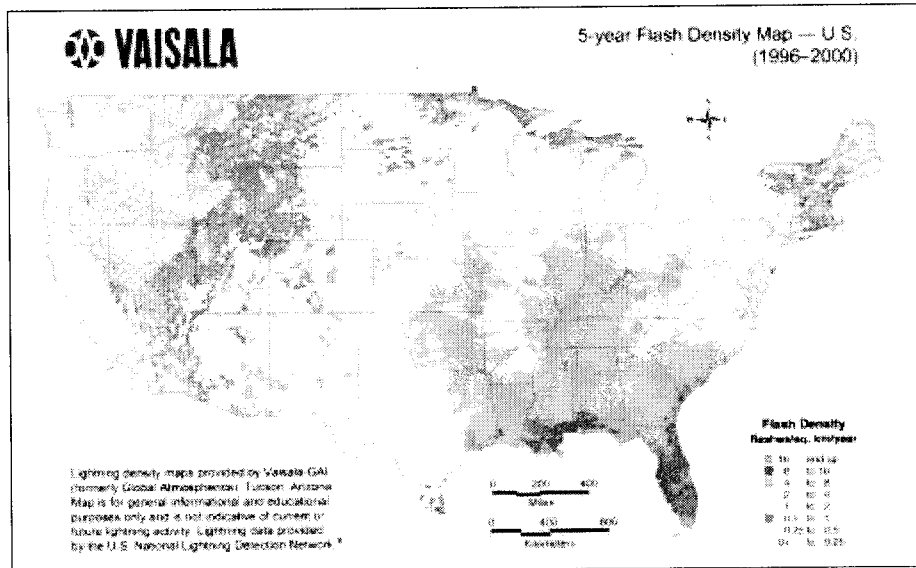


Figure 10. Lightning Flash Density Map 1996 – 2000 (National Weather Service, http://www.lightningsafety.noaa.gov/lightning_map.htm)

Extreme Heat: *Probability—High, Impact—Medium*

According to the CDC⁶, “...conditions of extreme heat are defined as summertime temperatures that are substantially hotter and/or more humid than average for location at that time of year.” Exposure to extreme heat can result in illness (such as heat stroke or heat exhaustion) or death for those at greatest risk, including⁷:

- Infants and children up to four years of age;
- People who overexert during work or exercise;
- People 65 years of age or older;
- People who are ill or on certain medications; and
- People who are overweight

While extreme heat can occur virtually anywhere in the City, measures to prevent illness are generally common sense, including staying cool indoors, keeping hydrated, limiting physical activity, and monitoring those at highest risk.

⁵ <http://www.nws.noaa.gov/om/hazstats.shtml>

⁶ http://www.bt.cdc.gov/disasters/extremeheat/heat_guide.asp

⁷ California Department of Health Services “Fast Facts – Preventing Summer Heat Injuries”, PS18, <http://www.cdph.ca.gov/Pages/NR2009-60.aspx>

Recent extreme heat events within City of San Bernardino include a 2006 Excessive Heat & Power Outage event affecting the entire City, which escalated to a Stage One CAISO Power Emergency, and a 2010 incident impacting the Southeastern Desert Region. Therefore, the Planning Team determined that the probability of future Extreme Heat events was High, with the potential for Medium impacts.

Extreme Cold: *Probability—Low, Impact—Low*

Extreme cold can result in damage to crops, damage to homes and businesses (e.g., from burst pipes), and can cause significant health problems, such as hypothermia and frostbite. Recent extreme cold events in within the City include the January 2007 Extreme Cold Emergency and the January 2008 Winter Weather Event. These events caused burst pipes in some residences, businesses, and public facilities. The Planning Team concluded that future Extreme Cold events were possible (Low Probability), and that the overall expected impact would be negligible (Low Impact).

Hail: *Probability—Low, Impact—Low*

Hail causes approximately \$1 billion in damage in the US each year⁸. Much of the damage inflicted by hail is to crops, but vehicles, roofs, and landscaping also suffer hail damage.

Figure 11 shows the mean number of hail days per year (with hail of $\frac{3}{4}$ " diameter⁹ or greater, or causing damage) within 25 miles of a given point, using data from 1995 – 1999. As shown the threat of hail in the City of San Bernardino area is very low. There were no significant hail events in City of San Bernardino between 2005 and 2010. Accordingly, the Planning Team determined that future hail events were possible (Low Probability), and would be expected to have negligible (Low) impacts.

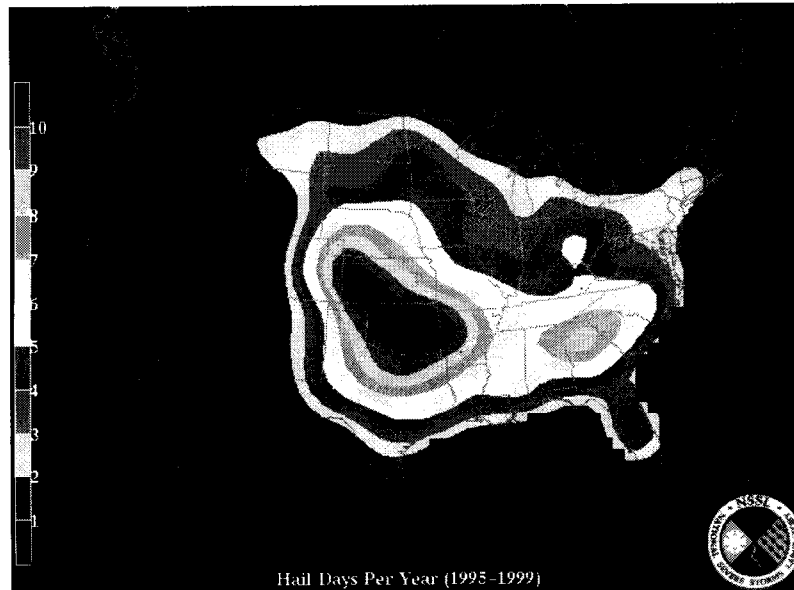


Figure 11. Hail Threat 1995 – 1999 (NOAA National Severe Storm Laboratory)

⁸ http://www.nssl.noaa.gov/primer/hail/hail_damage.html

⁹ Hail that is $\frac{3}{4}$ inch in diameter or larger is considered severe, http://www.nssl.noaa.gov/primer/hail/hail_climatology.html#

Tornado: Probability—Low, Impact—Low

Tornadoes occur infrequently in California, which has a statewide average of just 5 tornadoes a year. This is significantly less than states located in the US' "tornado alley," which can experience as many as 50 – 100 tornadoes per year, as shown in **Figure 12**. In addition, most California tornadoes are considered "weak"; the historical average occurrence rate of Strong – Violent (F2-F5) tornadoes in California is zero, as shown in **Figure 13**. There were no significant tornado events in City of San Bernardino between 2005 and 2010. Accordingly, the Planning Team concluded that the probability of future tornado events was unlikely (Low Probability), with an expectation of minimal impacts (Low Impact).

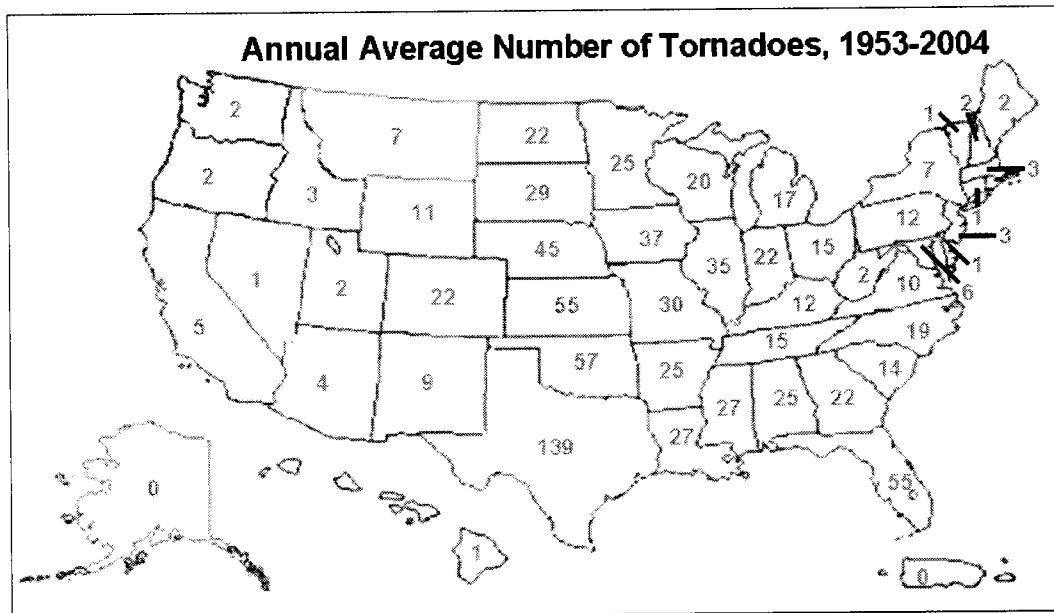


Figure 12. Average Annual Number of Tornadoes by State, 1953-2004 (National Climatic Data Center, 2008)

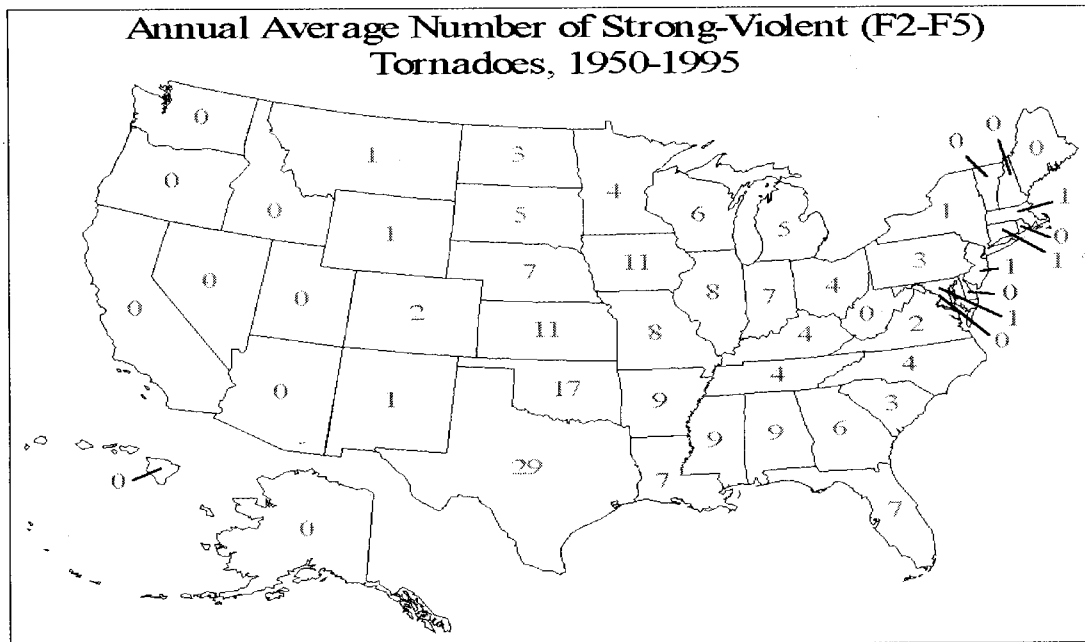


Figure 13. Average Annual Number of Strong-Violent (F2-F5) Tornadoes by State, 1950-1995
(National Climatic Data Center, 2008)

Winter Storm (Heavy Snowfall): *Probability—Medium, Impact—Medium*

Winter storms with heavy snowfall can result in road closures, power outages, and require significant snow removal efforts, typically in the Mountain regions of the County. Recent events include the January 2010 Winter Storms, and the Winter Weather Incidents of 2008 (which resulted in closure of Interstate 15 and the need to shelter stranded travelers). Only those portions of the City in the foothills of the San Bernardino Mountains or in the Devore area are expected to be impacted. The impact is not expected to be significant or last more than one day.

The Planning Team determined that the probability of future occurrences is Medium, that the Impacts are Medium.

Based on the above discussion by the Planning Team, the hazards were placed into the matrix. The resulting categorization of each hazard is shown in the Hazard Assessment Matrix given in **Table 1**.

Table 1. Hazard Assessment Matrix

		Impact		
		High	Medium	Low
Probability	High	<ul style="list-style-type: none"> • Flood • Earthquake/ Geologic Hazards 	<ul style="list-style-type: none"> • Wildfire • Drought • Lightning • Extreme Heat 	<ul style="list-style-type: none"> • High Winds/ Straight Line Winds
	Medium		<ul style="list-style-type: none"> • Winter Storm (Heavy Snowfall) 	
	Low	<ul style="list-style-type: none"> • Dam Inundation 		<ul style="list-style-type: none"> • Tornado • Hail • Extreme Cold • Infestation

Hazard Prioritization

The Planning Team then determined that the City should focus over the next five (5) years on hazards that fell within the HIGH “Probability” and “Impact” categories. While all the hazards present a potential problem in the City, the Planning Team felt that if they were able to reduce or eliminate the risk from these hazards, it would provide a greater service to the people within the jurisdiction.

Table 2 illustrates how the final prioritization of the hazard; the “Green” colored box represents the highest priority hazards; and the “White” colored boxes represent lower (second and third tier) priority hazards.

Table 2. Prioritized Hazard Assessment Matrix

		Impact		
		High	Medium	Low
Probability	High	<ul style="list-style-type: none"> • Flood • Earthquake/ Geologic Hazards 	<ul style="list-style-type: none"> • Wildfire • Drought • Lightning • Extreme Heat 	<ul style="list-style-type: none"> • High Winds/ Straight Line Winds
	Medium		<ul style="list-style-type: none"> • Winter Storm (Heavy Snowfall) 	
	Low	<ul style="list-style-type: none"> • Dam Inundation 		<ul style="list-style-type: none"> • Tornado • Hail • Extreme Cold • Infestation

The following sections profiles these higher priority hazards in more depth (Section 4.2), discuss the exposure of assets to these hazards in the City (Section 4.3), and estimate losses or assess risk for significant events associated with these hazards (Section 4.4).

4.2. Hazard Profile

This section discusses the highest priority natural hazards the City areas and Special District areas are expected to experience; wildfire, earthquake/geologic hazards, and flood.

Flood

Floods are the most common and widespread of all natural disasters faced by the City. Most communities in the United States have experienced some kind of flooding during or after spring rains, heavy thunderstorms, winter snow thaws, or summer thunderstorms.

A flood, as defined by the National Flood Insurance Program is: "A general and temporary condition of partial or complete inundation of two or more acres of normally dry land area or of two or more properties (at least one of which is the policyholder’s property) from:

- Overflow of inland or tidal waters, or
- Unusual and rapid accumulation or runoff of surface waters from any source, or
- Mudflow, or

- Collapse or subsidence of land along the shore of a lake or similar body of water as a result of erosion or undermining caused by waves or currents of water exceeding anticipated cyclical levels."

Floods can be slow or fast rising but generally develop over a period of hours or days. Mitigation includes any activities that prevent an emergency, reduce the chance of an emergency happening, or lessen the damaging effects of unavoidable emergencies. Investing in mitigation measures now, such as: engaging in floodplain management activities, constructing barriers, such as levees, and purchasing flood insurance will help reduce the amount of structural damage to structures and financial loss from building and crop damage should a flood or flash flood occur.

The standard for flooding is the 1% annual chance flood, commonly called the 100-year flood, the benchmark used by the Federal Emergency Management Agency (FEMA) to establish a standard of flood control in communities throughout the country. The 1% annual chance flood is also referred to as the base flood.

The 1% annual chance flood is the flood that has a 1% chance of being equaled or exceeded in any given year and it could occur more than once in a relatively short period of time. By comparison, the 10% flood (10-year flood) means that there is a 10% chance for a flood of its size to occur in any given year.

Figure 14 provides flood hazard data for City of San Bernardino as mapped in FEMA's National Flood Hazard Layer for California (April, 2010). Mapped areas include areas subject to inundation by the 1% Annual Chance Flood (also referred to as the 100-year flood), and areas subject to inundation in the 0.2% Annual Chance Flood (500-year flood).

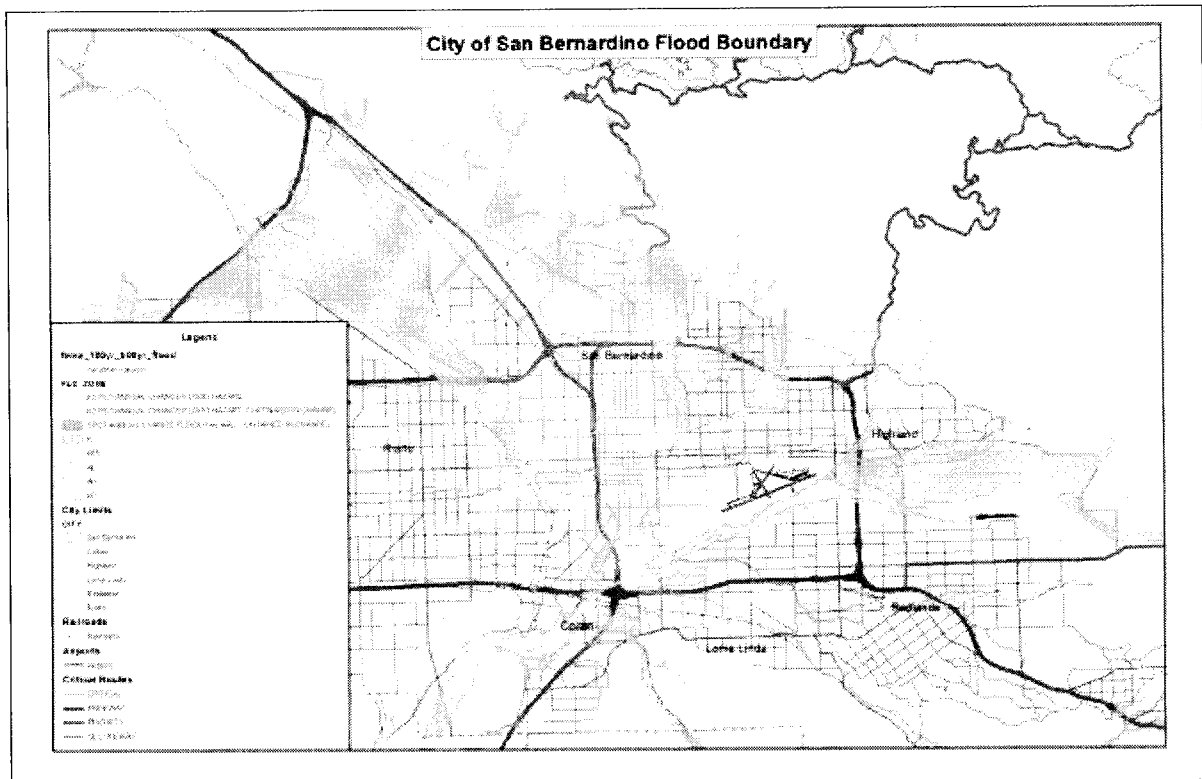


Figure 14. FEMA's National Flood Hazard Layer for City of San Bernardino

Flash Flooding

Flash flooding tends to occur in the summer and early fall because of the monsoon rains and is typified by increased humidity and high summer temperatures.

Flash flooding causes road and bridge washouts and erosion of earthen channels and basins when they occur near these facilities. The City may experience street closures for several days due to sediment transport and road damage. The urban valley also can experience flash flooding in its narrow canyons and within the many unimproved creeks and interim channels feeding the Santa Ana River. The valley floor in many areas is very flat so even minor rain events can produce flooding of roads and private property. In coordination with the City, the County of San Bernardino Flood Control District has prepared Master Drainage plans for the City to provide a plan for reducing flooding due to minor storms. However, local resources are not sufficient to cover the cost of the construction of the drainage systems. The densely populated urban valley region of the City contains the headwaters of the Santa Ana River. The San Gabriel and San Bernardino Mountains border the North side of the valley are steep reaching 5,000 feet with alluvial fans, which are developed and densely populated.

As cited in the City General Plan, the City has experienced severe and widespread flooding throughout its history. Data from 1/2005-11/2011 shows 20 flash flood events in the City of San Bernardino. There is no data on the dollar loss. Several major drainage basins have the potential to subject residents and

structures to a high risk of flooding. The City has entered into an agreement to participate in the National Flood Insurance Program (NFIP), which provides flood insurance within designated floodplains.

StormReady

City of San Bernardino is working towards becoming a StormReady city.

Alluvial Fan Taskforce

In December of 2002, the California Floodplain Management Task Force Report recommended that “The State should convene a task force specifically for alluvial fans, with stakeholder participation, to review the state of knowledge regarding alluvial fan floodplains, determine future research needs, and, if appropriate, develop recommendations relating to alluvial fan floodplain management, with an emphasis on alluvial fan floodplains that are being considered for development.”

In September of 2004, Governor Arnold Schwarzenegger signed Assembly Bill 2141, which recommended the creation of the Alluvial Fan Task Force (Task Force). The Director of the Department of Water Resources (DWR) convened the Task Force in December of 2007 after funding to support Task Force activities was secured from a Pre-Disaster Mitigation Planning Grant from the Federal Emergency Management Agency (FEMA) and a state match was authorized by Assembly Bill 466. Funding supported the tasks charged to the Task Force including:

1. Review the state of knowledge regarding alluvial fan floodplains;
2. Determine future research needs;
3. Develop a voluntary locally-adopted model ordinance for communities subject to alluvial fan flooding that supports land use decisions on alluvial fans;
4. Develop local planning tools to assist local communities evaluate development on alluvial fans; and
5. Prepare recommendations relating to alluvial fan floodplain management.

Appointments to the Task Force by DWR Director Lester Snow represented a broad range of interests. Members included elected officials, represented by five Supervisors from Kern, Los Angeles, Riverside, San Diego, and City of San Bernardino where future alluvial fan development is projected. Appointments also included representatives of the development and environmental community, local floodplain managers and associated state and federal agencies, including the Federal Emergency Management Agency (FEMA), plus at-large members representing other issues related to future development on alluvial fans. The entire process was coordinated by the Water Resources Institute at California State University San Bernardino.

The primary purpose of the Alluvial Fan Taskforce Findings and Recommendations Report (July 2010) and The Integrated Approach for Sustainable Development on Alluvial Fans (July 2010) documents are to provide a non-prescriptive and flexible model that local governments can use at their own discretion, adapting to local conditions and needs, that supports wise future land use decisions associated with development on alluvial fans.

The City of San Bernardino will review and analyze the findings and recommendations from the recently released Alluvial Fan Taskforce reports, provided that funding for this task is available. The review and analysis would determine whether or not additional amendments to development standards or polices are merited.

The City may review the development of the suite of local planning tools for pre-project screening for future development proposals on alluvial fans. If funding allows for the review, these planning tools may be useful as an optional database reference for project management. Additionally, the flood management tools designed to analyze alluvial fan flood hazards and formulate flood hazard protection, which were developed to be consistent with FEMA guidelines, may provide an optional data source for project development. Long term funding for updating and maintaining the pre-project screening tools database is a concern regarding the reliability for current data.

If funding exists, for the implementation of the Integrated Approach for Sustainable Development on Alluvial Fans, the methods contained therein may be used as some of the approaches for planning and evaluating the suitability of development on alluvial fans. During the analysis and review, if budgets allow, the long-term ecological and financial sustainability issues would also be evaluated.

Severe weather events leading to flooding are listed in **Table 3**; several major events are discussed below.

Table 3. Severe Weather Events 2005-Present

Date	Type
7/7/2006	Thunderstorms-Flooding
10/13/2006	Thunderstorms and Flooding
11/30/2007	Heavy Rains
8/30/2008	August Thunderstorms
1/18/2010	January 2010 Winter Storms
12/17/2010	December 2010 Winter Storm Event

Wildfires

Wildfires present a significant potential for disaster in the City, a region of relatively high temperatures, low humidity, and low precipitation during the summer. This long summer season is followed by a fall season that is famous for high velocity, very dry winds that come out of the desert. The Santa Ana winds very consistently arrive from the middle of October to the end of November. In and of themselves, these weather patterns would be of little significance without the un-naturally dense forest and the dense undergrowth that has been allowed to grow unabated for the last several decades. Compounding the vegetative growth that has occurred is the unchecked development of substantial housing and businesses in the foothill portions (Wildland-Urban Interface) of the City. This urbanized growth has required parallel growth and sophistication in the fire service that responds to wildfires in the wild land

urban interface. With immediate responses to initial fire starts, the vast majority of fires are successfully extinguished in short order. In doing so, this eliminates nature's way of thinning the forest through smaller fires. Wildfires are an unplanned, unwanted wildland fire including unauthorized human-caused fires, escaped wildland fire use events, escaped prescribed fire projects, and all other wildland fires where the objective is to put the fire out. A wildfire burning into the city could destroy or damage hundreds or thousands of homes and businesses, disrupt the economic structure of the City and its residents, and significantly impact the city economically through reduced taxes, lowered property values, and dislocated residents and businesses.

In order to mitigate much of the wildfire danger resulting from an overly dense forest, the City of San Bernardino along with neighboring jurisdictions developed and implemented the Mountain Area Safety Task Force (MAST). MAST provides a single point of coordination for numerous Federal, State, and local agencies that perform a multitude of tasks related to creating fire safe communities. MAST provides an extensive Fuels Reduction Program. The Fuels Reduction Program began with removal of dead hazardous trees from areas threatening electrical transmission lines, evacuation routes, and structures within the San Bernardino Mountains. As additional hazards were identified, such as green fuel load density and wood shake roofs on structures within the San Bernardino Mountains, programs were developed to reduce or eliminate the hazard.

The Fire Severity Zones for the City of San Bernardino identify areas of Very High, High, and Moderate fire hazard severity throughout the City (**Figure 15**) below –(Map Data from Cal Fire and USFS). Fire Severity Zones are used in determining additional protective measures required when building new structures or remodeling older structures within the particular zone. Additional measures must be taken on the property around a structure in the higher ranked fire Severity Zones.

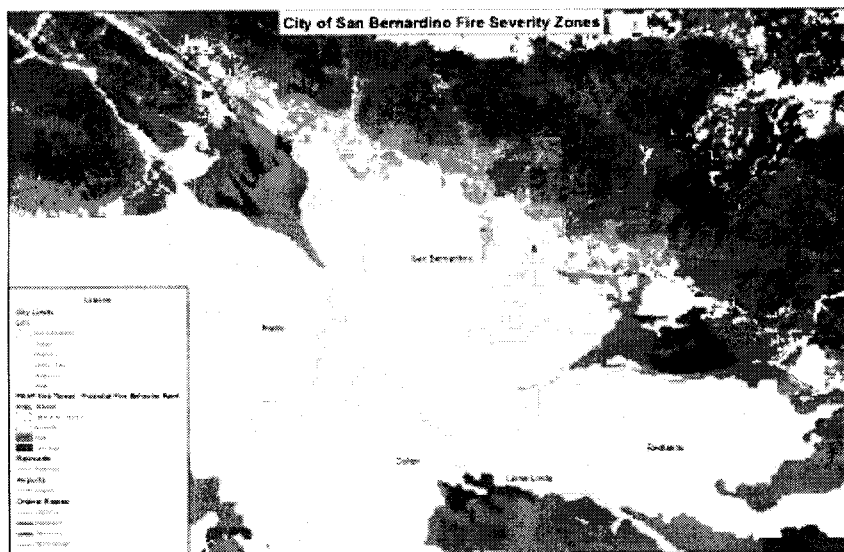


Figure 15. Fire Hazard Severity Zones

WILDFIRE OCCURRENCES

Wildfire locations from 2000 – 2011 are shown in **Figure 16**. In the past five years, (since the 2005 LHMP was approved) there have been 2 significant wildland fires within City of San Bernardino. These fires are listed in **Table 4**, and several of the more damaging fires are discussed below.

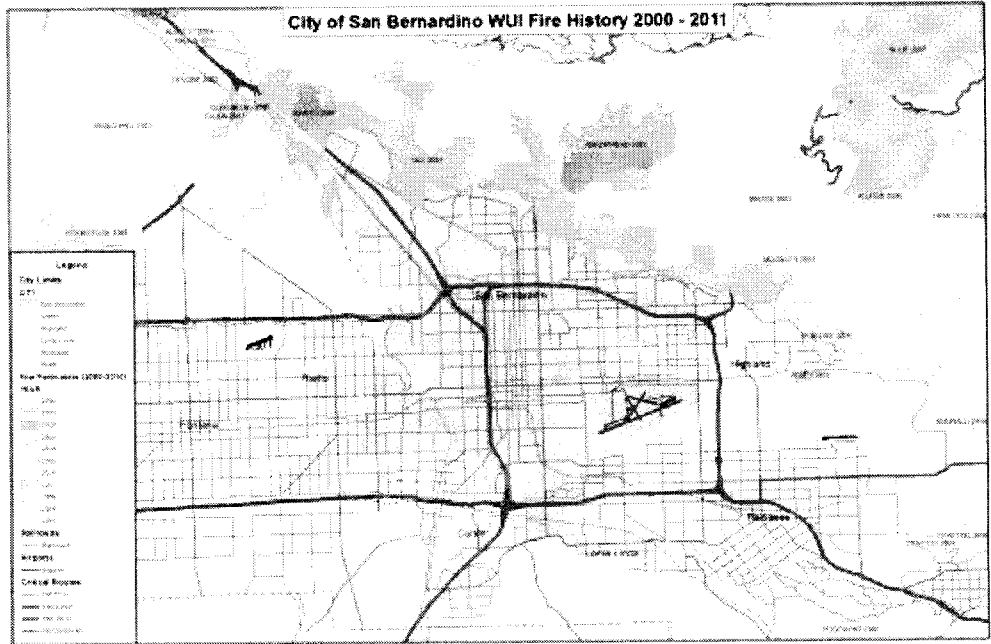


Figure 16. Wildfire History 2000 – 2011 (CalFire and USFS Data 2013)

Table 4. Wildfire Occurrences 2005–2010

Number	Date	Name	Acres
1.	10/13/2008	Interstate 215 Fire	250
2.	10/14/2008	Little Mountain Fire	225
3.	1/20/2005 thru 5/11/2011	Multiple small wildland fires	3,309
			3,78475

San Bernardino has had 1,966 wildland fires between January 2005 and December 2011. Most of these fires were held to 1 acre due to rapid response and an aggressive wildland inspection program. Our large fires typically cycle every 15-20 years. This occurs when the annual grasses and scrub oak regrow on the interface creating a large fire load. With the straight-line winds blowing on this fuel bed, it is impossible to stop these fires from burning into the City of San Bernardino. Several fires were wind driven by high Santa Ana winds in the area. Total costs of the fires including property loss and suppression costs was \$1.8 million.

The Panorama and Old Fires all occurred in the City's mapped Very High Fire Severity Zone. Both fire followed roughly the same path into the city. It can be expected for another similar fire to occur in the next 15-20 years. Mitigation efforts have reduced but not eliminated the threat from wildfire. The strong fall winds that are capable of creating firestorms cannot be controlled. Drought cannot be controlled. Fuels reduction programs reduce the potential spread of fire, upgraded Building Codes make structures more fire resistant, and public education prepares residents for wildfires. However, the threat of wildfire remains. The continuing goal is to reduce the threat from wildfire wherever possible.

Earthquake/Geologic Hazards

An earthquake is a sudden, rapid shaking of the earth caused by the breaking and shifting of rock beneath the earth's surface. For hundreds of millions of years, the forces of plate tectonics have shaped the earth as the huge plates that form the earth's surface move slowly over, under, and past each other. Sometimes the movement is gradual. At other times, the plates are locked together, unable to release the accumulating energy. When the accumulated energy grows strong enough, the plates break free, causing the ground to shake. Most earthquakes occur at the boundaries where the plates meet; however, some earthquakes occur in the middle of plates.

Ground shaking from earthquakes can collapse buildings and bridges; disrupt gas, electric, and phone service; and sometimes trigger landslides, avalanches, flash floods, fires, and huge, destructive ocean waves (tsunamis). Buildings with foundations resting on unconsolidated landfill and other unstable soil, and trailers and homes not tied to their foundations are at risk because they can be shaken off their mountings during an earthquake. When an earthquake occurs in a populated area, it may cause deaths and injuries and extensive property damage.

Earthquakes can strike suddenly, without warning. Earthquakes can occur at any time of the year and at any time of the day or night. On a yearly basis, 70 to 75 damaging earthquakes occur throughout the world.

Figure 17 shows the locations of major faults in California, including the four (4) major faults in Southern California in relation to City of San Bernardino. These faults are the Southern San Andreas, the San Jacinto, the Elsinore, and the Garlock Faults. There are also many smaller faults within City of San Bernardino capable of producing significant earthquakes. However, these four faults are considered by the United States Geological Survey (USGS) and the California Geological Survey (CGS) to be the most dangerous in the City. (California Geological Survey Special Publication 42, Interim Revision 2007, "Fault-Rupture Hazard Zones in California" - Alquist-Priolo Earthquake Fault Zoning Act)

Other geologic hazards include liquefaction and landslides. Both occur during and after earthquakes.

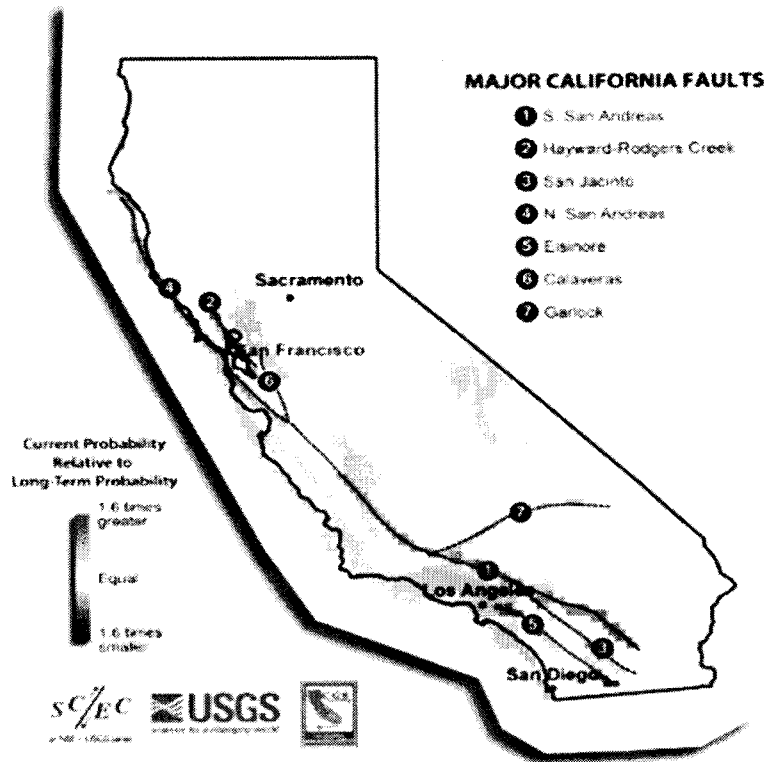


Figure 17. Major California Faults

Table 5 shows earthquakes greater than Magnitude 4.0 that have been felt within the City of San Bernardino area in the last five years. None caused notable damage in City of San Bernardino.

Table 5. Earthquakes: 2005-2013 City of San Bernardino

Date	Name
6/12/2005	Anza 5.2
6/16/2005	Yucaipa 4.9
7/29/2008	Chino Hills 5.4
12/6/2008	Ludlow 5.1
1/9/2009	San Bernardino 4.5
3/16/2010	Chino Hills 4.4
4/4/2010	El Mayor-Cucapah Earthquake 7.2
6/15/2010	El Centro 5.7
7/7/2010	Borrego Springs 5.4
8/8/2012	Yorba Linda 4.46
8/8/2012	Yorba Linda 4.45
3/11/2013	N of Anza Borrego 4.7

There are hundreds more small ($M < 4.0$) earthquakes that have occurred within City of San Bernardino during this same time frame. Those with a magnitude of below 4.0 are not listed. None of these earthquakes occurred on one of California's Major faults.

Several of the major Southern California faults have a high probability of experiencing a Magnitude 6.7 or greater earthquake within the next 30 years (**Figure 18**); 59% probability of a $M \geq 6.7$ or greater on the Southern San Andreas Fault, 31% probability on the San Jacinto Fault, and 11% probability on the Elsinore Fault. These probabilities were determined by the USGS and CGS in a 2008 study (2007 Working Group on California Earthquake Probabilities, 2008, *The Uniform California Earthquake Rupture Forecast, Version 2 (UCERF 2)*: U.S. Geological Survey Open-File Report 2007-1437 and California Geological Survey Special Report 203 [<http://pubs.usgs.gov/of/2007/1437/>]).

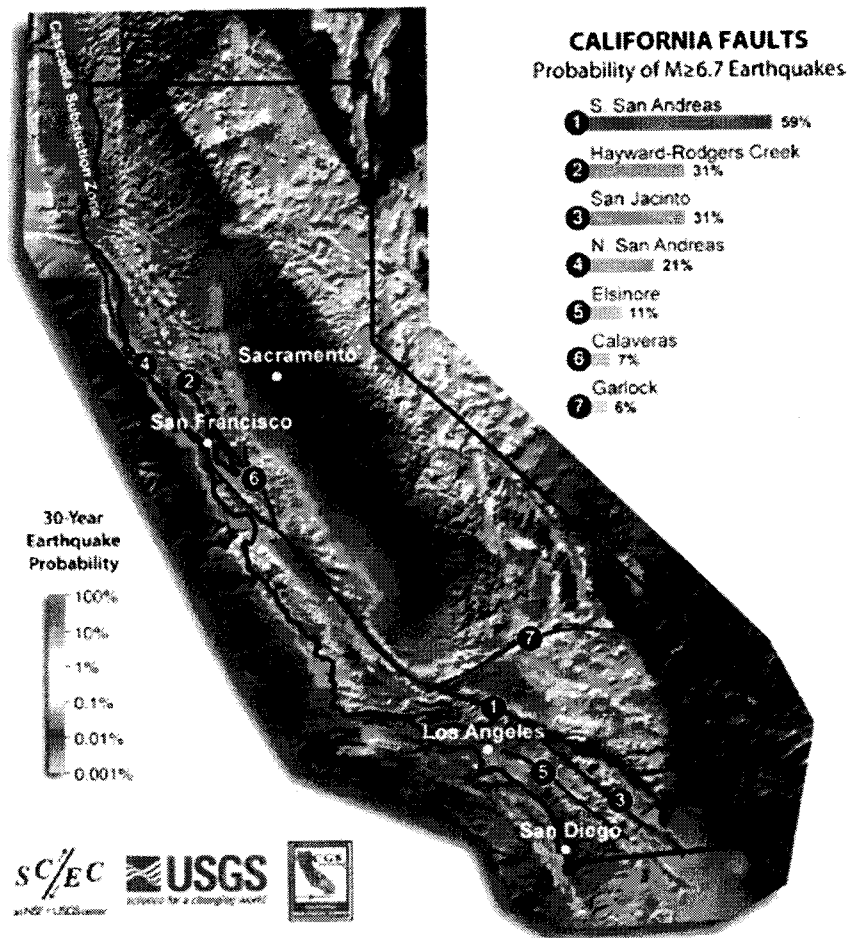


Figure 18. California Faults - Probability of $\geq M6.7$ Earthquake

As shown in **Figure 19**, the probability of an earthquake with a Magnitude 6.7 or greater occurring somewhere in Southern California within the next 30 years are estimated to be 97% (2007 Working Group on California Earthquake Probabilities, 2008). As can be seen in the table, earthquake probabilities in Southern California are higher than those for Northern California.

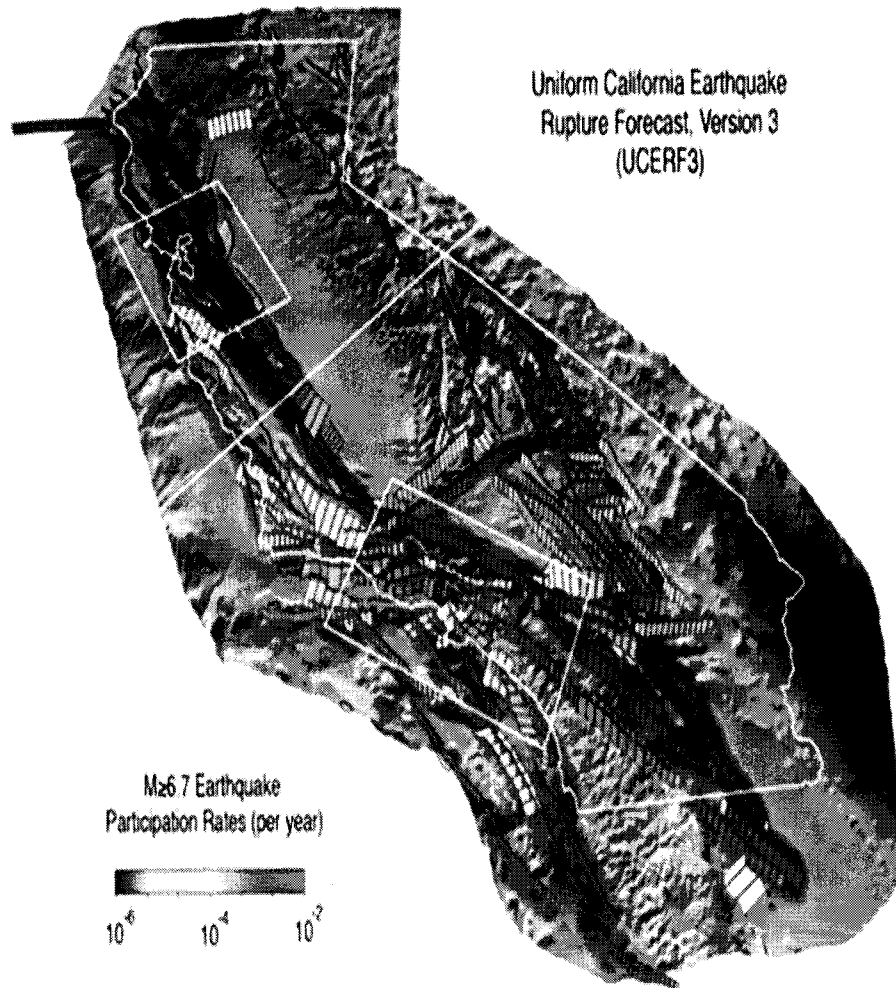


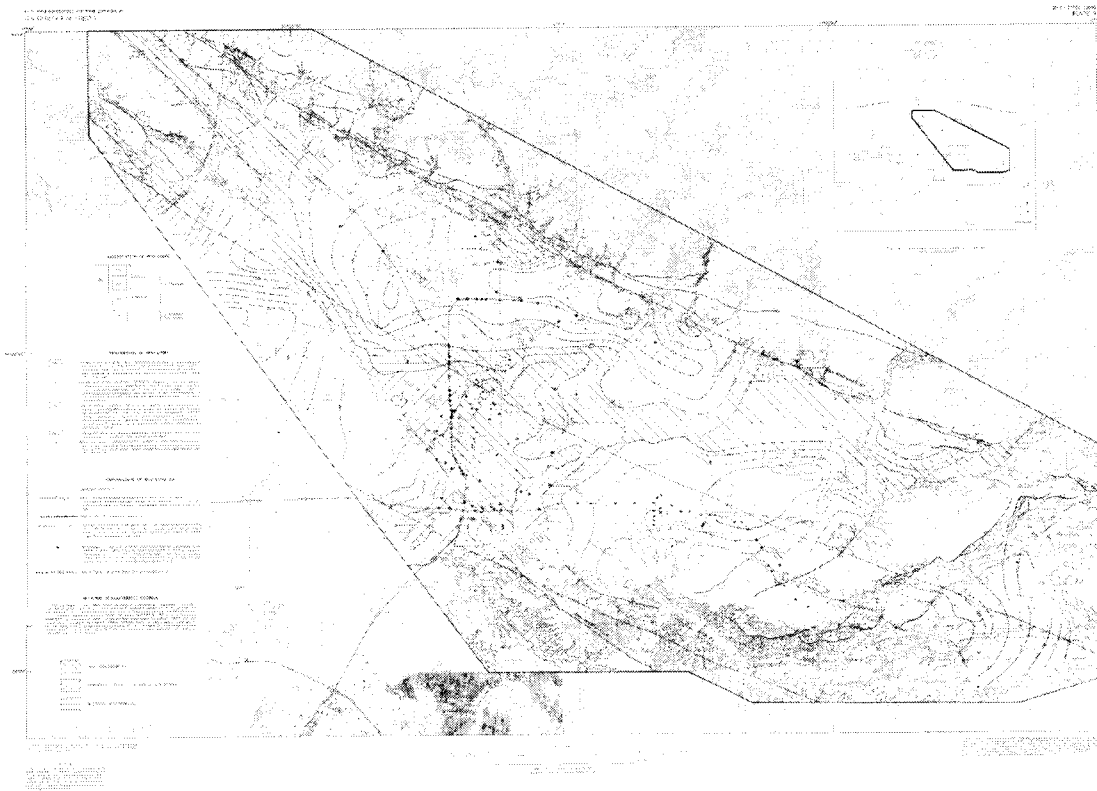
Figure 19. California Area Earthquake Probabilities By Magnitude By Probability

Liquefaction of the ground occurs when the groundwater table is high and soil conditions are favorable. Liquefaction Susceptibility Zones as mapped by the USGS for the 2008 ShakeOut Scenario¹⁰ (**Figure 20**) shows areas of the City susceptible to liquefaction during an earthquake. The susceptible areas are

¹⁰ As documented in USGS Open File Report 2008-1150, Chap. 3C (p. 48-87), available from: <http://pubs.usgs.gov/of/2008/1150/>

those where the water table is within 50 feet of the surface. As the depth to the water table becomes shallower, the risk of liquefaction increases. Areas most susceptible are those with a water table less than 10 feet below the surface.¹¹ Areas affected are those below the mouths of canyons adjacent to the San Bernardino Mountains and areas in the San Bernardino Valley where the water table is less than 50 feet of the surface. As the water table depth increases, the risk from liquefaction decreases. Where the water table depth is greater than 50 feet, the risk from liquefaction is considerably less. City building codes address the risks and mitigation that is required when building occurs within the identified liquefaction zones within the City limits.

The "Bunker Hill Basin" underlies all of the City of San Bernardino. According to the latest published report (July 2015) much of the city is over ground water table sub-surface levels of 50' or less. Due to the current drought, the highest sub-surface water tables are around 25' below ground level. Depending upon rainfall amounts received in the next two or three years and the amount of water pumped from the basin, these levels may increase, decrease or remain the same. The San Bernardino Valley Metropolitan Water District manages the Bunker Hill Basin, monitors water levels and issues reports on the basin conditions.



LIQUEFACTION SUSCEPTIBILITY MAP OF THE SAN BERNARDINO VALLEY AND VICINITY
FOR AN M_w 8.0 EARTHQUAKE ON THE SAN ANDREAS FAULT

**Figure 20. USGS Liquefaction Susceptibility Zones
USGS Bulletin 1898 Plate 3**

¹¹ USGS Bulletin 1898 Liquefaction Susceptibility in the San Bernardino Valley and Vicinity, Southern California

Other Hazards

As mentioned earlier, lower priority hazards are addressed at a lesser level of detail due to their relatively fewer impacts, as identified in the preceding hazard assessment section. The lower priority hazards for the City area are:

- Severe Thunderstorm
- Infestation
- Drought
- High Winds/Straight Line Winds
- Lightning
- Extreme Heat
- Hail
- Tornado

Although not part of the LHMP, the remaining hazards are a part of the City of San Bernardino 2005 General Plan and are addressed in the City Building Codes and Ordinance.

4.3. Inventory Assets

The third step in the Risk Assessment process is to describe the various assets exposed to the identified hazards, including residential, commercial, and industrial buildings throughout the impacted area, critical facilities, as well as critical infrastructure.

Buildings

Table 6 provides an estimate of the number and size of buildings in the City's area as well as the replacement value of the buildings and their contents. The table provides information by occupancy class (e.g., residential, commercial, etc.), as well as by construction type (e.g., concrete, wood frame, etc.).

This information was derived from a database generated for the FEMA-funded "County of San Bernardino Essential Facilities Risk Assessment (SBEFRA)" project, completed in 2009. The project utilized Assessor's data to create updated building inventory databases for use in HAZUS-MH, FEMA's GIS-based earthquake, flood and hurricane loss assessment software. In addition, the SBEFRA project also collected and synthesized improved data for essential facilities Citywide. These data were used to estimate economic and population impacts for selected earthquakes and floods using FEMA's HAZUS-MH program.

Table 6. Building/Contents Replacement Value

Building Inventory Information by General Occupancy	Building Replacement Value (\$1,000)	Contents Replacement Value (\$1,000)	Building Square Footage (1,000 Sq. Ft.)	Building Count
<i>Residential</i>	10,792,680	10,792,680	129,954	64,977

City of San Bernardino

<i>Commercial</i>	2,635,200	2,635,200	13,176	3,294
<i>Industrial</i>	9,540,000	9,540,000	47,700	636
<i>Other</i>	7,090,000	7,090,000	35,450	709
TOTAL	\$30,057,880	\$30,057,880	226,280	72,039

Selected Building Inventory Data by General Building Type	Building Replacement Value (\$1,000)	Building Replacement Value (%)	Estimated Building Count*	% of Building Count
<i>Concrete</i>	1,833,531	6.1%	1,430	1.9%
<i>Manufactured Housing</i>	\$691,331	2.3%	5,016	7.0%
<i>Precast Concrete</i>	\$1,172,257	3.9%	890	1.2%
<i>Reinforced Masonry</i>	\$2,104,052	7.0%	2,099	2.9%
<i>Steel</i>	\$270,521	0.9%	1,291	1.8%
<i>Unreinforced Masonry</i>	\$150,289	0.5%	455	0.7%
<i>Wood Frame (Other)</i>	\$2,855,499	9.5%		0%
<i>Wood Frame (Single-family)</i>	\$20,980,400	69.8%	60,861	84.5%
TOTAL	\$30,057,880		72,042	100

Critical Facility List

As stated in the City of San Bernardino Emergency Operations Plan (EOP), the City of San Bernardino Police Department (Police) is the lead City agency in identifying critical infrastructure in the City. A Police Department Working Group was established to identify Critical Facilities throughout City of San Bernardino. Due to Homeland Security and issues related to terrorism, this list is not included in the LHMP, but is available through the Police Department.

The Police Department maintains a Critical Infrastructure Database listing the site name, location, critical level, threat level, site type, and contact information. This database was created for the 2005 LHMP and has been updated regularly by the Intelligence Division. The Police Intelligence Division has created Emergency Response Folders (Folders) on each of the locations. The Folders contain site-specific information needed by emergency personnel to respond to any type of emergency. The Folders contain floor plans, photographs, entry/exit points, utility locations, ingress and egress locations, known hazardous materials on site, and emergency contact information for the responsible persons of the site. The Police Department maintains control and transport of this information to an Incident Command Post/Department Operations Center/Emergency Operations Center when needed.

Table 7 represents only a general list of City critical facilities and their critical rank. Due to on-going security concerns, specific information regarding City Critical Facilities is maintained by the City Police Department (as stated above) and will not be listed in this section.

Table 7. Critical Facility List

Name	Facility Type	Critical Rank
Hospitals	Medical Facilities	Critical
Public Health Facilities	Medical Facilities	Critical
Fire Stations	Fire Stations	Critical
Police Stations	Police Stations	Critical
Radio/Communication Towers	Other	Critical
Schools	Other	High
Sewage Treatment Plants	Water and Sewer	High
City Buildings	Government Facilities	Average

For the current risk assessment, selected critical facilities (as modeled in the 2009 SBEFRA study and identified on map layers available through the City's GIS department) have been located relative to available hazard maps. The results are provided in **Table 8**.

City of San Bernardino

Table 8. Hazard Identification for Selected Essential Facilities

	OWNER	City of San Bernardino Fire Department	City of San Bernardino	City of San Bernardino Police Department		City of San Bernardino Parks, Recreation & Community Development	City of San Bernardino - City Buildings
		Fire Stations	EOCs	Detention Centers	Stations & Other Facilities	Parks	All
	Total # of Buildings	12	1	1	1	-	-
Fire Hazard Severity Zones - Local Responsibility Area	Very High	12	0	0	0	0	0
	High	0	1	1	1	0	0
Fire Hazard Severity Zones - State Responsibility Area	Moderate	0	0	0	0	0	0
	Very High	0	0	0	0	0	0
Special Flood Hazard Areas Subject to Inundation by the 1% Annual Chance (100-year) Flood	Zone A - no base flood elevations determined	2	0	0	0	0	31
	Zone AE - base flood elevations determined	0	0	0	0	0	47
	Zone AH - Flood depths of 1 - 3 feet (usually areas of ponding); base flood elevations determined	1	0	0	0	0	1
	Zone AO - Flood depths of 1 - 3 feet (usually sheet flow on sloping terrain); average depths determined.	1	0	0	0	0	10
	Zone X (Shaded) - areas of 0.2% annual chance (500 yr.) flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile.	8	0	1	1	0	0
Other flood areas	Zone X Protected by Levee - areas protected by levees from the 1% annual chance flood	0	0	0	0	13	0
	Zone D - areas in which flood hazards are undetermined, but possible	0	0	0	0	1	0
Other Areas	Zone X (Unshaded) - areas determined	1	1	0	0	7	0

City of San Bernardino

	OWNER	FACILITY TYPE	City of San Bernardino Fire Department	City of San Bernardino	City of San Bernardino Police Department		City of San Bernardino Parks, Recreation & Community Development	City of San Bernardino - City Buildings
			Fire Stations	EOCs	Detention Centers	Stations & Other Facilities	Parks	All
		to be outside the 0.2% annual chance (500-year) floodplain						
Dam Inund.	Dam Inundation Areas	In mapped dam inundation area	6	0	0	0	0	0
Earthquake Hazards	Liquefaction Susceptibility	None	6	1	0	1	1	15
		Very Low	1	0	0	0	0	0
		Low	1	0	9	0	8	0
		Moderate	1	0	0	0	5	10
		High	2	0	0	0	2	0
	Very High	1	0	0	0	5	0	
Alquist-Priolo Earthquake Fault Zone	Inside mapped fault zone		0	0	0	0	2	15

Utility Agencies

The utilities and transportation infrastructure is another significant concern for the City. Various laws, ordinances, regulations, standards, and guidelines have been established to ensure proper and thorough mitigation measures to decrease the effects of hazards:

The following are two of the major utility agencies:

Southern California Edison (SCE) has undertaken an all-hazards approach to planning for an emergency event. SCE has developed an Emergency Response and Recovery Plan to provide a safe and reliable electric service. SCE also has a long-standing relationship with the City and is an active member of several local, state, and federal organizations. According to SCE they have acted to mitigate the impacts of hazards on their electrical system.

Southern California Gas Co. (The Gas Company) has also coordinated with the City, maintains a natural gas high-pressure system within the City, and consists of approximately 100 miles of underground pipelines. The system also includes some above ground facilities. The total replacement cost for the entire system is approximately \$40,000,000. The Gas Company conducts annual training for the first responders within their service territories to teach the proper methods of responding to and working with natural gas leaks. Staff from The Gas Company serves on local emergency management committees within their service territory.

4.4. Vulnerability Assessment

This section presents the results of the vulnerability assessment, estimating potential losses or impacts to buildings, infrastructure, and population for the various identified hazards.

Methodology

Identified risks included in the 2005 LHMP were reviewed. Frequency of occurrence and magnitude of each type of event for the five years since the 2005 LHMP were added to the databases. These databases of frequency and severity were considered in the update of the estimated hazard impacts.

Results for Wildfire

- a. **Population:** Approximately 30% of the population in the City's Unincorporated Area's population is vulnerable.
- b. **Critical Facilities:** Approximately 85% of the City's Unincorporated Area's critical facilities are vulnerable. The numbers of City's critical facilities vulnerable are summarized in **Table 9**.

Table 9. Critical Facilities within Wildfire Hazard Area

Name	# of Facilities
Hospitals	0
Public Health Facilities	0
Fire Stations	3
Sheriff/Police Stations	0
Radio/Communication Towers	8
City Supt. Of Schools	0
Sewage Treatment Plants	0
City Buildings	9
Total	20

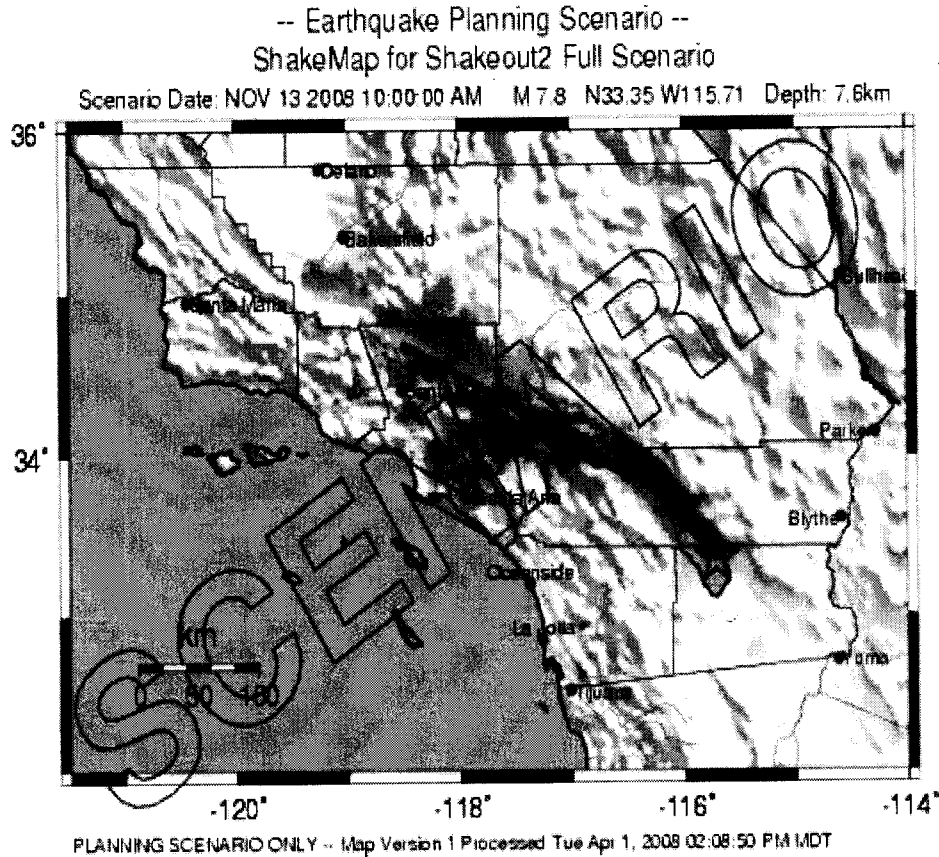
Results for Earthquake

Below are USGS ShakeMaps for three scenario earthquakes simulated for the 2014 Local Hazard Mitigation Plan. The three scenarios are:

- Magnitude 7.8 “ShakeOut” Scenario on the Southern San Andreas Fault (**Figure 21**)
- Magnitude 6.7 San Jacinto Fault (Figure 22)
- Magnitude 6.7 Chino Hills Fault (Figure 23).

For the incorporated areas of the City, earthquake loss estimates and critical facility damage and functionality have been estimated using HAZUS (HAZUS-MH MR-4), with the improved regional building and essential facility inventory databases developed under FEMA funding for the City of San Bernardino Essential Facilities Risk Assessment (SBEFRA) Project. The risk assessment of critical facilities considers those essential facilities (fire stations, police facilities, EOCs, and schools) for which HAZUS-compatible databases have been developed.

Table 10 summarizes HAZUS-estimated Direct Economic Loss, Casualties, and Building Damage by General Building Type for buildings located in the City areas in the three earthquake scenarios. As noted above, these statistics were developed using HAZUS-MH MR-4 with the updated inventory databases developed for the 2009 SBEFRA Project.



PERCEIVED SHAKING	Not felt	Weak	Light	Moderate	Strong	Very strong	Severe	Violent	Extreme
POTENTIAL DAMAGE	none	none	none	Very light	Light	Moderate	Moderate/Heavy	Heavy	Very Heavy
PEAK ACC (%g)	<0.17	0.17-1.4	1.4-3.9	3.9-9.2	9.2-18	18-34	34-65	65-124	>124
PEAK VEL (cm/s)	<0.1	0.1-1.1	1.1-3.4	3.4-8.1	8.1-16	16-31	31-60	60-116	>116
INSTRUMENTAL INTENSITY	I	II-III	IV	V	VI	VII	VIII	IX	X

Figure 21. Scenario 1: Magnitude 7.8 Earthquake - Southern San Andreas Fault

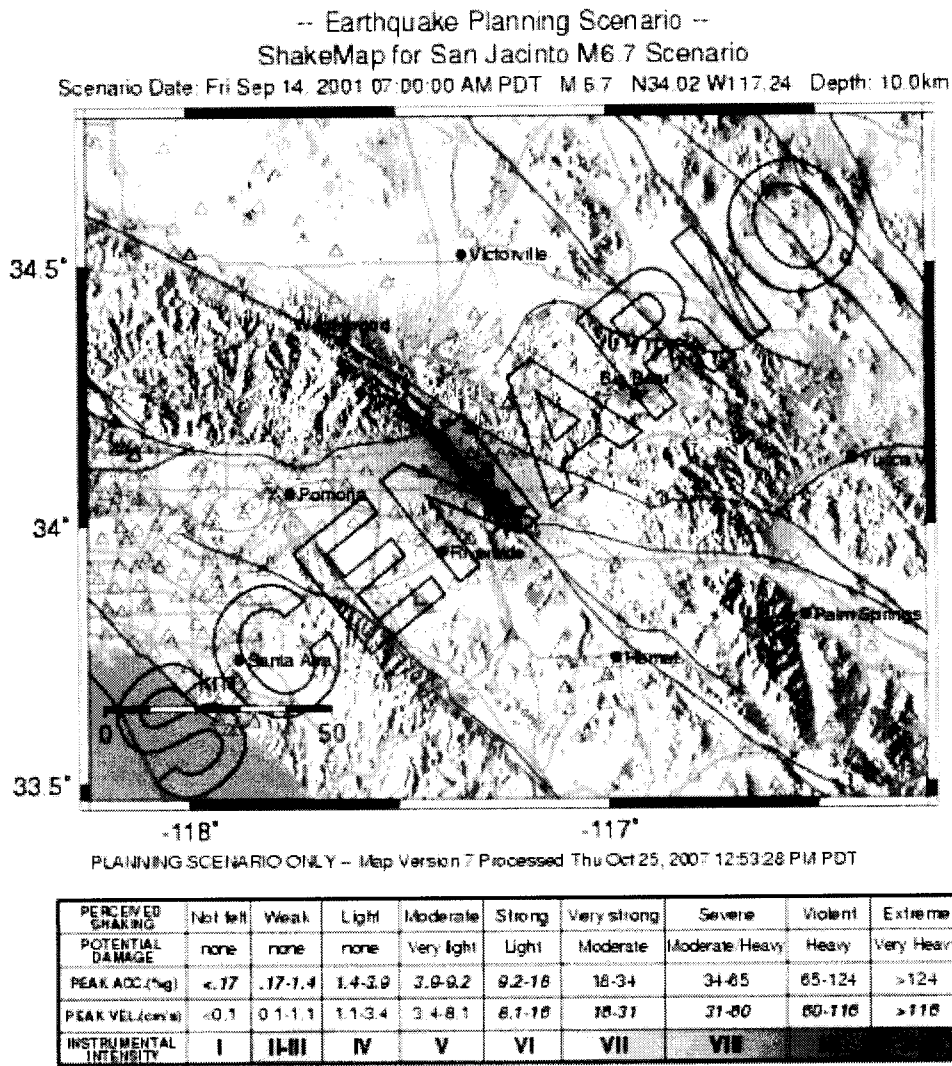
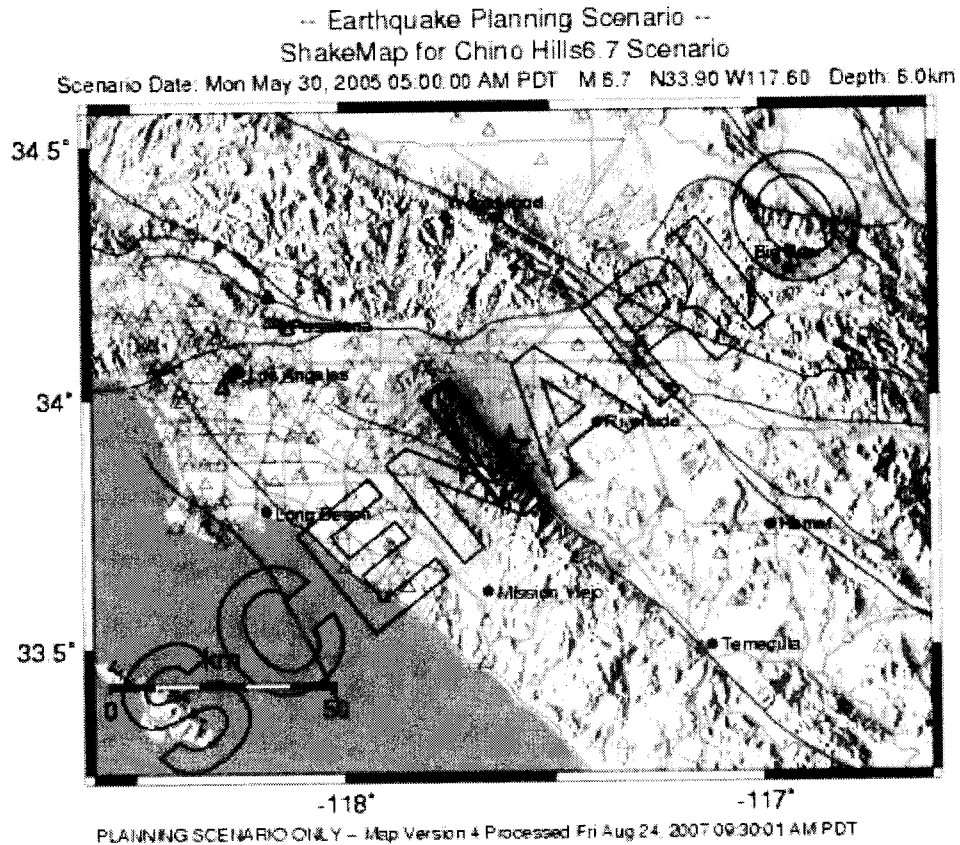


Figure 22. Scenario 2: Shakemap for Magnitude 6.7 Earthquake San Jacinto Fault



PERCEIVED SHAKING	Not felt	Weak	Light	Moderate	Strong	Very strong	Severe	Violent	Extreme
POTENTIAL DAMAGE	none	none	none	Very light	Light	Moderate	Moderate Heavy	Heavy	Very Heavy
PEAK ACC (%g)	<.17	.17-1.4	1.4-3.9	3.9-9.2	9.2-18	18-34	34-65	65-124	>124
PEAK VEL (cm/s)	<0.1	0.1-1.3	1.3-3.4	3.4-8.1	8.1-18	18-31	31-60	60-116	>116
INSTRUMENTAL INTENSITY	I	II-III	IV	V	VI	VII	VIII		

Figure 23. Scenario 3: Shakemap for Magnitude 6.7 Earthquake Chino Hills Fault

City of San Bernardino

Table 10. Direct Economic Loss, Casualties, and Building Damage by General Building Type for the City of San Bernardino

		Earthquake Scenario		
		M7.8 ShakeOut Scenario (including Liquefaction)	M6.7 San Jacinto Fault (including Liquefaction)	M6.7 Chino Hills Fault (including Liquefaction)
Direct Economic Losses for Buildings (\$1,000,000)				
	Total Building Exposure Value	3,135.44		
Capital Stock Losses	Cost of Structural Damage	398.03	207.08	14.66
	Cost of Non-Structural Damage	1,620.70	883.43	68.43
	Total Building Damage (Str. + Non-Str.)	2,018.73	1090.51	83.09
	Building Loss Ratio %	64.38%	34.78%	2.65%
	Cost of Contents Damage	517.98	324.37	23.60
	Inventory Loss	11.62	8.1	0.55
Income Losses	Relocation Loss	253.87	143.52	8.99
	Capital-Related Loss	86.76	52.94	3.08
	Rental Income Loss	124.09	67.84	4.67
	Wage Losses	122.40	76.68	4.41
	Total Direct Economic Loss	3,135.45	1763.96	128.39
Casualties				
Day Casualties	Casualties - 2 pm			
	Fatalities	158	63	0
	Trauma injuries	84	34	0
	Other (non-trauma) hospitalized injuries	510	216	2
	Total hospitalized injuries	752	313	2
	Injuries requiring Emergency Department Visits	1746	813	29
	Total injuries	2,498	1,126	31
Night Casualties	Casualties - 2 am			
	Fatalities	56	19	0
	Trauma injuries	31	10	0
	Other (non-trauma) hospitalized injuries	291	115	3
	Total hospitalized injuries	378	144	3
	Injuries requiring Emergency Department Visits	1,236	568	27
	Total injuries	1,614	712	30
Shelter				
Shelter	Number of Displaced Households	4,553	1,672	50
	Number of People Requiring Short-term Shelter	4,591	1,789	53
Debris (thousands of tons)				

City of San Bernardino

		Earthquake Scenario		
		M7.8 ShakeOut Scenario (including Liquefaction)	M6.7 San Jacinto Fault (including Liquefaction)	M6.7 Chino Hills Fault (including Liquefaction)
Debris	Brick, Wood & Other (Light) Debris	346	20.7	0.15
	Concrete & Steel (Heavy) Debris	615	35.3	0.15
	TOTAL	976	56	
Building Damage Count by General Building Type				
Concrete	None	191	429	1,235
	Slight	305	395	143
	Moderate	388	348	46
	Extensive	298	182	6
	Complete	248	76	0
	TOTAL	1,430	1,430	1,430
Manuf. Housing	None	23	201	3,449
	Slight	183	509	885
	Moderate	1,028	1,500	595
	Extensive	1,896	1,782	85
	Complete	1,887	1,025	3
	TOTAL	5,017	5,017	5,017
Precast Concrete	None	102	215	731
	Slight	155	205	96
	Moderate	277	278	54
	Extensive	197	132	10
	Complete	160	60	0
	TOTAL	891	891	891
Reinforced Masonry	None	455	848	1,881
	Slight	401	466	140
	Moderate	576	488	66
	Extensive	397	221	11
	Complete	269	75	0
	TOTAL	2,098	2,098	2,098
Steel	None	114	304	1,067
	Slight	179	270	143
	Moderate	394	396	69
	Extensive	343	225	10
	Complete	260	95	1
	TOTAL	1,290	1,290	1,290

City of San Bernardino

Unreinforced Masonry	None	3	45	335
	Slight	16	68	71
	Moderate	69	129	39
	Extensive	118	113	10
	Complete	250	101	1
	TOTAL	456	456	456
Building Damage Count by General Building Type (Continued)				
Wood Frame	None	15,699	25,834	54,246
	Slight	24,880	23,728	5,891
	Moderate	15,770	9,805	688
	Extensive	3,141	1,189	29
	Complete	1,368	303	4
	TOTAL	60,858	60,858	60,858
ALL BUILDING TYPES	None	16,587	27,876	62,944
	Slight	26,118	25,641	7,369
	Moderate	18,503	12,944	1,557
	Extensive	6,390	3,844	161
	Complete	4,442	1,735	9
	TOTAL	72,040	72,040	72,040

It should be noted that the estimates of damage by building construction type are based on distributions of expected construction type by occupancy, and are not based on building-specific data. The results are intended to provide a sense of relative risk across construction types, and highlight those construction types of the greatest concern. Should building specific lists exist, these would potentially supersede the estimates provided in the tables.

For example, in the 1990's, the City of San Bernardino compiled a master list of suspected Unreinforced Masonry Buildings within the City. Several appear to have been demolished or retrofitted since the 1990's. The Planning Division is currently in the process of re-evaluating the URM list. Re-evaluation will include a field visit to each site photographing the structure and verifying the construction as unreinforced masonry. There are no large publically utilized URM structures currently on the list.

Expected damage and functionality in the three scenario earthquakes have been estimated for those essential facilities addressed in FEMA's SBEFRA study. Results are provided in **Table 11** below.

City of San Bernardino

Table 11. Direct Economic Loss, Casualties, and Building Damage by General Building Type for the Unincorporated Areas of City of San Bernardino

	FACILITY TYPE	Earthquake Scenario (Including Impacts of Liquefaction)		
		M7.8 ShakeOut Scenario	M6.7 San Jacinto Fault	M6.7 Chino Hills Fault
Fire Stations	City of San Bernardino Fire			
	Total Number of Buildings	12		
	Damage:			
	# Buildings with >50% Probability of Moderate or Greater Damage	5	1	0
	# Buildings with >50% Probability of Complete Damage	0	0	0
	Functionality:			
	Functionality < 50 % on Day 1	19	2	0
	Functionality 50 - 75% on Day 1	12	9	0
Functionality >75% Day 1	38	58	13	
EOCs	City of San Bernardino (Note: EOC building model does not reflect recent mitigation)			
	Total Number of Buildings	1		
	Damage:			
	# Buildings with >50% Probability of Moderate or Greater Damage	0	0	0
	# Buildings with >50% Probability of Complete Damage	0	0	0
	Functionality:			
	Functionality < 50 % on Day 1	0	0	0
	Functionality 50 - 75% on Day 1	0	0	0
Functionality >75% Day 1	1	1	1	
Police Facilities	City of San Bernardino Police -			
	Total Number of Buildings	1		
	Damage:			
	# Buildings with >50% Probability of Moderate or Greater Damage	0	0	0
	# Buildings with >50% Probability of Complete Damage	0	0	0
	Functionality:			
	Functionality < 50 % on Day 1	0	0	0
	Functionality 50 - 75% on Day 1	0	0	0
Functionality >75% Day 1	1	1	1	

City of San Bernardino

City of San Bernardino Police - Stations				
Police Facilities	Total Number of Buildings	1		
	Damage:			
	# Buildings with >50% Probability of Moderate or Greater Damage	0	0	0
	# Buildings with >50% Probability of Complete Damage	0	0	0
	Functionality:			
	Functionality < 50 % on Day 1	0	0	0
	Functionality 50 - 75% on Day 1	0	0	0
	Functionality >75% Day 1	1	1	1

Results for Dam Inundation

Dam Inundation Zones for City of San Bernardino are shown in **Figure 24**. Data have been compiled from plans and information provided by the dam operators in City of San Bernardino and Cal OES. The data were compiled by the City of San Bernardino Information Services Department, Geographic Information Systems 2009.

Dam Inundation Zones are areas subject to flooding should a dam upstream break during an earthquake or as the result of flooding.



Figure 24. Dam Inundation Zones

Results for Flood

shows FEMA National Flood Hazard Layer for City of San Bernardino. The National Flood Hazard Layer provides data from the Digital Flood Insurance Rate Maps (DFIRMs), updated by FEMA for City of San Bernardino in 2008.

The SBEFRA project incorporated these newly updated DFIRM data into HAZUS to assess potential losses in the mapped 100-year (with and without levee protection) and 500-year flood zones. The Citywide results are provided in **Table 12**. (Similar results are not available for just the City areas).

Table 12. HAZUS-Estimated Flood Losses for City of San Bernardino

		Flood Scenario		
		100-year Flood (1% Annual Chance Flood)	100-yr Flood (without levee protection)	500-year Flood (0.2% Annual Chance Flood)
Regional Risk Assessment Results				
Regional Risk	Economic loss due to building damage (\$B)	0.46	1.6	2.7
	Total building-related direct economic loss (\$B)	1.4	5.4	8.6
	Number of buildings in the Complete Damage State	345	350	1,105
	Total # Displaced Households	14,828	52,856	86,062
	Total # people needing short-term shelter	32,095	138,991	231,452
	Debris Generated (million tons)	0.1	0.23	0.37
Essential Facilities	Fire Stations - # Non-functional buildings	2	5	12
	EOCs - # Non-functional buildings	0	0	2
	Police facilities - # Non-functional buildings	0	0	1
	Schools - # Non-functional buildings	149	466	791

Source: FEMA's City of San Bernardino Essential Facilities Risk Assessment (SBEFRA) Study (2009)
<http://www.fema.gov/library/viewRecord.do?id=3804>

Table 13 shows the number of city-owned buildings in each of the different FEMA Flood Zones. **Figure 25** is a detail map of FEMA's Flood Zones in the City.

The maps show that a considerable portion of City of San Bernardino is vulnerable to flooding. The vulnerable areas are addressed in the City's General Plan. See Sections 5 and 6 for additional information. City of San Bernardino has two (2) properties listed in the Repetitive Loss and Severe Repetitive Loss

properties. One of the properties is a single-family residence and the second is a non-resident building. The properties are located in:

- Single family residence – January 1993 and March 1995
- Non-resident building – August 1983 and March 1992

These properties were damaged during unusual storms and/or immediately after a wildfire in the area and are isolated properties in widely scattered areas of the City. The properties were not damaged during the 2009 or 2010 winter storm events. Property addresses are not listed to comply with privacy laws.

The areas are now covered by the City General Plan and City Ordinance. These are in compliance with the National Flood Insurance Program.

The City has experienced severe and widespread flooding throughout its history. Several major drainage basins have the potential to subject residents and structures to a high risk of flooding. In addition, the cumulative increase in impervious surfaces has increased problems related to surface run-off. While complete avoidance or protection through control facilities is not practical, considerable improvement can be made through both structural and non-structural methods. The City currently utilizes land use zoning districts to prohibit habitable structures in floodways as defined by the federal requirements necessary to participate in the National Flood Insurance Program. The consistent adoption of overlays is needed to require special review, conditions, and the prohibition of some uses in floodplain areas (areas subject to 100-year floods), including dry lakes. In addition, there are land use policies and development standards that can be implemented, including reduction of impervious surfaces; increase of percolation, infiltration, and recharge; and the control of urban run-off. Flood hazards are more comprehensively discussed in the Safety Background Report.

City of San Bernardino 2005 General Plan (Effective November 1, 2005) Section VIII. Safety Element – Flood Hazards, Goal 10.12, 10.13, Policy 10.12.1, 10.12.2, 10.12.3, 10.12.4, 10.12.5, 10.12.6, 10.12.7; 10.13.1, 10.13.2, 10.13.3, 10.13.4.

City of San Bernardino

Table 13. City Buildings in FEMA Flood Hazard Zones

OWNER	City Fire Department		City		City Police				City Buildings			
	Fire Stations		EOCs		Detention Centers		Stations & Other Facilities		All			
	#	%	#	%	#	%	#	%	#	%		
Total # of Buildings	12		1		1		1		1251			
Flood Hazards	Special Flood Hazard Areas Subject to Inundation by the 1% Annual Chance (100-year) Flood	Zone A - no base flood elevations determined	2	17%	0	0%	0	0%	0	0%	31	2%
		Zone AE - base flood elevations determined	0	0%	0	0%	0	0%	0	0%	47	4%
		Zone AH - Flood depths of 1 - 3 feet (usually areas of ponding); base flood elevations determined	1	8%	0	0%	0	0%	0	0%	1	0%
		Zone AO - Flood depths of 1 - 3 feet (usually sheet flow on sloping terrain); average depths determined.	1	8%	0	0%	0	0%	0	0%	10	1%
	Other flood areas	Zone X (Shaded) - areas of 0.2% annual chance (500 yr.) flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile.	7	59%	0	0%	0	0%	0	0%	105	8%
		Zone X Protected by Levee - areas protected by levees from the 1% annual chance flood	0	0%	0	0%	0	0%	0	0%	53	4%
	Other Areas	Zone D - areas in which flood hazards are undetermined, but possible	1	8%	0	0%	0	0%	3	0%	439	35%
		Zone X (Unshaded) - areas determined to be outside the 0.2% annual chance (500-year) floodplain	0	0%	1	100%	1	100%	1	100%	565	45%

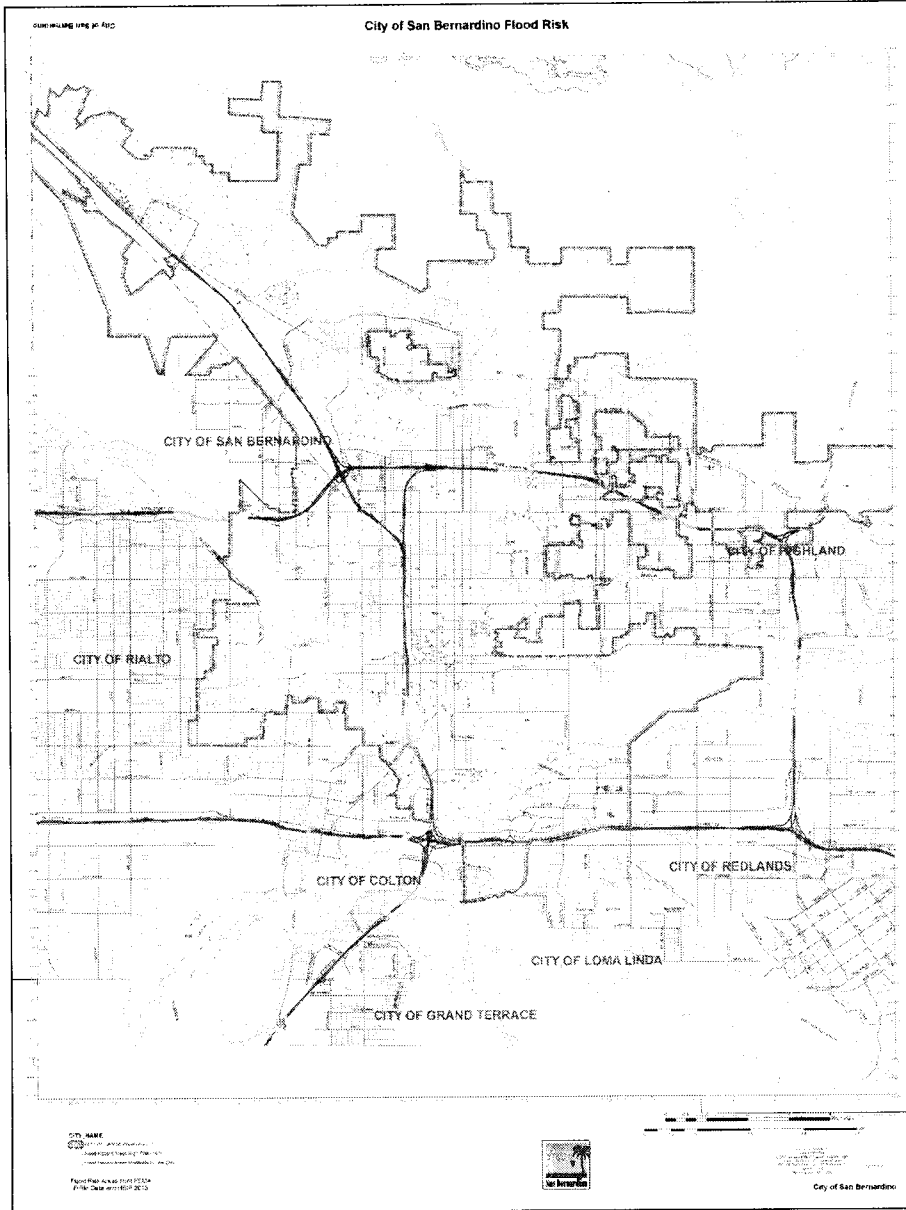


Figure 25. City of San Bernardino Showing FEMA Flood Zones (HSIP FIRM National Flood Hazard Layer, 2013)

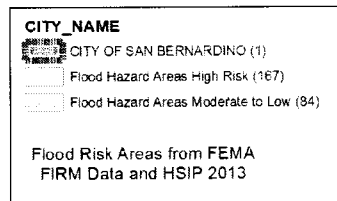


Figure 26. FEMA Flood Hazard Area Map Legend

Section 5. Community Capability Assessment

5.1. Agencies and People

The City of San Bernardino operates under a hybrid Mayor-Council-City Manager form of government. The Mayor is elected by the voters at large, and is the City's Chief Executive Officer. Voters within their respective wards elect each of the seven members of Council. The Mayor and Council members serve four-year terms.

Under the supervision of the Mayor, the City Manager is the Chief Administrative Officer. The City Manager directs most City Departments, other than those governed by separate boards (Water Dept., Civil Service, and Library) and the offices of elected officials. The City Manager's office, in addition to assisting the Mayor and Council in policy formulation, focuses on special projects.

The City of San Bernardino also has an elected City Attorney, City Treasurer and City Clerk.

Below is an organizational chart of the City of San Bernardino departments, special districts and agencies:

City of San Bernardino

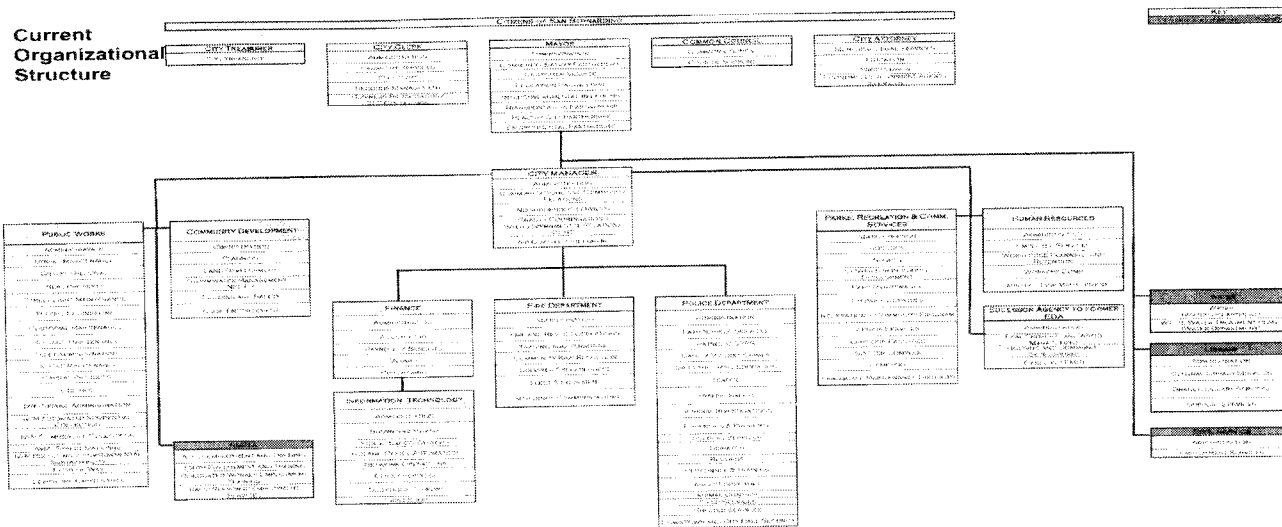


Figure 27 - Organizational Chart - City of San Bernardino

5.2. Existing Plans

City of San Bernardino is encouraging all departments, special districts, and agencies to share reports and common information. This sharing and exchanging of ideas has led to more coordinated efforts and better planning. The driving document in the City of San Bernardino is the City's General Plan. The City General Plan provides the foundation on which all development and future programs are built upon.

City of San Bernardino General Plan

The State of California recommends that the General Plan is updated every 10-20 years; depending mostly on whether or not the plan is meeting the community's needs. The City of San Bernardino General Plan was last updated and adopted in 2005. There are thirteen (13) elements in the General Plan:

- Land Use
- Housing
- Economic Development
- Community Design
- Circulation
- Public Facilities and Services
- Parks, Recreation, and Trails
- Utilities
- Safety
- Historical and Archaeological Resources
- Natural Resources and Conservation
- Energy and Water Conservation
- Noise

However, there are several optional elements. The City of San Bernardino General Plan includes an optional element, the Economic Development Element.

The Land Use Element of the General Plan establishes 18 land use-zoning districts that apply only to lands governed by the City; not for lands controlled by other jurisdictions or lands controlled by federal and state government (see Section 1.3.5, page 8 for a listing of the 18 Land Use districts in the Land Use Element). The Land Use Element also describes land use compatibility for the primary three (3) hazards: Geologic; Flood; and, Wildfire. Because of these commonalities between the General Plan and the LHMP, the City Council has adopted the LHMP as part of the City's General Plan.

Fire Station Relocation Plan:

The calls for emergency service in the City of San Bernardino has risen dramatically in recent years. In 2013, the fire department responded to 29,895 calls for service. Approximately 26,000 were for emergency medical services. The City of San Bernardino currently has 12 fully staffed fire stations. Two of these stations are dual crew stations in that there is both a fire engine and a fire truck. All of the apparatus in the City of San Bernardino are equipped with Advanced Life Support (ALS) equipment and staffed with a minimum of a single paramedic. It is the direction of the city council for the fire department to arrive on scene of a medical response within 6 minutes of receiving the call for service. This time goal was established using medical practices of establishing brain death after lack of oxygen that occurs within four to six minutes.

Because of the increase in the number of requests for services over the years (Table A), the goal of arriving at all medical aid requests has increased from six minutes to approximately nine minutes. As this is well past the time of brain death without oxygen, the City of San Bernardino along with fire department has had a detailed study performed by City Gate, a private business that specializes in evaluation fire department performance and makes recommendations of change to meet the goals of the City and fire department. This study is in progress and will be completed by June 2014. Preliminary meetings have taken place and the initial indications are that multiple fire stations must be relocated in order to meet the standard established by the City of San Bernardino regarding response times. Additional stations are also predicted to be proposed along with the addition of three to four paramedic squads. This study is not the first to be considered. In the City of San Bernardino Master Facilities Plan of 2006, the relocations and rebuilding of the city fire department stations was one of the top priorities. The recession and subsequent loss of income to the city put these plans on hold even as the requests for services continued to climb.

Year	# of calls
2005	26,236
2006	24,420
2007	24,088
2008	24,341
2009	23,843
2010	24,350
* 2011	25,000
2012	25,817
2013	29,895

(Table A) "*" indicates approximate number of calls)

There are three fire stations that are of a modular construction type. These stations were installed in 1976 and designed to be “moveable with a limited life span”. These three stations are becoming a nonstop source of repair and replacement of critical infrastructure components. Floors have rotted away, showers are leaking around seams creating mold issues, and ceilings with asbestos coverings are becoming compromised. The plan, which call for these stations to be torn down and rebuilt, has not been finalized. The final report from City Gate will be used to help define the priority of rebuilding these stations.

Several Fire Stations are in flood zones and must be relocated. These stations have been identified in tables

5.3. Regulations, Codes, Policies, and Ordinances

The following titles of the City of San Bernardino Code (http://www.ci.san-bernardino.ca.us/cityhall/community_development/development_code.asp/) include regulations and ordinances on the following issues and topics related to hazard mitigation:

- **Article I General Provisions**
 - Authority and General Plan Consistency
 - Establishment of Land Use Districts
 - General Requirements
- **Article II Land Use Zoning Districts**
- **Article III General Regulations**
 - Property Development Standards
 - Sign Regulations
 - Off-Streets Parking Standards
 - Off-Street Loading Standards
 - Landscaping Standards
 - Subdivision Regulations
- **Article 4 Administration**
 - Administration
 - Applications and Fees
 - Certificate of Occupancy
 - Conditional Use Permits
 - Design Review
 - Development Agreements
 - Development Code Amendments
 - Development Permits
 - Enforcement of Provisions

Final and Parcel Maps
 General Plan Amendments
 Hearings and Appeals
 Home Occupation Permits
 Interpretations
 Minor Exceptions
 Minor Modifications
 Non-conforming Structures and Uses
 Specific Plans
 Subdivision Maps
 Surface Mining and Land Reclamation
 Temporary Use Permits
 Variances

The City has also adopted Zoning Ordinances that are not part of the City Code but are part of the General Plan. These ordinances regulate land use, map the official land use, and hazard overlay districts, to include safety hazard and environmental protection areas.

5.4. Mitigation Programs

Wildfire Programs

City of San Bernardino participates in one of the most comprehensive set of programs to mitigate the potential for catastrophic wildfires in the Nation. There is no other jurisdiction that has the comprehensive, multi-agency cooperation and coordination as is found in City of San Bernardino. This was accomplished when the City Council joined the Mountain Area Safety Task Force (MAST) in 2003. Since its beginnings, it has been the Unified Command that has successfully implemented and completed numerous programs leading to safer communities, a more educated public and an improved environment.

Mountain Area Safety Taskforce MAST

MAST was formed to mitigate the region wide risk of a catastrophic wildfire due to dead and dying trees in the mountain communities. The mission of the MAST is to facilitate a coordinated effort by cities, county, state, federal, and non-profit agencies to provide for the protection of property owners, residents, and property subject to the risk of catastrophic wildfire that could occur in City of San Bernardino with an initial emphasis on the threat resulting from the Old and Grand Prix fires in 2003.

The MAST Unified Command identified the following objectives as their focus and direction:

- Provide for Community Safety.
- Develop Coordinated Public Information Dissemination Between Cities, County, Special Districts, State, Federal, and Non-Profit Agencies.
- Develop Immediate, Mid-range and Long-range Coordinated Agency Plans.
- Identify and Secure Potential Funding Resources to Provide Protective Measures.

- Document Task Force Activities Including Mission, Goals and Objectives, Policies, Procedures, and Outcomes.

Prior to any type of flood threat, the following precautionary measures may be taken by MAST members to reduce the impact of impending fires:

- Review mutual aid agreements
- Define evacuation areas and trigger points
- Review the use of alert and warning systems
- Provide information to the public of fire prone areas and protective measures in progress or planned for those areas
- Educate public on emergency self-help and preparedness
- Develop and maintain emergency notification procedures and checklists

The MAST group includes:

- | | |
|--|--|
| ■ City of San Bernardino | ■ USFS |
| ■ County Administrative Office | ■ San Bernardino National Forest Association |
| ■ County Public Works-Flood Control/Transportation/Solid Waste | ■ Forest Care |
| ■ County Fire Protection District | ■ Cal Fire |
| ■ County Fire Protection District/Office of Emergency Services (OES) | ■ Caltrans |
| ■ County Sheriff's Department | ■ California Highway Patrol |
| ■ Southern California Edison | ■ Inland Empire Fire Safe Alliance |
| ■ Bear Valley Electric | ■ Angelus Oaks Fire Safe Council |
| ■ Arrowbear Lake Fire Department | ■ Arrowhead Communities Fire Safe Council |
| ■ Big Bear City Fire Protection District | ■ Bear Valley Fire Safe Council |
| ■ City of Big Bear Lake Fire Department | ■ Lytle Creek Fire Safe Council |
| ■ Crest Forest Fire Protection District | ■ Mill Creek Fire Safe Council |
| ■ Running Springs Fire Department | ■ Mountain Rim Fire Safe Council |
| | ■ Wrightwood Fire Safe Council |

Mountain Mutual Aid

Mountain Mutual Aid is an operational group of emergency responders. It is comprised of all of the agencies and volunteer relief groups that would be and have been involved in any and all disasters on the mountain. It is of note to that their main and most frequent call to service is in response to a wildfire. They meet monthly and maintain themselves in a constant state of readiness.

Community Based Fuels Reduction Program

Cal Fire

Cal Fire provides programs to increase fire safety in high fire hazard severity zones. It funds and staffs programs from public education activities to performing fuel modifications with inmate crews. One example is the active Re-Leaf program where mountain residents are educated about drought tolerant and fire resistive landscaping that is available and sustainable. Cal Fire is also the lead agency on reforestation after a wildfire to ensure the stability of the environment. Cal Fire Foresters are active participants in the MAST process helping educate citizens and leading forestry activities on private lands within the USFS boundary.

City Fire Hazard Abatement

The Fire Department and the Fire Prevention Bureau is responsible for Fire Hazard Abatement (FHA). Fire Hazard Abatement works to reduce the potential for an individual's property to be the source of fire and structural ignitability. Failing to maintain private property in a fire safe condition is seen as a fire threat and is considered a threat to neighbor's property rights. To obtain compliance, Fire Prevention Bureau issues notices of violation to properties that have dry vegetation and flammable green vegetation. If the property owner doesn't comply with the notice, Fire Prevention Bureau then obtains a warrant to go onto the property and abate the fire hazard.

Wood Shake Roof Replacement

In November 2009, the City Council approved an amendment to the Building Code that requires that all Wood Shake Roofs needing 25% or more repaired, be replaced with non-wood materials and have at least a Class A fire-retardant rating.

The Inland Empire Fire Safe Alliance (IEFSA)

The Inland Empire Fire Safe Alliance was created to act as a forum for all Fire Safe Councils in City of San Bernardino. Some of the benefits are developing a consistent and comprehensive message to citizens about fire safety; coordinating efforts for grant administration, writing, and reporting; a one-stop shop for information, resources and research; and a centralized source for sharing of updates from cooperating governmental agencies. There are approximately 20 Fire Safe Councils active in City of San Bernardino.

Community Wildfire Protection Plans (CWPP)

Community Wildfire Protection Plans are designed to provide a means for a community, usually through the Fire Safe Council, to have input into and actively participate in the planning, strategy, goals, and objectives of creating a fire safe community. CWPPs are ultimately reviewed and approved by the local Fire Chief, Cal Fire, USFS, and the local City Council. The plan must include a review of structure ignitability but also must show that there was collaboration not only with the agency but within the community as well. Grant applications to the State Fire Safe Council will not be approved unless the project is listed in a community CWPP.

Public Education Programs

MAST has a substantial public education component. All agencies participate with the goal to have no one on the mountain uneducated about creating a thinner forest that is a more fire safe forest.

Additional components of the educational program include how to prepare for an emergency and knowing how to properly evacuate.

Ready-Set-Go is a new public education program designed to teach residents within the Fire Hazard Overlay on how to prepare for and when to leave in the event of a wildfire in their area.

Community Emergency Response Teams (CERT)

The Community Emergency Response Team (CERT) Program educates people about disaster preparedness and trains them in basic response skills. Following a catastrophic event CERT Members can assist themselves, their families, and others in their neighborhood or workplace until professional responders arrive.

Two (2) CERT programs, administered by City of San Bernardino Fire Department, are in the city with multiple more teams planned for 2014:

- Team 1: 32 members
- Team 2: 14 members

City of San Bernardino is in the process of swearing in the current CERT participants. These individuals will be receiving a background check this year.

The program receives guidance and resources from Department of Homeland Security, FEMA, Citizen Corps, and California Volunteers. The program is administered locally by the City of San Bernardino Fire Department.

Telephone Emergency Notification System (TENS)

During an emergency, public safety can be a direct function of the speed and accuracy of the dissemination of information. This is particularly important during emergencies that require evacuations. All areas of City of San Bernardino have all been preprogrammed so that during an emergency, the specific target group can be notified as quickly as possible.

Earthquakes/Geologic Hazards Programs

City of San Bernardino's seismic mitigation programs focus on two areas that have historically resulted in the greatest amount of damage and life loss from major earthquakes in California.

Bridge Retrofit Program

Caltrans inspects City bridges yearly for structural sufficiency (which applies to earthquake) and functional obsolescence (which applies to floods). Caltrans provides reports that include recommended

repairs or replacement. The City make the repairs and/or apply for bridge replacement funds thru the Federal Highway Bridge Program (HBR). Currently the City has # funded HBR replacements due to structural deficiencies:

- Mt. Vernon Bridge,
- Bridge at 5th street.

Unreinforced Masonry Building Program

In the 1990's, the City of San Bernardino compiled a master list of suspected Unreinforced Masonry Buildings within the unincorporated areas. In addition, several appear to have been demolished or retrofitted since the 1990's. The Development Services is currently in the process of re-evaluating the URM list. Re-evaluation will include a field visit to each site photographing structures and verifying the occurrence of unreinforced masonry.

There are numerous large publically utilized URM structures currently on the list. These types of structures are mainly located in the downtown area of the city. There are approximately 104 structures remaining on the list. Twenty-three of these are vacant. Only 19 of the occupied URM buildings are posted. A program is being developed to enforce the City Building Codes regarding URM buildings.

Geologic Hazard Mapping

The Seismic Hazards Mapping Act (Public Resources Code, Chapter 7.8, Section 2690-2699.6) directs the Department of Conservation, California Geological Survey (CGS) to identify and map areas prone to liquefaction, earthquake-induced landslides and amplified ground shaking. Although the San Bernardino area has a full spectrum of geologic hazards, CGS does not have adequate funding to complete the hazard mapping within the City.

Flood Programs

The flood mitigation projects are programs that were established by City of San Bernardino Flood Control District to protect life and property. These projects are typically designed to convey 1% annual chance or greater storm flows in order to mitigate danger to life and property, and critical infrastructure consisting of existing, new and future structures. In addition, these projects include revisions to local land use and building codes where analysis or experience shows the need for code revisions or amendments to meet previously unidentified circumstances.

Because the City has entered into an agreement to participate in the National Flood Insurance Program (NFIP) that provides flood insurance within designated floodplains, the following goals, policies and programs shall apply:

As stated in the City of San Bernardino General Plan Safety Element:

GOAL 10.6.

The City will protect the lives and properties of residents and visitors of the City from flood hazards.

Policy 10.6.12

Participate in the National Flood Insurance Program (NFIP), which provides flood insurance within designated floodplains. Develop a process to study flooding issues and create appropriate regulations. This could include the creation of “alluvial districts,” local quasi-government entities designed to inform homeowners of flood risks as well as advise the floodplain land use decisions of the City.

Programs

Designate Floodway and Floodplain areas, as identified by the Federal Emergency Management Agency (FEMA) on flood insurance rate maps and flood boundary maps, as Floodway (FW) on the Land Use Maps and Floodplain Overlays on the Hazards Overlay Maps.

Designated floodway areas will be preserved for non-structural uses through restrictions of the FW Land Use Zoning District.

All new development, including filling, grading, and construction, proposed within designated floodplains, will require submission of a written assessment prepared by a qualified hydrologist or engineer, in accordance with the latest “City of San Bernardino Hydrology Manual” and the various detention basin policies, to determine whether the development will significantly increase flood hazard and to show that all new structures will be adequately protected. Development will be conditioned on receiving approval of this assessment by the City of San Bernardino Public Works Department. All new construction in a Floodplain Overlay area will be required to be flood-proofed, located, and designed to allow unrestricted flow of floodwaters.

The Land Use Compatibility Chart for 100-Year Flood Plains (Table S-1) will apply to City reviews of all discretionary and ministerial actions in City-designated floodplains.

Lands within floodplain areas may be developed with non-critical and non-essential uses if mitigation measures are incorporated to ensure that the proposed development will not be hazardous, increase flood depths or velocities downstream, or degrade water quality, especially uses such as parks, trails, and open space.

Provide known flood hazard information with every discretionary or ministerial application.

When no mapped data exist, existing topographical, watershed, and drainage course data will be evaluated for a determination of potential flood hazard for every discretionary and ministerial action.

Policy 10.6.4

Evaluate all development proposals located in areas that are subject to flooding to minimize the exposure of life and property to potential flood risks.

Programs

As new overflow studies and mapping are completed and approved by either the City's Land Development Engineer or the Public Works Flood Control Section, they will supplement the FEMA mapping and will be incorporated into Flood Hazard Overlay mapping.

Initiate and finance programs for the continuous evaluation and designation of floodway, floodplain, and drainage areas.

Timely application for FEMA mapping changes will be initiated to reflect any additions to or alterations in identified Floodways or Floodplains by the City Floodplain Management Administrator.

Table 14. Land Use Compatibility Chart for 100-Year Flood Plains (General Plan Table S-1)

Land Uses	Compatibility in 100-Year Floodplains
<p>Critical Nuclear related systems; explosives or hazardous materials/ manufacturing, handling or storage; hospitals and other emergency medical facilities.</p>	Restricted
<p>Essential Police, fire and communications systems; Emergency Operations Centers (EOC's); electric power inter-tie systems; power plants; utility substations; sewage treatment plants; water-works; local gas and electric distribution lines; aqueducts; major pipelines; major highways, bridges and tunnels; ambulance services; public assembly sites with 300 or more capacity; schools.</p>	Restricted
<p>High Occupancy Multi-family residential of 20 or more units; major commercial including large shopping centers; office buildings; large hotels; health care clinics and convalescent homes; heavy industry; gas stations.</p>	Generally Incompatible
<p>Normal-Low Risk Single-family and two-family residential; multi-family of less than 20 units; small scale commercial; small hotels, motels; light industry; warehousing.</p>	Generally Incompatible
<p>Restricted <i>Restricted unless alternative sites are not available or feasible and it is demonstrated that, although mitigation may be difficult, hazards will be adequately mitigated.</i></p>	
<p>Generally Incompatible <i>Restricted unless site investigation demonstrates that site is suitable or that hazards will be adequately mitigated.</i></p>	

Alluvial Fan Task Force

In December of 2002, the California Floodplain Management Task Force Report recommended that "The State should convene a task force specifically for alluvial fans, with stakeholder participation, to review the state of knowledge regarding alluvial fan floodplains, determine future research needs, and, if appropriate, develop recommendations relating to alluvial fan floodplain management, with an emphasis on alluvial fan floodplains that are being considered for development."

In September of 2004, Governor Arnold Schwarzenegger signed Assembly Bill 2141, which recommended the creation of the Alluvial Fan Task Force (Task Force). The Director of the Department of Water Resources (DWR) convened the Task Force in December of 2007 after funding to support Task Force activities was secured from a Pre-Disaster Mitigation Planning Grant from the Federal Emergency Management Agency (FEMA) and a state match was authorized by Assembly Bill 466. Funding supported the tasks charged to the Task Force including:

1. Review the state of knowledge regarding alluvial fan floodplains;
2. Determine future research needs;
3. Develop a voluntary locally adopted model ordinance for communities subject to alluvial fan flooding that supports land use decisions on alluvial fans;
4. Develop local planning tools to assist local communities evaluate development on alluvial fans; and
5. Prepare recommendations relating to alluvial fan floodplain management.

Appointments to the Task Force by DWR Director Lester Snow represented a broad range of interests. Members included elected officials, represented by five Supervisors from Kern, Los Angeles, Riverside, San Diego and County of San Bernardino where future alluvial fan development is projected. Appointments also included representatives of the development and environmental community, local floodplain managers and associated state and federal agencies, including the Federal Emergency Management Agency (FEMA), plus at-large members representing other issues related to future development on alluvial fans. The Water Resources Institute at California State University San Bernardino coordinated the entire process.

Primarily, the purpose of the Alluvial Fan Taskforce *Findings and Recommendations Report* (July 2010) and *The Integrated Approach for Sustainable Development on Alluvial Fans* (July 2010) documents are to provide a non-prescriptive and flexible model that local governments can use at their own discretion adapting to local conditions and needs that supports wise future land use decisions associated with development on alluvial fans.

The City may review the development of the suite of local planning tools for pre-project screening for future development proposals on alluvial fans. If funding allows for the review, these planning tools may be useful as an optional database reference for project management. Additionally, the flood management tools designed to analyze alluvial fan flood hazards and formulate flood hazard protection, which were developed to be consistent with FEMA guidelines, may provide an optional data source for project development. Long term funding for updating and maintaining the pre-project screening tools database is a concern regarding the reliability for current data.

If funding exists, for the implementation of the *Integrated Approach for Sustainable Development on Alluvial Fans*, the methods contained therein may be used as some of the approaches for planning and evaluating the suitability of development on alluvial fans. During the analysis and review, if budgets allow, the long-term ecological and financial sustainability issues would also be evaluated.

Based on the Findings from the Alluvial Fan Task Force process, recommendations were made for specific future actions that the State and other public agencies should consider regarding alluvial fans. The City of San Bernardino has completed recommendation 1 and may consider other listed recommendations as follows:

Recommendation 1:

In November 2007, a General Plan Amendment (GPA) to the Safety Element of the 2007 General Plan was adopted to incorporate revised FEMA (Federal Emergency Management Agency) Flood Plain data. The GPA also adopted the FEMA Digital Flood Insurance Rate Map database as released by FEMA as it currently exists and as updated in the future for the City allowing for automatic map updates as new data are published by FEMA. This action by the City of San Bernardino City Council implements the portion of the first recommendation from the Alluvial Fan Task Force by working with FEMA to continue updating flood insurance rate maps.

In addition, the GPA for the Safety Element in 0227 (a) amended the Generalized Landslide Susceptibility layer, to incorporate updated existing landslide data published by the U. S. Geological Survey for the City area; (b) amended the Fire Safety map to incorporate updated fire safety mapping published by Cal Fire; and (c) amended the Generalized Liquefaction Susceptibility layer, modifying the City Liquefaction Maps.

Recommendation 2:

The City will coordinate with the California Geological Survey (CGS) and the United States Geological Survey (USGS) to review any newly developed Quaternary geologic maps in alluvial fan areas in order to identify potential hazards in areas projected for future development

Recommendation 4:

Historical, documentation of flooding occurrences are preserved by the City and the County's Flood Control District that would review the recommendation to identify flooding events that were associated with alluvial fans.

Recommendation 6:

The increased severity and intensity of wildfires in Southern California increase flood risk because the same structures subject to fire risk are also prone to post-fire debris flows. Many of the debris basins that were constructed some time ago did not anticipate the increased severity and intensity of wildfires or the additional developments that would follow. The California Emergency Management Agency projects that climate change will further increase the severity of storms, wildland fires, flooding, mudslides and landslides in areas of Southern California where existing debris basins are located.

All of the City of San Bernardino Flood Control Debris Basins in the valley area were analyzed after the Grand Prix and Old Fires. Flood Control District Safety Assessment Teams utilized the Corps of Engineers' Los Angeles District methodology to determine debris production, the same methodology the Corps uses when designing debris basins. In many cases basins were physically expanded and additional measures such as K-rails and debris racks were installed. The understanding of post-fire debris flows continues to evolve; we work closely with the USGS as they develop Post Wildfire Debris Flow Hazard Assessments. The rainfall "Trigger Points" in the FAST CONOPS is a result of the USGS assessments. All Flood Control Basins are studied on an annual basis to determine existing capacity.

Any additional funding to support efforts that meet the intent of recommendation #6 which states that the State and local agencies should conduct assessments of the adequacy of strategically located debris basins under a range of scenarios in urbanized areas in light of increased fire and post-fire debris-flow events.

Recommendation 8:

When funding sources become available for the maintenance and further development of the database for the web-based portal; which would be utilized as a pre-project screening and flood management tool for special alluvial fan areas, the City may evaluate the benefits of its use in the planning process.

Recommendation 9:

As financial resources are allocated, the City will consider the analysis of the Integrated Approach tools to be studied for use in land use planning for development on alluvial fans.

Recommendation 10:

If funding is provided, the City will review and propose for adoption a model ordinance tailored for the specific needs of the City.

Recommendation 12:

The City Manager's Office, after consulting with the appropriate departments and staff, may explore supporting the economic strategies recommended in the Integrated Approach regarding future maintenance of flood management infrastructure.

Flood Area Safety Taskforce (FAST)

During the devastating fires in the fall of 2003, there was great concern of what the ramifications might be for flooding in the burned areas, as well as in the valleys. In response to these concerns, an organization was established that mirrored the Mountain Area Safety Taskforce (MAST), mentioned above, which played a key role in minimizing damage.

While the fires were ravishing the countryside, representatives from multiple agencies met often to address potential issues associated with flood, mud and debris flows develop a strategy and to protect communities from flooding incidents. These agencies united together to become the Flood Area Safety Taskforce (FAST). FAST is structured as an ICS/SEMS Organization for managing incident activities both readiness and response. The FAST Organization stresses liaison with the communities, provides for community education and information, and places emphases on Community and city partnerships.

The FAST group includes:

- Elected State officials
- Representatives from all five (5) County Supervisorial Districts
- State Office of Emergency Services
- County Administrative Office
- County Public Works-Flood Control/Transportation/Solid Waste
- County Sheriff's Department
- Representatives from the cities of Fontana, Highland Rancho Cucamonga, Rialto, and San Bernardino.
- USFS
- Caltrans
- CHP

- County Fire Protection District
- County Fire Protection District/Office of Emergency Services (OES)

The mission of the FAST is to facilitate a coordinated effort by cities, county, state, federal, and non-profit agencies to provide for the protection of property owners, residents, and property subject to the risk of erosion, mudflows, and flooding that could occur in City of San Bernardino with an initial emphasis on the threat resulting from the Old and Grand Prix fires in 2003.

The FAST Unified Command identified the following objectives as the focus and direction of the FAST:

- Provide for Community Safety.
- Develop Coordinated Public Information Dissemination Between Cities, County, State, Federal and Non-Profit Agencies.
- Develop Immediate, Mid-range and Long-range Coordinated Agency Plans.
- Identify and Secure Potential Funding Resources to Provide Document Task Force Activities Including Mission, Goals and Objectives, Policies, Procedures, and Outcomes.

Prior to any type of flood threat, the following precautionary measures may be taken by FAST members to reduce the impact of impending flooding:

- Review mutual aid agreements
- Define evacuation areas and trigger points
- Review the use of alert and warning systems
- Provide information to the public of potentially susceptible flooding areas and protective measures in progress or planned for those areas
- Educate public on emergency self-help and preparedness
- Develop and maintain emergency notification procedures and checklists.

A FAST Concept of Operations (CONOPS) was developed to provide activity guidelines for pre-flood activities related to National Weather Service (NWS) watches and warnings. Due to the unstable condition of the burned areas, activities and coordination needed to be established and implemented between departments.

The CONOPS is “situation” and “incident” driven and subject to revision by the Unified Command which includes County Flood Control District & Co Roads, County Fire Protection District, United States Forest Service (USFS), California Department of Transportation (Caltrans), California Highway Patrol (CHP), County Sheriff, City of Fontana, City of Highland, City of Rancho Cucamonga, City of Rialto, and City of San Bernardino. The Unified Command has the ability to modify activities in these guidelines in response to current situations and predicted changes. Currently, the CONOPS includes both summer and Winter Storm Event Readiness.

In addition, the CONOPS includes the City of San Bernardino Flood Area Safety Taskforce Paging Network and a draft of the Alert Communication Matrix by Rain Amount / NWS Warning.

StormReady

The City of San Bernardino will work on becoming a StormReady city by the end of 2015..

The NWS Office covering the City of San Bernardino is:

- San Diego, CA;

This NWS Recognition may provide the City residents with a discount on their Flood Insurance premiums.

Flood Control Facilities Annual Maintained Areas

- Piedmont Ave at Piedmont Dr.
- Yuma Channel – behind casino – Yuma Dr.
- N. Bangor Ave and Lynwood Dr.
- Patton Farm – North End of state parcel rear of school property
- Channel west of Patton farm behind private property
- Patton Basin
- Outlet in Patton Basin west of Victoria Ave north part of basin
- Chestnut Basin
- Meyers Channel
- Inlet into Meyers Channel west of Meyers Rd and Little league Dr.
- Meyers Channel under Meyers Rd
- Outlet Structure at Meyers Channel and Meyers Rd
- Meyers Channel crossing at Belmont Ave N/W of Little league Dr.
- Interchange basin between I-215 and Cajon Blvd and north of Golf course
- State street basin inlet and outlet at Baseline St west of California Ave
- Weir Rd Channel between Waterman Ave and Steele Rd

Extreme Heat, Extreme Cold, and Drought Programs

The City of San Bernardino participates in the County of San Bernardino's Extreme Heat, Excessive Cold, and drought programs as dictated by the events as they occur.

5.5. Fiscal Resources

The current fiscal year 2013-2014 budget for General Fund Revenue is \$119.6 million. In addition to the revenue, there are transfers-in totaling \$13.3 million from other funds. The total budgeted revenues are \$132.9 million.

The transfers-in are monies used to cover the expenses incurred from other departments paid from the General Fund.

The budgets for expenditures in the General Fund are \$128.1 million with an additional expense of transfers out of \$3.2 million. The total budgeted expenditures are \$131.3 million.

Although the General Fund reflects a net of \$1.6 million, due to filing bankruptcy, there are deferrals totaling \$22.9 million that are not part of the "balanced" budget.

Bankruptcy

On August 1, 2012 the City of San Bernardino filed for Chapter 9 Bankruptcy. The paperwork was filed with the United States Bankruptcy Court for the Central District of California, Riverside Division. Shortly after, a Pendency Plan was put into place. A revised budget was adopted based on that Pendency Plan for fiscal years 2012-2013 and 2013-2014.

After years of financial struggles and challenges from declining revenues and increased fixed costs, the City is now in the position of having to make service delivery decisions and financial restructuring a necessity. The continued financial imbalance between revenues and expenditures had exhausted the City's general financial reserves. The financial burden resulted in obligations that exceeded the General Fund resources by \$45.8 in the original proposed budget for fiscal year 2012-2013.

The principles built into the Pendency Plan came in different forms. This included suspension of debt payments, payments for legal claims, continued reductions on pay and benefits, reductions to over market compensation components, transfers of eligible costs to other funds. These changes eliminated \$45.0 million in expenditures in fiscal year 2012-2013 that resulted in the final numbers adopted in the final 2012-13 & 2013-14 Budgets.

Part of continuing to allow a balanced budget there are ongoing deferrals within the General Fund.

- Deferred Capital Maintenance in Streets, Roads, Buildings, Parks and Trees of \$200.0 million
- Pension Bonds of \$3.3 Million per year
- Not replacing equipment for, Fleet, Computers and Communications

Currently, the City is in mediation with its creditors and other groups having financial interests with the City related to pre-bankruptcy obligations. There is an effort to reach some type of settlement agreement with various creditors and will then result in a Plan of Adjustment the will be subject to approval by the courts. The City is committed to achieving a position of fiscal solvency. We have a responsibility to provide the community basic services despite the limited resources for public health and safety.

The Budget in Brief

SUMMARY OF REVENUES, EXPENDITURES & TRANSFERS - FISCAL YEAR 2012-13

City of San Bernardino

FUND/ TITLE	Additions		Total Available	Deductions Expenditures		Total Deductions	Estimated Balance 6/30/13
	Revenues	Transfers		Transfers			
General Fund	114,386,034	12,930,810	127,316,844	122,520,219	2,516,000	125,036,219	2,280,625
Special Revenues	24,967,078	2,516,000	27,483,078	21,207,998	5,596,310	26,804,308	678,770
Capital Projects	10,010,896		10,010,896	4,530,299	4,820,000	9,350,299	660,597
Assessment Districts	1,277,898	-	1,277,898	1,277,698	-	1,277,698	200
Impact Fee Funds	697,800	42,500	740,300	1,715,695	357,000	2,072,695	(1,332,395)
Debt Service	119,400	-	119,400	119,400		119,400	-
Enterprise Funds	25,186,600	-	25,186,600	23,670,362	2,200,000	25,870,362	(683,762)
Internal Service	25,222,526	-	25,222,526	25,656,230	-	25,656,230	(433,704)
Total Funds	201,868,232	15,489,310	217,357,542	200,697,901	15,489,310	216,187,211	1,170,331

SUMMARY OF REVENUES, EXPENDITURES & TRANSFERS - FISCAL YEAR 2013-14							
FUND/ TITLE	Additions		Total Available	Deductions Expenditures		Total Deductions	Estimated Balance 6/30/14
	Revenues	Transfers		Transfers			
General Fund	119,638,767	13,325,534	132,964,301	128,096,695	3,246,209	131,342,904	1,621,397
Special Revenues	22,759,802	2,836,971	25,596,773	20,890,484	5,191,034	26,081,518	(484,745)
Capital Projects	12,357,663	-	12,357,663	7,288,099	5,620,000	12,908,099	(550,436)
Assessment Districts	1,277,898	409,238	1,687,136	1,604,374	-	1,604,374	82,762
Impact Fee Funds	3,001,601	42,500	3,044,101	6,324,137	357,000	6,681,137	(3,637,036)
Debt Service	68,000	-	68,000	68,000	-	68,000	-
Enterprise Funds	24,664,800	-	24,664,800	21,051,590	2,200,000	23,251,590	1,413,210
Internal Service	27,088,067	-	27,088,067	25,686,576	-	25,686,576	1,401,491
Total Funds	210,856,598	16,614,243	227,470,841	211,009,955	16,614,243	227,624,198	(153,357)

Staffing Levels

Budgeted staffing levels for these funds in 2013-2014 are 939, a total decrease of 203 positions from the original adopted budget for fiscal year 2012-2013. The General Fund staffing has been reduced by 160 positions since the filing for bankruptcy in August of 2012. The staffing in all other funds has been decreased as well by 43 positions.

Budgeted Staffing Levels

	2012-2013 Adopted 07/01/2012	2012-2013 Per Pendency Plan	2013-2014 Per Pendency Plan
General Fund	879	728	728
All Other Funds	262	211	211
Total Employees	1,141	939	939

Mid-Year Budget Review for FY 2013-14

The City conducted a detail review of all General Fund revenues and expenditures for the fiscal year 2013-2014 budget. A City Council budget workshop was held on February 10, 2014 and the City Council approved the revised budget on February 18, 2014. Below is detail of the adjustments that were made to both revenues and expenditures with a focus on General Fund.

General Fund Revenues

Estimated General Fund revenues (including transfers-in) are projected to be \$4.9 million more than budgeted. Discussed below are some of the major highlights regarding General Fund revenues:

Property Tax revenues are estimated to be \$3.1 million greater than the adopted budget. The major reason for this increase is due to pass- thru payments and unanticipated residual tax increment from City of San Bernardino Successor Agency (formerly the Economic Development Agency). The end result was \$2.3 million of unanticipated revenues. These projected revenues include:

- EDA Incremental Tax Payment, Statutory Pass-Thru of \$246,000
- Incremental Tax Payment, Negotiated Pass-Thru of \$1,386,852
- Incremental Tax Payment, Estimated Residual Balance Pass-Thru of \$931,935

Anticipated are residual balance pass-thru payments could vary annually as a result of the dissolution process and on-going dialog between the Successor Agency and the State Department of Finance. Other property tax components include current secured, current unsecured, and prior property taxes. Each had adjustments both up and down, resulting in a net change of \$257,501.

Property Tax In Lieu of VLF is forecasted to exceed budget projections by \$413,334 in fiscal year 2013-2014. Property Tax In Lieu of VLF revenue is calculated by the State based on the City's assessed valuation. This has caused the city to see an increase in its revenue due to this increase in its assessed valuation within fiscal year 2012-2013.

Sales Tax revenues for fiscal year 2013-2014 are anticipated to be about \$1.3 million higher than what was originally forecasted in the budget. The City, like most areas in the State, is continuing to see growth in sales tax. There is an offsetting sales tax expenditure obligation due to an existing sales tax sharing agreement.

Utility User Tax revenues are projected to be in line with the budgeted amount of \$22.5 million. This is comparable to the \$22.47 million received in fiscal year 2012-2013.

Measure Z-District Tax revenues are estimated to be slightly higher than the original budget projection. Approximately \$305,000 more will be collected in fiscal year 2013-2014 for a total of \$7,000,000. In fiscal year 2012-2013 the City received \$6,806,870 in revenue from Measure Z.

Transient Occupancy Tax revenues are anticipated to come in at the originally estimated budget amount of \$2.6 million.

Licenses and Permits revenues have had positive growth during this two-year budget cycle. Actual revenues are projected to be \$9,324,651, an increase of \$639,251 over budget. Within the components of this group, business registration revenues are anticipated to come in at the originally estimated budget amount of \$6,514,500. Other license and permit activity in this category (not including business registration) are expected to collect \$2.8 million, which is approximately \$639,000 greater than budgeted. Actual revenues for fiscal year 2012-2013 were \$2.7 million. Fees in this revenue category, however, are largely driven by development and building activity and should be viewed as one-time revenue sources.

Fines and Penalties revenues are estimated to contribute about \$345,000 less than the budget amount. This decrease is mainly due to parking citations and police administrative civil penalties coming in less than anticipated levels. This is, in part, due to enforcement personnel being assigned to higher priority, safety-related activities.

Money & Property revenues, consisting of rental properties, parking garage fees, and vending machine activity is projected to come in at its budgeted amount of \$638,000.

Intergovernmental revenues are estimated to be slightly higher than budget estimates by a total of \$154,000. The increase comes from various governmental sources, with revenue changes being both up and down. The two major contributors to the net increase were an increase in mutual aid revenue, with income estimated at \$300,000 for contracted emergency response services. Safety services provided to the San Bernardino International Airport Authority added \$177,117 in revenues, under a master service agreement. This agreement is subject to further review and validation. Offsetting these was a decline of \$232,559 of revenues from the State of California for mandated services to the community. At this point the program appears to have ended.

Charges for Services revenues are expected to be lower than budgeted projections by \$362,000. The majority of the revenue shortfall is from the single-family home rental inspection and weed abatement fees. The Single Family Home Rental Program was suspended in June 2012. Subsequently, the Code

Inspection unit was integrated into the Police Department. Initially, the program was slow to be reinitiated. An additional contributing factor was a change in the program and required City inspections. Previously, inspections by the City were required annually. Currently, inspections by the City are performed every third year, with the other years allowing for homeowner self-certification. As a result fee income is down. Finally, the City Clerk's Office stopped processing applications for passports, reducing revenues by \$60,000.

Miscellaneous revenues are projected to collect about \$6.1 million or \$80,232 more than the original budget. The majority of this revenue is from an amended master service agreement with the Water Department for fiscal year 2013-2014, resulting in a \$300,000 increase in its administrative contribution. Offsetting this is an anticipated decline in Police miscellaneous receipts of \$200,000, and a decline of emergency hazardous materials revenues as the service has been altered.

General Fund Expenditures

General Fund expenditures are projected to be approximately \$128,096,695. Including transfers-out total disbursements are projected to be approximately \$131,342,904. This is an increase of \$11,623,967 over the adopted budget amount of \$119,718,937 for unanticipated costs for non-operational activities. These include the assumption of \$3,450,089 of debt previously funded by the EDA and recently disallowed by the State Department of Finance, \$2,635,000 of legal and consulting costs related to the bankruptcy. In addition there was \$1,370,952 of water usage charges, which resulted from a change in the usage policies of the City and the Water Department. Debt service obligations increased in the General Fund by \$1,157,550 based on a requirement that this obligation could not be paid by another restricted funding source.

Exclusive of these costs, the projected expenditures and transfers-out were higher than budgeted by \$3,339,332. These higher costs included Charter 186 costs of \$1,285,074, higher than expected compensation costs for the Police Department of \$433,281 and Fire Department costs of \$125,830 with additional audit costs for fiscal year 2011-12 and fiscal year 2012-2013 of \$392,900.

Bankruptcy – The cost to proceed with the bankruptcy is significant. In addition to the external costs associated with professional fees, the time requirement of staff is tremendous. For fiscal year 2013-2014 staff anticipates the cost for bankruptcy services to be \$4.6 million. For fiscal year 2012-2013, costs were \$3.9 million.

Overtime expense resulted in overtime costs in excess of budgeted amounts due to the current staffing protocol and staffing levels in public safety. Total overtime per the original budget was \$7,817,253 for the City. Of that amount, \$4,828,730 and \$2,136,600 were budgeted for Fire and Police, respectively. Forecasted overtime costs for fiscal year 2013-2014 are estimated at \$10,874,275. This includes \$7,065,300 for Fire and \$2,676,108 for Police.

Charter 186 expense uses a survey system to determine salaries, according to the City's Charter Sworn employees. Due to the timing of the survey and calculation, the required amount is not known at the

time of the initial budgeting process. As a result, an amendment is made as soon as the salary adjustments are determined.

Fire Department Salary expense is partially offset by the SAFER Grants that were awarded to the Fire Department for fiscal years 2012-2013 through 2014-15. The first grant of \$3,363,972 covered fiscal year 2012-2013 (\$1,681,986) and fiscal year 2013-2014 (\$1,681,986); the second amount received \$2,145,096 covered fiscal year 2013-2014 (\$1,072,548) and fiscal year 2014-2015 (\$1,072,548). Twelve firefighters were retention firefighters and nine were hired from fiscal year 2012-2013 to fiscal year 2013-2014 under these grants. The City must prepare for alternatives in fiscal year 2014-15 and beyond should this source of funding decline.

As in prior fiscal years, the Fire Department's budget includes costs that result from mutual aid calls. The City has to cover the costs of these calls but then is reimbursed through the mutual aid system. The City's adopted budget and the current mid-year estimate reflects both the costs in the Fire Department budget as well as the revenue reimbursements in the mutual aid revenue account.

Dissolution of the Economic Development Agency – As a result of AB 1 X 26, the State of California dissolved all local Redevelopment Agencies in the state. The impact on most cities has been a significant reduction on community redevelopment, but more importantly, has required cities, including the City of San Bernardino, to expend significant resources to facilitate the dissolution process. In addition, in many instances, the process as administered by the California Department of Finance has impaired the anticipated wind-down process of cities. The City of San Bernardino has encountered numerous problems in requesting and receiving approval for costs associated with the former Economic Development Agency. Specific to the City was the rejection of Economic Development Agency debt, requiring the City to assume payments. The 1999 Certificates of Participation (COPS) debt obligations for South Valle/201 Building, with annual debt service of \$637,000 were deemed ineligible obligations for EDA.

In addition, the borrowing of \$1.6 million from a City administered fund by the EDA was determined by the State of California to be ineligible obligation, resulting in \$2.8 million of debt being assumed by the General Fund.

Measure Z District Tax

As discussed previously, the Measure Z revenues are estimated to be higher than the budget estimates by \$305,000. Measure Z expenditures are fully utilized by the Police Department and are assumed as part of the Department's \$56.7 million budget.

Other Funds

Based on the updated projection for revenue and expenditure for all other funds, the ending balance at June 30, 2014 appears to be on target to what was estimated in the fiscal year 2013-2014 adopted budget.

Capital Project Funds

Budgeted Public Works projects, in the amount of \$13,601,421 will be completed on schedule.

Internal Service Funds

The City utilizes Internal Service Funds to manage and pay common costs for City departments. These funds include Utilities, Telecommunications, IT, Workers Compensation, Unemployment Insurance, General Liability and Fleet Services. Under this process, the cost is paid by a single managing department, which is passed through to the end user department via internal charges.

The City staff is currently working on the allocation methodology for the Internal Service Funds. Currently, costs are allocated based on budgeted amounts, which may not fully pass costs along to receiving departments. Specifically, costs for Utilities, Workers Compensation, and General Liability have not been fully assigned to City departments. The fiscal impact is that certain departments may not be aware of, or paying, the true cost of operating its department.

Workers Compensation and Liability Funds

Due to Governmental Accounting Standards Board (GASB) accounting rules, the City is required to show all of the City's unfunded liability for potential claims and judgments in both funds (in essence what the amounts would be if every potential claim and judgment had to be paid at one time). As a result of the above-mentioned reporting requirements, as presented in the Adopted Budget, these funds have significant deficit balances.

Other Funding Sources

Major Grant Funding Sources

State of California-SBETA	\$6,149,562.75	07/01/12-06/30/15	Various purposes including Covered CA, Employment Assistance, Employment Training
Federal Grant- SAFER	\$5,509,068.00	2012-03/08/2015 2011-09/13/2014	Hiring 9 Firefighters - Retention 12 Firefighters
State of California AB109	\$1,632,280.00	09/2013-No Expiration	Address the crime impact of Public Safety due to the early release realignment
San Manuel Indian Gaming	\$937,592.88	07/01/12-06/30/2013	Salaries for 6 Officers and 1 Sergeant @ 80% along with associated costs

Section 6. Mitigation Strategies

6.1. Mitigation Overview

The City of San Bernardino Local Hazard Mitigation Plan (2005) focused on integrating the LLHMP with the City General Plan goals and policies as well as incorporating specific flood mitigation projects that were programmed for completion over the five (5) year period. The Plan did not clearly identify mitigation projects the City would focus on for all priority hazards identified in the plan. However, the City has been very active and engaged in implementing and supporting projects and programs designed to reduce and/or eliminate risk in the City. The list of projects in Section 6.2 represents the activities that the City has undertaken and/or supported to reduce the risks from wildfire, earthquake and flood hazards.

6.2. Mitigation 5 Year Progress Report

This section serves to identify the completed and on-going actions and projects in the City.

Wildfire

Mountain Area Safety Taskforce (MAST) Complete

Since 2004, MAST members have significantly reduced the fire hazard in the San Bernardino National Forest and neighboring jurisdictions, removing more than 1.5 million dead, dying or diseased trees, more than half of them on private property.

Dead and dying trees pose an extreme fire danger, and MAST members began removing these trees under state and federal grants, including a \$70 million grant from the USDA Natural Resources Conservation Service.

The MAST mission has expanded to include reducing green fuel by thinning live trees in densely wooded areas. Property owners also are being urged to thin the live trees and vegetation on their property to gain an upper hand on the bark beetle infestation and reduce the risk of catastrophic wildfires like the Grand Prix and Old fires in 2003.

Other MAST Achievements include:

- Increasing awareness of the drought-related bark beetle emergency and the threat of catastrophic wildfires
- Distributing fire safety and prevention information to the public
- Developing evacuation plans and distributing emergency planning information to the public
- Developing commercial use or disposal options for waste wood products.

Cal Fire Complete

Numerous fuels projects have been completed by State inmate crews that do significant handwork in dense fuels adjacent to communities. Cal Fire has also led the way in countless re-forestation projects

that ensure that new stands of the same trees will repopulate an area and that the original forest will not be overtaken by a different type of replacement forest.

Wood Shake Roof Replacement *On-Going*

The City has an ordinance that requires the replacement of wood shake roofs with greater than 25% damage. All new construction in the City requires roofs with at least a Class A Fire Retardant rating.

Foothill Fire Zones Hazard Abatement *On-Going*

The Fire Hazard Abatement portion of the City Code was completely rewritten and redesigned around real flammable fuels. The most significant change was to include certain types of green fuels as flammable vegetation and the requirement to maintain the defensible space around structures in the Zone.

Inland Empire Fire Safe Alliance (IEFSA) *Complete*

IEFSA has held bimonthly meetings for over 5 years and have been the focal point for all regional Fire Safe Councils including some from Riverside County. They have also held numerous workshops and seminars regarding fire resistive construction, and materials, BAER reports, CWPPs and grant writing. The IEFSA was the focal point for FSCs that were working on completing their CWPPs and created a focus group and a steering committee to accomplish these critical plans. To support public education and involvement, IEFSA created the web site www.fireinformation.com as well as participated in countless safety fairs and fire wise awareness activities. They also conducted a Public Education Media Exchange where all FSC and Agencies got together to share educational modalities and create common thought and educational threads. They have reached out to thousands of mountain residents in preparing them for wildfires.

Public Education Programs *On-going*

The City through MAST conducted a comprehensive mountain-wide multi-modality Public Outreach Program from 2006 to 2008. It can be found at www.CalMAST.org. The program in both English and Spanish created and presented multiple public educational meetings, newsletters, brochures, calendars, and posters. Because of the large number of visitors to the forest, MAST also created Emergency Information Visitors brochure and glove box sized Emergency Response Evacuation maps for the mountain communities. The program won national awards for advertising and public relations. Other jurisdictions initiated their own public education activities but brought them back through MAST so that the entire group could receive the benefit.

Telephone Emergency Notification System (TENS) Implementation *Complete*

Emergency service agencies like the Sheriff's Office have implemented TENS on numerous occasions to notify residents in specified areas to evacuate. Most recently, it was used to evacuate hundreds of homes in the eastern portion of Yucaipa during the Pendleton Fire and in Wrightwood during the Sheep Fire when the entire community was ordered evacuated.

Emergency Communications Services (ECS) *On-going*

The ECS program provides amateur radio communications support to the City in the event of a significant or catastrophic event. The program is being reformed through the CERT groups in the City and with the assistance of the City Emergency Communications Services.

Earthquake/Geologic Hazards**Geologic Hazard Mitigation Goal *Completed***

A General Plan Amendment to the Safety Element of the City of San Bernardino 2005 General Plan updated the Geologic Hazard Overlay Maps that became effective on November 1, 2005. The Safety Element includes several layers of hazard overlays that are included in the General Plan mapping system to inform the public of potential hazards to development of property within certain areas of the City and to enable the City to mitigate the risks presented to property owners by these hazards. These overlays include potential geologic hazards. Over the past twenty years, certain federal and state agencies have been in the process of digitizing much of this hazard data. The digitization of this data has allowed for greater accuracy as well as more timely updates. In recognition of the new data from various federal and state agencies, the City updated the geologic hazard overlay maps, specifically the Generalized Liquefaction Susceptibility layer and the Generalized Landslide Susceptibility layer, contained within the Safety Element of the General Plan.

Flood**Flood Hazard Mitigation Goal *Complete***

A General Plan Amendment to the Safety Element of the City of San Bernardino 2005 General Plan amended the Flood Plain Overlay District, which became effective November 1, 2005. The Safety Element includes several layers of hazard overlays that are included in the General Plan mapping system to inform the public of potential hazards to development of property within certain areas of the City and to enable the City to mitigate the risks presented to property owners by these hazards. These overlays include potential flood hazards. Over the past twenty years, certain federal and state agencies have been in the process of digitizing much of this hazard data. The digitization of this data has allowed for greater accuracy as well as more timely updates. In recognition of the new data from various federal and state agencies, the City updated the Flood Hazard Overlay Maps contained within the Safety Element of the General Plan. The Flood Plain Safety Overlay District is amended to incorporate revised FEMA (Federal Emergency Management Agency) Flood Plain data.

Table 15. Completed Flood Control Projects

Flood Control Projects - Completed

- Quail Canyon including David Way
- 40th St at Mountain Ave (not part of street project)

- Newmark
- Alabama at City Creek (not part of the County Lead Project)
- Mission Channel at Tippecanoe Ave (not part of Caltrans request)
- Cajon Blvd at Institution Rd (part of the Palm Grade Separation)
- Sterling Ave at Citrus (½ and ½ County and City County Lead)
- Cable Canyon (Devore) Caltrans Plans I-215/I-15

Further details of the above projects are located in **Annex 1**.

Table 16. On-Going Projects to Mitigate the Flooding Hazard

Flood Control Facilities Annual Maintained Areas

- Piedmont Ave at Piedmont Dr.
- Yuma Channel – behind casino – Yuma Dr.
- N. Bangor Ave and Lynwood Dr.
- Patton Farm – North End of state parcel rear of school property
- Channel west of Patton farm behind private property
- Patton Basin
- Outlet in Patton Basin west of Victoria Ave north part of basin
- Chestnut Basin
- Meyers Channel
- Inlet into Meyers Channel west of Meyers Rd and Little league Dr.
- Meyers Channel under Meyers Rd
- Outlet Structure at Meyers Channel and Meyers Rd
- Meyers Channel crossing at Belmont Ave N/W of Little league Dr.
- Interchange basin between I-215 and Cajon Blvd and north of Golf course
- State street basin inlet and outlet at Baseline St west of California Ave
- Weir Rd Channel between Waterman Ave and Steele Rd

6.3. Mitigation Goals, Objectives, and Projects

The following section provides an overview of the Mitigation Goals and Objectives for the two primary hazards, Earthquake, and Flood for the City. These goals were compiled from various sources including the City of San Bernardino 2007 General Plan. (See Section 3.5 for a detailed description of the process used by the City Planning Team.)

Wildfires

GOAL: Continue to reduce fire hazards in the unincorporated areas of City of San Bernardino and for its Special Districts.

OBJECTIVE 1: General Plan. Amend, as appropriate, the City of San Bernardino 2005 General Plan with applicable requirements for the Fire Hazard Overlay and the associated Fire Safety District Maps.

- Incorporate as appropriate state of the art codes and ordinances pertaining to fire safety into the City General Plan.

OBJECTIVE 2: MAST. Continue the cooperation and coordination of Fire Hazard Mitigation efforts with all stakeholders in the wildland Urban Interface areas of City of San Bernardino through participation in MAST.

Earthquake/Geologic Hazards

GOAL: Minimize exposure to hazards and structural damage from geologic and seismic conditions. (General Plan, Section VIII, Safety Element (Goal 10.7))

OBJECTIVE 1: Unreinforced Masonry Buildings. Re-evaluate existing structures within the City that were previously identified as a potential Unreinforced Masonry Structure (URM).

- Assess each previously identified structure and determine if a potential hazard exists.
- If a URM hazard is suspected, issue notifications to retrofit the structure and post the building as required.

OBJECTIVE 2: Alquist-Priolo Earthquake Fault Zoning Act. Protect occupants and structures from high level of risk caused by ground rupture during earthquake. (General Plan, Section 10, Safety Element Goal 10.7)

OBJECTIVE 3: Liquefaction. Minimize damage caused by liquefaction, which can cause devastating structural damage and a high potential for saturation exists when the groundwater level is within the upper 50 feet of alluvial material. (General Plan, Section VIII, Safety Element Policy S 10.7.4)

- Based on the technical report by URS Corp. supporting the EIR for the General Plan Update, include identified areas outside of the currently designated zone of liquefaction susceptibility within the Geologic Hazard Overlay District.

OBJECTIVE 4: Landslide. Protect life and property from risks resulting from landslide, (General Plan, Section 10, Safety Element Policy 10.9.3)

- Require development on hillsides to be sited in such a manner that minimizes the extent of topographic alteration required to minimize erosion, to maintain slope stability, and to reduce the potential for offsite sediment transport. (General Plan, Section 10, Safety Element Policy 10.9.2)

Flood

GOAL: Provide adequate flood protection to minimize hazards and structural damage. (General Plan, Safety Element, Goal 10.6)

OBJECTIVE 1: National Flood Insurance Program. Participate in the National Flood Insurance Program (NFIP), which provides flood insurance within designated floodplains. (General Plan, Safety Element, Policy 10.6)

OBJECTIVE 2: Alluvial Task Force. Review and analyze the findings and recommendations from the recently released Alluvial Fan Task Force reports, as funding permits.

- Determine whether or not additional amendments to development standards or policies are merited, based on the completed analysis.

OBJECTIVE 3: Flood Hazard Reduction. Reduce flood hazards through development standards and policies stated in the City of San Bernardino General Plan and City of San Bernardino 2005 Development Code.

- Amend the Flood Plain Safety Overlay District through automatic map updates as new data is released and published by the Federal Emergency Management Agency. The amendment will incorporate revised FEMA Flood Plain data, modifying the detail and regional General Plan Quad Maps.
- Review development plans to ensure compliance with ordinances.
- Inspect construction to ensure compliance with approved development plans.

OBJECTIVE 4: Future Flood Mitigation Projects. Improve existing facilities and construct new facilities to mitigate flooding with the City.

- In each flood control zone, construct facilities identified in those zones by the Public Works Department.

Table 18 is a list of the proposed projects to mitigate the Flood hazard within the City Area. A description of these projects is in **Annex 1**.

Table 17. Proposed Flood Control Mitigation Projects

Future Storm Drain projects

Identified in the County of San Bernardino's Comprehensive Storm Drain Plans books 3, 4, 6, and 7 for projects within the City limits. Also identified in chapter 10 of our City's DIF Program (Development Impact Fees).

SD-01	Project 3-12
SD-02	Project 3-13
SD-03	Project 4-1
SD-04	Project 4-2
SD-05	Project 4-13
SD-06	Project 4-14
SD-07	Project 4-15
SD-08	Project 4-16
SD-09	Project 6-C1-02
SD-10	Project 6-C1-03
SD-11	Project 6-C1-04
SD-12	Project 6-C1-05
SD-13	Project 6-C0-01
SD-14	Project 6-DR-00
SD-15	Project 6-DR-01
SD-16	Project 6-DR-02
SD-17	Project 6-DR-03
SD-18	Project 6-DR-04
SD-19	Project 6-DR-05
SD-20	Project 6-DR-06
SD-21	Project 6-DR-07
SD-22	Project 6-DR-08
SD-23	Project 6-DR-09
SD-24	Project 6-LS-00
SD-25	Project 6-LS-01
SD-26	Project 6-LS-02
SD-27	Project 6-LS-03
SD-28	Project 6-LS-04
SD-29	Project 6-LS-05
SD-30	Project 6-SD-00
SD-31	Project 6-SD-02
SD-32	Project 6-SD-03

SD-33	Project 6-SD-04
SD-34	Project 6-SD-05
SD-35	Project 6-SD-06
SD-36	Project 6-SD-07
SD-37	Project 6-SD-08
SD-38	Project 6-SD-09
SD-39	Project 6-SM-00
SD-40	Project 6-WA-00
SD-41	Project 6-WA-02
SD-42	Project 6-WA-03
SD-43	Project 6-WA-04
SD-44	Project 6-WA-04
SD-45	Project 6-WA-14
SD-46	Project 6-WA-16
SD-47	Project 6-WA-17
SD-48	Project 7-A1A
SD-49	Project 7-A1
SD-50	Project 7-A2
SD-51	Project 7-A3
SD-52	Project 7-A4
SD-53	Project 7-A5
SD-54	Project 7-A6
SD-55	Project 7-A7
SD-56	Project 7-A8
SD-57	Project 7-A9
SD-58	Project 7-A10
SD-59	Project 7-A11
SD-60	Project 7-B2
SD-61	Project 7-B3
SD-62	Project 7-B4
SD-63	Project 7-B5
SD-64	Project 7-B6

SD-65	Project 7-B7
SD-66	Project 7-B8
SD-67	Project 7-B9
SD-68	Project 7-B10
SD-69	Project 7-B11
SD-70	Project 7-B12
SD-71	Project 7-B13
SD-72	Project 7-B14
SD-73	Project 7-B15
SD-74	Project 7-B16
SD-75	Project 7-B17
SD-76	Project 7-B18
SD-77	Project 7-B19
SD-78	Project 7-B20
SD-79	Project 7-B21
SD-80	Project 7-B22
SD-81	Project 7-B23
SD-82	Project 7-B24
SD-83	Project 7-B25
SD-84	Project 7-C1
SD-85	Project 7-C2
SD-86	Project 7-C3
SD-87	Project 7-C4
SD-88	Project 7-C5
SD-89	Project 7-C6
SD-90	Project 7-C7
SD-91	Project 7-C8
SD-92	Project 7-C9
SD-93	Project 7-C10
SD-94	Project 7-C11
SD-95	Project 7-C12
SD-96	Project 7-C13

SD-97	Project 7-C14
SD-98	Project 7-C15
SD-99	Project 7-C16
SD-100	Project 7-C17
SD-101	Project 7-C18
SD-102	Project 7-D1
SD-103	Project 7-D2
SD-104	Project 7-D3
SD-105	Project 7-D4
SD-106	Project 7-D5
SD-107	Project 7-D6
SD-108	Project 7-D7
SD-109	Project 7-D8
SD-110	Project 7-D9
SD-111	Project 7-D10
SD-112	Project 7-D11
SD-113	Project 7-D12
SD-114	Project 7-D13
SD-115	Project 7-D14
SD-116	Project 7-D15
SD-117	Project 7-E1
SD-118	Project 7-E2
SD-119	Project 7-E3
SD-120	Project 7-E4
SD-121	Project 7-E5
SD-122	Project 7-E6
SD-123	Project 7-E7
SD-124	Project 7-E8
SD-125	Project 7-8A
SD-126	Project 7-E9
SD-127	Project 7-E10
SD-128	Project 7-E11

SD-129	Project 7-E12
SD-130	Project 7-E13
SD-131	Project 7-E14
SD-132	Project 7-E14A
SD-133	Project 7-E15
SD-134	Project 7-E16
SD-135	Project 7-E17
SD-136	Project 7-E18
SD-137	Project 7-E19
SD-138	Project 7-E20
SD-139	Project 7-E21
SD-140	Project 7-E22
SD-141	Project 7-E23
SD-142	Project 7-E24
SD-143	Project 7-E25
SD-144	Project 7-E26A
SD-145	Project 7-E26B
SD-146	Project 7-E26C
SD-147	Project 7-E27
SD-148	Project 7-E28
SD-149	Project 7-E29
SD-150	Project 7-E30
SD-151	Project 7-E31
SD-152	Project 7-E32
SD-153	Project 7-E33
SD-154	Project 7-E34

Additional Proposed Projects with Mitigation Benefits

While not designed or proposed specifically as mitigation projects, the City undertakes many activities that incorporate mitigation elements and integrate risk reduction as an additional benefit. The following list includes a number of these projects that exemplify how the City integrates hazard mitigation into county-wide programs. Projects have been grouped by the following categories: Studies/Plans, Codes/Ordinances, Infrastructure and Preparedness/Response.

Parks District Project #	<u>Details-General Hazards (Fire, Flooding & Earthquake)</u>
PR13-01	<p><i>Provide City Wide Trees & Plant Maintenance</i> <i>Description: Trim, remove ,prune and plant trees within parks, community centers , ball fields & cemetery's</i> <i>Status: Work in progress</i> <i>Project selected: To be a hazard mitigation effort for public safety</i> <i>Completion Date/Year(s): 2013/2016</i> <i>Ward (s) ALL 6 Wards</i> <i>Total Cost: \$ 70,000</i> <i>Funding Source: TBD</i> <i>Cost to implement: Medium</i> <i>Time to implement: High</i></p>
PR13-02	<p><i>Create and provide resources for community gardens for selected Care and Shelter facilities</i> <i>Description: Create a collaboration with local nursery's to provide plants and educational horticulture classes for community involved garden success</i> <i>Status: Proposed</i> <i>Completion Date/Year (s)2014/2016</i> <i>Ward (s) All 6 Wards</i> <i>Total Cost: \$ 150,000</i> <i>Cost to implement: Medium</i> <i>Time to implement: High</i> <i>Funding Source: Parks Construction Fund & Community Development Block Grant</i></p>
PR13-03	<p><i>Provide Solar power lighting for City Wide parks and ball fields</i> <i>Description: Replaced mechanical lighting system with solar power systems for safer and as Hazard Mitigation</i> <i>Status: Proposed</i> <i>Completion Date/ Yea (s)r: 2014/2016</i> <i>Ward (s) All 6 Wards</i> <i>Total Cost: TBD</i> <i>Cost to implement: High</i> <i>Time to implement: High</i> <i>Funding Source: TBD</i></p>
PR13-04	<p><i>Provide more and better access to sand and sandbags during disasters / emergency events</i> <i>Description: As part of the Hazard Mitigation: Preventative Maintenance to design and create secure sand and sandbag dispensers at designated Care and Shelter Facilities</i> <i>Status: Proposed</i> <i>Completion Date/ Year(s)r: 2014/2016</i> <i>Ward (s) All 6 Wards</i> <i>Total Cost: TBD</i> <i>Cost to implement: High</i> <i>Time to implement: medium</i> <i>Funding Source: TBD</i></p>

6.4. Mitigation Priorities

Prioritization Process

A general description of the methodology used to review potential mitigation projects and to establish priorities for inclusion in this plan was presented in Section 3.6. In addition to following the STAPLEE process and reviewing each potential project based on the criteria presented, the City also utilized existing prioritization processes previously established on a City-wide basis for wildfire and flood projects. Those processes are described below.

Wildfire

Mountain Area Safety Taskforce

The Mountain Area Safety Taskforce (MAST) Operations Section meets monthly. MAST Ops Section determines project priorities based on the benefit cost analysis of the projects and the effect of the project on the overall goals of the MAST organization.

Goals can change as detailed Benefit Cost Analysis is conducted and CEQA/NEPA reviews are completed.

MAST priorities are to continue reducing fire hazards through fuel reduction programs and hazard abatement through enforcement of City ordinances.

MAST is the central point of coordination for all projects related to the reduction of the potential for catastrophic wildfires. There are numerous participants and all levels of government. MAST partners collaborate to provide multi-agency technical support to ensure project success. Economic impacts are considered and the result has been significant increase in economic activity through thoughtful application of grant funding. MAST has been so successful in the environmental management of projects that all of the local environmental groups including national affiliates are now supporters of MAST fuels projects.

Flood

Project Prioritization

The task of determining local project priority is the responsibility of the City Public Works Department staff on coordination with the County Flood Control District. The City of San Bernardino is represented on the Zone Committee covering the City by the Mayor. The Zone committee is formed of spirited citizens and public officials with unselfish and devoted interests, organized to meet annually or on call to afford recommendations to the City Council on matters of tax levies, budgets, work programs, priority of projects, ventures and other counsel. The Mayor of each incorporated city in the District is a committee member with full standing for the appropriate zone.

6.5. Implementation Strategy

Table 18 summarizes the implementation strategies for categories of projects addressing the top hazards in the City of San Bernardino Local Hazard Mitigation Plan. The Table includes implementation strategies for the wildfire, earthquake/geologic hazards and flood.

Table 18. Implementation Strategy Summary

Action	Lead Agency	Hazard	Funding Source
Code Development – Prevention Develop additional code requirements to further reduce or eliminate damages from the identified hazards.	Community Development	All Hazards	General Fund
Natural Resource Protection To locate and protect natural and cultural resources at risk from the identified hazards.	MAST	Natural and Cultural Resources	General Fund, Grants
Property Protection To enhance property protection from wildfire through fuel reduction programs that target fire prone vegetation on private property.	Fire Department.	Wildfire	General Fund, Grants
Public Education To continue and develop new public education programs targeting the top identified hazards.	Fire Department.	All Hazards	General Fund, Grants
Structure Protection – Flooding To continue to identify, fund, and build projects that reduce or eliminate flood hazards in the City.	Public Works Flood Control	Flooding Hazards	General Fund, Grants
Structure Protection – Geological Hazards To identify unknown hazards and develop additional new and retrofit requirements or programs to reduce or eliminate damage from geological hazards.	Community Development	Geological Hazards	General Fund, Grants
Structure Protection – Wildfire To further protect structures at risk from wildfire through education, building, and enforcement codes and actions.	Fire Department.	Wildfire	General Fund, Grants

Wildfire

The MAST structure provides the most effective means available to the City to identify, review, prioritize and implement fire prevention and fuel reduction projects. The greatest focus of MAST is implementing programs in the most effective way possible taking advantage of the inter-related activities of the MAST partners and maximizing funding sources

Earthquake/Geological Hazards

All earthquake mitigation activities are implemented through the City of San Bernardino 2007 General Plan, City Ordinance, and City Building Codes in coordination with State law.

Flood

All flood control mitigation activities are implemented through the City of San Bernardino 2007 General Plan, City Ordinance, City Building Codes in coordination with State law and federal laws, rules, and regulations relating to waterways and water.

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Section 7. Plan Maintenance

7.1. Monitoring, Evaluating and Updating the Plan

The City of San Bernardino Police Department is the custodian of the LHMP. As such, the Emergency Operations Manager within the Police Department is responsible for tracking mitigation project status, documenting changes to the identified risks and threats to the City, and notifying Planning Team members of additions, subtractions, and/or changes to the LHMP. The Manager is also responsible for ensuring the LHMP is updated internally annually, the local Planning Team meets annually, and the LHMP, as amended, is submitted to CalOES/FEMA for approval on a five year cycle. The five year update will follow FEMA guidelines for developing the changes and updates to the LHMP.

In the 2005 LHMP, the City of San Bernardino indicated that the LHMP would be reviewed annually. Although no formal meetings were held, staff reviewed the plan annually and collected new hazard mitigation information and mitigation efforts throughout the City. Additionally, staff referenced/reviewed the LHMP before submitting grant applications to ensure the project was captured in the plan when applying for all grants to assist their mitigation efforts.

There are three (3) main components to the LHMP: hazards, projects, and stakeholder involvement (public, as well as, City staff). The City has focused on these components and over the last 5 years and made steady improvements in all areas. The City participated in and facilitated several meetings and established several task forces to help advance the understanding of hazards in the community. This information was shared with other City personnel and the general public. City staff believes that this sharing of information leads to a more informed community, thus a more robust LHMP.

City Departments track the status of the projects through the entire life cycle from concept to completion. Projects in progress are tracked to ensure all milestones are met and payments are made in a timely manner. Each year proposed projects are reviewed during budget development every spring and selected projects are submitted for funding to the appropriate funding source. These funding sources include but are not limited to grant funding, General Fund funding, and Special District funding.

Because the LHMP is a living document that reflects ongoing hazard mitigation activities, the process of monitoring, evaluating, and updating will be critical to the effectiveness of hazard mitigation within the City. The City will annually hold internal planning meetings to discuss current projects and evaluate newly proposed projects resulting from internal staff meetings and input from the public. The results of these Departmental meetings will be presented to the Local Planning Team meetings at their annual meetings. To facilitate the Local Hazard Mitigation Planning process, police Department is proposing to conduct these annual meeting with the City Planning Team where the Team Members will discuss the projects, priorities, and goals in the current plan and from individual Department meetings and suggest any necessary changes. Results of the annual meeting will be retained and compiled for the 2020 update.

The City Planning Team will continue to support focused outreach for all Departments as well as support City-wide activities. Hazard Mitigation Planning will be coordinated with surrounding jurisdictions to ensure mitigation goals and projects are mutually beneficial to all.

7.2. Implementation through Existing Programs

The knowledge gained from the LHMP has helped the city enhance other planning efforts. One of the biggest results from the 2005 LHMP efforts was the incorporation of the LHMP into the 2005 General Plan's Safety Element. This merging of plans has help ensure development decisions are considering the most recent hazard information. It is the city's intent to incorporate by reference the updated LHMP into the City General Plan upon approval from FEMA.

The LHMP has also led to the strengthening and improvement of several City Ordinances, which are designed to ensure proper fuels reduction was completed in the Severe Fire Hazard Zones.

The LHMP goals and actions will be incorporated into various general operations of government. For example, much of the information from the LHMP will be included in the City Emergency Operation Plan (EOP). As any future City plans are developed, the Local Hazard Mitigation Plan will be a great asset in any plan development efforts. As noted earlier, much of the information contained in this LHMP is from the City General Plan and is already part of the planning process.

Additional benefit is gained from the City reviewing existing mitigation projects and development of additional mitigation projects at their internal annual Planning Team meetings. This input includes comments and suggestions from the public as well as from the internal planning process of each City department.

7.3. Continued Public Involvement

As indicated earlier, the City has taken many steps to engage the general public. In addition to the City of San Bernardino City Council meetings, the actions include:

- Municipal Advisory Communities throughout the City area,
- Flood Zone Advisor Committees,
- Public hearings for City General Plan updates held four times a year,
- MAST meetings,
- Community Emergency Response Team meetings, and
- Public events where educational efforts are undertaken in the City.

Additionally, the public will be kept involved through annual programs such as the Great Shakeout held annually in October, SKY Warn events sponsored by the National Weather Service, and other monthly safety programs. The City will continue to use several different methods to reach out to the public: mailers, cable TV, website, social networks, e-mail, posting in public libraries, and fairs.

Section 8. Annex

Annex 1 – City of San Bernardino Flood Control Projects

Annex 2 –Parks Recreation and Community Development

Annex 3 –HMP Web Pages

Annex 4 –HMP Press Release

Annex 5 –HMP Newspaper Clipping

Annex 6 - Parks and Recreation Community Services Commission Agenda

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8.1. Annex I -- City of San Bernardino Flood Control Projects

Future Storm Drain projects

Identified in the City of San Bernardino's Comprehensive Storm Drain Plans books 3, 4, 6, and 7. Also identified in chapter 10 of our City's DIF Program (Development Impact Fees).

SD-01	Project 3-12
SD-02	Project 3-13
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SD-04	Project 4-2
SD-05	Project 4-13
SD-06	Project 4-14
SD-07	Project 4-15
SD-08	Project 4-16
SD-09	Project 6-C1-02
SD-10	Project 6-C1-03
SD-11	Project 6-C1-04
SD-12	Project 6-C1-05
SD-13	Project 6-C0-01
SD-14	Project 6-DR-00
SD-15	Project 6-DR-01
SD-16	Project 6-DR-02
SD-17	Project 6-DR-03
SD-18	Project 6-DR-04
SD-19	Project 6-DR-05
SD-20	Project 6-DR-06
SD-21	Project 6-DR-07
SD-22	Project 6-DR-08
SD-23	Project 6-DR-09
SD-24	Project 6-LS-00
SD-25	Project 6-LS-01
SD-26	Project 6-LS-02
SD-27	Project 6-LS-03
SD-28	Project 6-LS-04
SD-29	Project 6-LS-05
SD-30	Project 6-SD-00
SD-31	Project 6-SD-02
SD-32	Project 6-SD-03

SD-33	Project 6-SD-04
SD-34	Project 6-SD-05
SD-35	Project 6-SD-06
SD-36	Project 6-SD-07
SD-37	Project 6-SD-08
SD-38	Project 6-SD-09
SD-39	Project 6-SM-00
SD-40	Project 6-WA-00
SD-41	Project 6-WA-02
SD-42	Project 6-WA-03
SD-43	Project 6-WA-04
SD-44	Project 6-WA-04
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SD-48	Project 7-A1A
SD-49	Project 7-A1
SD-50	Project 7-A2
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SD-52	Project 7-A4
SD-53	Project 7-A5
SD-54	Project 7-A6
SD-55	Project 7-A7
SD-56	Project 7-A8
SD-57	Project 7-A9
SD-58	Project 7-A10
SD-59	Project 7-A11
SD-60	Project 7-B2
SD-61	Project 7-B3
SD-62	Project 7-B4
SD-63	Project 7-B5
SD-64	Project 7-B6

SD-65	Project 7-B7
SD-66	Project 7-B8
SD-67	Project 7-B9
SD-68	Project 7-B10
SD-69	Project 7-B11
SD-70	Project 7-B12
SD-71	Project 7-B13
SD-72	Project 7-B14
SD-73	Project 7-B15
SD-74	Project 7-B16
SD-75	Project 7-B17
SD-76	Project 7-B18
SD-77	Project 7-B19
SD-78	Project 7-B20
SD-79	Project 7-B21
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SD-81	Project 7-B23
SD-82	Project 7-B24
SD-83	Project 7-B25
SD-84	Project 7-C1
SD-85	Project 7-C2
SD-86	Project 7-C3
SD-87	Project 7-C4
SD-88	Project 7-C5
SD-89	Project 7-C6
SD-90	Project 7-C7
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SD-95	Project 7-C12
SD-96	Project 7-C13

SD-97	Project 7-C14
SD-98	Project 7-C15
SD-99	Project 7-C16
SD-100	Project 7-C17
SD-101	Project 7-C18
SD-102	Project 7-D1
SD-103	Project 7-D2
SD-104	Project 7-D3
SD-105	Project 7-D4
SD-106	Project 7-D5
SD-107	Project 7-D6
SD-108	Project 7-D7
SD-109	Project 7-D8
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SD-113	Project 7-D12
SD-114	Project 7-D13
SD-115	Project 7-D14
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SD-118	Project 7-E2
SD-119	Project 7-E3
SD-120	Project 7-E4
SD-121	Project 7-E5
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SD-123	Project 7-E7
SD-124	Project 7-E8
SD-125	Project 7-8A
SD-126	Project 7-E9
SD-127	Project 7-E10
SD-128	Project 7-E11

SD-129	Project 7-E12
SD-130	Project 7-E13
SD-131	Project 7-E14
SD-132	Project 7-E14A
SD-133	Project 7-E15
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SD-135	Project 7-E17
SD-136	Project 7-E18
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SD-144	Project 7-E26A
SD-145	Project 7-E26B
SD-146	Project 7-E26C
SD-147	Project 7-E27
SD-148	Project 7-E28
SD-149	Project 7-E29
SD-150	Project 7-E30
SD-151	Project 7-E31
SD-152	Project 7-E32
SD-153	Project 7-E33
SD-154	Project 7-E34

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8.2. Parks Recreation and Community Development

Table of Mitigation Projects

Parks District Project #	<u>Details-General Hazards (Fire, Flooding & Earthquake)</u>
PR03-15	<p><i>Name: City Wide Trees</i></p> <p><i>Description: Trim, remove and prune all trees within parks, community centers & cemetery's</i></p> <p>Status: Complete</p> <p><i>Completion Date/Year: 2003/2004</i></p> <p><i>Ward (s) ALL 6 Wards</i></p> <p><i>Total Cost: \$ 50,000</i></p> <p><i>Funding Source: Park Bond Funds</i></p>
PR04-12	<p><i>Name: Plant trees at various parks</i></p> <p><i>Description: Plant an estimated 300 to 400 trees throughout the city parks and community centers. As of 2004/05 there has been 120 trees planted</i></p> <p>Status: Work in progress</p> <p><i>Completion Date/Year: Feb. 1, 2004</i></p> <p><i>Ward (s) All 6 Wards</i></p> <p><i>Total Cost: \$ 50,000</i></p> <p><i>Funding Source: Prop 40 RBZ & Park Construction Fund</i></p>
PR04-16	<p><i>Name: City wide upgrade irrigation systems</i></p> <p><i>Description: Replaced irrigation-hydraulic/mechanical system with automatic irrigation systems</i></p> <p>Status: Complete</p> <p><i>Completion Date/ Year: 2004/2005</i></p> <p><i>Ward (s) All 6 Wards</i></p> <p><i>Total Cost: \$155,000</i></p> <p><i>Funding Source: Prop 45 & Park Construction Fund</i></p>

PR04-20 *Name: City wide Community Centers Equipment*
Description: Repairs or upgrade's to equipment for the community centers

Status: Complete
Completion Date/ Year: 2004/2005
Ward (s) 1, 2,3, & 6
Total Cost: \$80,000
Funding Source: Park Construction Fund

PR04-22 *Name: Norton /Galaxy Renovation*
Description: Extensive water damage repairs to floors, walls, and office spaces

Status: Complete
Completion Date/ Year: 2004/2005
Ward (s) 1
Total Cost: \$ 1,108,000
Funding Source: Prop 40 Murray-Hayden Grant & Park Construction Fund

PR04-33 *Name: Perris Hill Senior Center 2,500 s.f. Expansion*
Description: Construction of a 2,500 s.f. addition to the center to expand the multipurpose room to approximately 5,000 s.f. Plans were completed in 2003

Status: Complete
Completion Date/ Year: 2004/2005
Ward (s) 2
Total Cost: \$ 500,000
Funding Source:: RBZ Urbanized Need Grant & 30% SB City matching requirement

Parks	
District	Details-General Hazards (Fire, Flooding & Earthquake)
Project #	

PR05-04 *Name: LA Plaza Park Fencing and Lighting*
Description: A gated fence and improved lighting for public safety and crime prevention

Status: Complete
Completion Date/ Year: 2004/2005
Ward (s) 1
Total Cost: \$ 75,000
Funding Source: Park Construction Funds

City of San Bernardino

<p>PR05-05</p>	<p><i>Name: Meadow Brook / Little Field / Shultis / Anne Shirrells / Speicher & Nicholson</i> <i>Description: Shelter, Gazebo, and Roofing improvements</i></p> <p>Status: Complete <i>Completion Date/ Year: 2005</i></p> <p><i>Ward (s) 1,5,6, & 7</i> <i>Total Cost: \$ 223,200</i> <i>Funding Source: Prop 40 per Capita</i></p>
<p>PR05-06</p>	<p><i>Name: Meadow Brook / Nicholson and Anne Shirrells Park</i> <i>Description: Parking lot rehabilitation</i></p> <p>Status: Complete <i>Completion Date/ Year: 2005</i></p> <p><i>Ward (s) 1 & 6</i> <i>Total Cost: \$ 75,200</i> <i>Funding Source: Prop 40 per Capita</i></p>
<p>PR05-08</p>	<p><i>Name: Landscape Rehabilitation and Irrigation</i> <i>Description: Landscape rehabilitation and new and improved irrigation systems for parks, and community gardens</i></p> <p>Status: Complete <i>Completion Date/ Year:</i></p> <p><i>Ward (s) 1,5,6 & 7</i> <i>Total Cost: \$ 104,200</i> <i>Funding Source: Prop 40 per Capita</i></p>
<p>PR05-09</p>	<p><i>Name: Nicholson park an Nunez park backstop fences</i> <i>Description: Installation of a new backstop fences for public safety</i></p> <p>Status: Complete <i>Completion Date/ Year: 2005</i></p> <p><i>Ward (s) 1</i> <i>Total Cost: \$ 73,800</i> <i>Funding Source: Prop 40 per Capita</i></p>

Name: Concrete & Lighting Installation at various parks

Description: Installation of concrete marker signs, additional sidewalk paths, and trail lighting as distance markers

PR05-10

Status: Complete

Completion Date/ Year: 2005

Ward (s) 1,5, & 7

Total Cost: \$ 224,100

Funding Source: Prop 40 per Capita

Parks District Project #	<u>Details-General Hazards (Fire, Flooding & Earthquake)</u>
PR13-01	<p><i>Provide City Wide Trees & Plant Maintenance</i> <i>Description: Trim, remove ,prune and plant trees within parks, community centers , ball fields & cemetery's</i> Status: Work in progress <i>Project selected: To be a hazard mitigation effort for public safety</i> Completion Date/Year(s): 2013/2016 Ward (s) ALL 6 Wards Total Cost: \$ 70,000 Funding Source: TBD Cost to implement: Medium Time to implement: High</p>
PR013-02	<p><i>Create and provide resources for community gardens for selected Care and Shelter facilities</i> <i>Description: Create a collaboration with local nursery's to provide plants and educational horticulture classes for community involved garden success</i> Status: Proposed Completion Date/Year (s)2014/2016 Ward (s) All 6 Wards Total Cost: \$ 150,000 Cost to implement: Medium Time to implement: High Funding Source: Parks Construction Fund & Community Development Block Grant</p>

<p>PR013-03</p>	<p><i>Provide Solar power lighting for City Wide parks and ball fields</i> <i>Description: Replaced mechanical lighting system with solar power systems for safer and as Hazard Mitigation</i> Status: Proposed <i>Completion Date/ Yea (s)r: 2014/2016</i> <i>Ward (s) All 6 Wards</i> <i>Total Cost: TBD</i> Cost to implement: High Time to implement: High <i>Funding Source: TBD</i></p>
<p>PR013-04</p>	<p><i>Provide more and better access to sand and sandbags during disasters / emergency events</i> <i>Description: As part of the Hazard Mitigation: Preventative Maintenance to design and create secure sand and sandbag dispensers at designated Care and Shelter Facilities</i> Status: Proposed <i>Completion Date/ Year(s)r: 2014/2016</i> <i>Ward (s) All 6 Wards</i> <i>Total Cost: TBD</i> Cost to implement: High Time to implement: medium <i>Funding Source: TBD</i></p>

Hazard Assessment Matrix

PRCD Identification of destructive disasters for Parks with listed Wards in City of San Bernardino.

PARKS	Ward	HAZARD												
		WILDFIR	FLOODING	EARTHQUAKE	DAM INUNDATION	INFESTATION	DROUGHT	HIGH WINDS STRAIGHT LINE WINDS	LIGHTNING	EXTREME HEAT	EXTREME COLD	HAIL	TORNADO	WINTER SNOW STORM
Al Guhin Park	5													
Anne Shirrells Park	6													
Blair Park	3													
Colony Park	3													
Delmann Heights Park	6													
Encanto Park	6													
Harrison Canyon Park	4													
Horine Park	7													
Hudson Park	5													
Jack Reily Park	2													
La Plaza Park	1													
Lionel E Hudson Park														
Littlefield Shultis Park	5													
Lytle Creek Park	3													
Meadowbrook Park	3													
Mill Park	1													
Newberry Park	4													
Nicholson Park	1													
Ninth Street Park	1													
Nunez Park	1													
Perris Hill Park	2													
Pioneer Park	2													
Ronald Regan Park														
Seccombe Lake Park	1													
Sierra Park	4													
Speicher Park	7													
Tom Gould Park	4													
Tom Minor Park	7													
Wildwood Park	4													

Table 19

PRCD Identification of destructive disasters for Community Centers, Cemeteries, and Ball Fields within City of San Bernardino

		HAZARD													
		WILDFIR	FLOODING	EARTHQUAKE	DAM INUNDATION	INFESTATION	DROUGHT	HIGH WINDS	STRAIGHT LINE WINDS	LIGHTNING	EXTREME HEAT	EXTREME COLD	HAIL	TORNADO	WINTER SNOW STORM
COMMUNITY CENTERS	Ward														
COMMUNITY CENTERS															
Community Garden															
Animal Disaster Shelter															
Community Development															
	Fifth Street Senior Center														
	Jerry Lewis Swim Center														
	Nicholson Community Center														
	North Norton Community Center (closed)														
	Feldheym Library														
	Galaxy Ballroom														
	Lytle Creek Community Center														
	Mills Community Center (closed)														
	Perris Hill Senior Center														
	Phoenix East Community Center														
	Phoenix West Community Center (closed)														
	Ruben Campos Community Center														
	Rudy C. Hernandez Community Ctr.														
	Verdemont Community Center														
CEMETERIES															
	Campo Santo Memorial Park														
	Pioneer Cemetery														
BALL FIELDS															
	Del Rosa School Field														
	Del Vallejo School Field														
	Golden Valley School														
	Guadalupe Field														
	Gutierrez Field														
	Meadowbrook Fields														
	Newmark Field														
	Richardson School Field														
	San Bernardino Soccer Complex														

Table 20

**Park, Recreation & Community Department
Preliminary Damage Survey Report (DSR)**

PLEASE PRINT ALL INFORMATION:

EXAMPLE ONLY

Date APRIL 17, 2014

Name: JOHN DOE

Ward: 4 How long have you lived in the ward? 23 YEARS

What parks are located in your ward? HAPPY LANE PARK, REGAN HALL PARK

What community center is located in your ward? JOYFULL SENIOR CENTER

<u>Hazard Assessment Questions</u>	<u>Location</u> Near what Park or community center?	<u>Table 21</u> <u>Destructive Disaster</u> (Wildfires, Flood, Earthquakes, Infestation, Drought, High Winds, Lightning, Extreme Heat, Extreme Cold, Hail, Tornado Winter Storm (heavy snowfall))	<u>Probability / Impact</u> Probability High- Highly Likely/Likely Medium-Possible Low- Unlikely Impact High-Catastrophic /Critical Medium-Limited Low-Negligible	<u>List some goals for improvements to create safer parks and community centers in a disaster event.</u>
Identify probable & destructive disaster events in 2013	COMMUNITY CENTER	FLOODING EARTHQUAKES LIGHTNING HIGH WINDS	HIGH-MEDIUM HIGH-MEDIUM	TRAIN SENIORS IN CERT TRAINING AND CREATE COMMUNITY GARDENS FOR INVOLVEMENT
Identify probable & destructive disaster events in 2012				
Identify probable & destructive disaster events in 2011	REGAN HALL PARK	HIGH WINDS LIGHTING FLOODING EARTHQUAKE	HIGH-HIGH HIGH-HIGH	SINCE NEAR MOUNTAINS AND WITH HEAVY TREE POPULATION PREVENTATIVE MEASURES ARE NEEDED
Identify probable & destructive disaster events in 2010				
Identify probable & destructive disaster events in 2009				

Probability:

High: Highly Likely/Likely. There may or may not have been historic occurrences of the hazard in the community or region but experts feel that it is *likely* that the hazard will occur in the community. Citizens feel that there is a likelihood of occurrence.

Medium: Possible. There may or may not have been a historic occurrence of the hazard in the community or region but experts feel that it is *possible* that the hazard could occur in the community. Citizens may feel that there is a likelihood of occurrence.

Low: Unlikely. There have been no historic occurrences of the hazard in the community or region and both experts and citizens agree that it is highly *unlikely* that the hazard will occur in the community.

Impact:

High: Catastrophic/Critical. Both experts and citizens feel that the consequences will be significant in terms of building damage and loss of life.

Medium: Limited. Consequences are thought to be modest in terms of building damage and loss of life, limited either in geographic extent or magnitude.

Low: Negligible

Identifies Preventative Maintenance Activities

PRCD reviewed and evaluated existing local and/or state emergency plans for general hazard mitigation to make recommendations concerning specific needs to develop or improve, as a required, and maintain their hazard mitigation plans. A City wide long term project of facilities, parks, and ball field's maintenance were implemented to assure that the general public safety will be met in case of a major disaster/ emergency should occur. **See Figures:26 and 27.**

Activities	Description
Debris Removal	The removal of debris includes sediment from heavy rainfall, vegetative debris such as fallen trees, branches, leaves and illegally dumped trash.
Erosion Control	Various methods are used to minimize erosion within parks and community center grounds. This process is considered carefully for safety issues, and to help preserve historical landmarks, habitats and or endangered species.
Fence & Pool Maintenance	Fences are constructed to keep the public out of flood control facilities for their safety and to reduce damage to flood control facilities due to illegal activities such as highway vehicle use, homeless encampments, illegal dumping and trespassing. General maintenance of pools included repairs of interior structure, pool equipment (pumps) and other damages.
Vegetation Clearing	Vegetation is removed using power trimmers, weed eaters and manual tools such as pruning loppers, saws, and clippers. Trimmed vegetation is generally removed from the area to reduce fire hazards and large growth to FEMA certified levee slopes so it does not clog downstream streets and facilities during storms.
Tree Removal	Tree removal is down city wide within Parks, community centers, senior centers, and ball parks in compliance with city and FEMA disaster regulations. The process of tree removal consist of: inspection of habitual bird nesting, infection, loose hanging branches, overgrowth blocking posted instructions, dead branches, and root uprising which may or may not be causing safety obstruction to the general public
Homeless Camp Removal	Daily park maintenance takes place for preventative measures for the removal of homeless encampments throughout parks city wide. This includes collaboration with non-profit organizations, shelters, and the police department for working solutions in this matter. The removal of trash and camp structures is done immediately to discourage people from camping in unauthorized park areas and for public safety.
Illegal Dumping Removal	Illegally dumped trash, vehicles, and furniture (couches/mattress) are removed from city wide parks, and then taken to a landfill or to an appropriate recycling facility for disposal.
Rodent & Mosquito Control	Rodenticide bait stations are applied to control burrowing rodents such as ground squirrels, gophers, rats, lizards, spiders, and ticks. Mosquito control is contracted with County vector control office includes bio-pesticides and introduction of mosquito-larvae eating fish for lakes and ponds.
Walking/Bike Trails Maintenance	Creating a safe walking and biking trail pass way free of obstructive such as holes, erosion, road kill, debris, and illegal dumping on the concrete or dirt trails. This will enhance the trails and encourage individuals to stay on provided paths and not stray off.

Table 22 Preventive Maintenance Definitions

PRCD determined that Preventative Maintenance was a most effective practice in implementing a constructive and ongoing process for Hazard Mitigation

Animal Disaster Shelter
 Community Garden
 2012
 2013

PARKS	Debris Removal		Erosion Control		Fence, Pool & Concrete Repairs		Vegetation Clearing		Tree Removal		Homeless Camp Removal		Illegal Dumping Removal		Rodent & Mosquito Control		Walking / Bike Trail Maintenance		
Al Guhin Park																			
Anne Shovel Park																			
Blair Park																			
Colony Park																			
Delmann Heights Park																			
Encanto Park																			
Harrison Canyon Park																			
Horine Park																			
Hudson Park																			
Jack Reily Park																			
La Plaza Park																			
Lionel E Hudson Park																			
Littlefield Shultis Park																			
Lytle Creek Park																			
Meadowbrook Park																			
Mill Park																			
Newberry Park																			
Nichols Park																			
Ninth Street Park																			
Nunez Park																			
Perris Hill Park																			
Pioneer Park																			
Ronald Regan Park																			
Seccombe Lake Park																			
Sierra Park																			
Sparks Park																			
Tom Gould Park																			
Tom Minor Park																			
Wildwood Park																			

Table 23 Preventative Maintenance Activities & Description Monitoring 2012/2013

City of San Bernardino

Community Garden	2012	2013	Debris Removal	Erosion Control	Fence, Pool & Concrete Repairs	Vegetation Clearing	Tree Removal	Homeless Camp Removal	Illegal Dumping Removal	Rodent & Mosquito Control	Walking / Bike Trail Maintenance
Center for Individual											
Fifth Street Senior Center											
Jerry Lewis Swim Center											
Nicholson Community Center											
North Norton Community Center											
Feldheym Library											
Galaxy Ballroom											
Lytle Creek Community Center											
Mills Community Center (closed)											
Perris Hill Senior Center											
Phoenix East Community Center											
Phoenix West Community Center											
Ruben Campos Community Center											
Rudy C. Hernandez Community Ctr.											
Verdemont Community Center											
CEMETERIES											
Campo Santo Memorial Park											
Pioneer Cemetery											
BALL FIELDS											
Del Rosa School Field											
Del Vallejo School Field											
Golden Valley School											
Guadalupe Field											
Gutierrez Field											
Meadowbrook Fields											
Newmark Field											
Palm Field											
Richardson School Field											
San Bernardino Soccer Complex											

Table 24 PRCD General Hazard Preventative Maintenance Activities Charting-2012/2013

Identifies Critical Disaster Care and Shelter Facilities

Table 2 list PRCD Critical Disaster Care and Shelter Facilities that function as Multipurpose Staging Areas (MSA) and provides proposed goals and objectives for Hazard Mitigation. These Care and Shelter Facilities are an addition to the ones that are maintained by the City Police Department. The following list of Critical Disaster Care and Shelter Facilities are maintained by PRCD employees.

LOCATION	SQ. FT.	KITCHEN	ACCESS BY	
			HELICOPTER	ROADWAY
Delmann Heights Ctr. 2969 N. Flores St (909) 384-5417	10,280	Yes	No	Yes
Lyle Creek 380 S "K" Street (909) 384-5424	4,000	Yes	Yes	No
Johnson Hall 906 Wilson (909) 384-5425	4,125	Yes	Yes	Yes
Nicholson Center 2750 W. 2 nd Street (909) 874-3423	5,000	Yes	Yes	Yes
Mill Center 503 E. Central (909) 384-5422	20,133	Yes	Yes	Yes
Ruben Campos Ctr. 1717 W. 5 th Street	10,840	No	Yes	Yes
Ruby C. Hernandez Ctr. 222 N. Lugo Ave (909) 384-5420	17,480	Yes	Yes	Yes
C.I.D. 8088 Palm Lane (909) 384-5426	15,600	Yes	Yes	Yes
Senior Center 600 West 5 th Street (909) 384-5136	12,840	Yes	No	Yes
Wildwood Park 536 E. 40 th Street	Will be used as animal rescue shelter	No	No	Yes

Table 25 Critical Disaster Care and Shelter Facilities

PRCD Care and Shelter Coordinator is a member of the Emergency Management Group and has the responsibility for coordinating local government resources, requesting and responding to mutual aid forces, and providing support

to the Red Cross. There are also employees of the city's PRCD that are trained in Red Cross Mass Care and Shelter Management and can assist in this function. For peacetime disasters, the Coordinator should ensure that the head of the local government has signed the proclamation designating the Inland Empire Chapter American Red Cross as the official disaster relief agency and make arrangements with other private organizations, such as the Salvation Army and the Mennonites, to assist in care and shelter.

The Care and Shelter Coordinator will have plans to immediately open and operate mass care facilities until the Inland Empire Chapter; American Red Cross arrives on the scene and takes control of the situation.

After the Inland Empire Chapter; American Red Cross arrives on the scene and assesses the disaster then the Registration and Information Coordinator will be responsible for; 1) Registration & Inquiry Operations, providing the best information on locations and identities of persons displaced and affected by disaster 2) Lodging Operations, residents will be assigned to shelters at the time of a disaster, based on the nature and location of the emergency, 3) Feeding Operations, a mobile feeding for the mass will require a central facility to be set up to perform such a task, and 4) National Security Shelter Operations, person assigned to care and shelter facilities will constitute the basic labor force for shelter with Law enforcement personnel to maintain peace and order for registration, lodging and feeding operations.

Monitoring and Sustaining Measurable Goals & Objectives

PRCD list monitoring and maintaining measure for goals and objectives for the Hazard Mitigation concerning Critical Disaster Care and Shelter Facilities.

Goals:

- Identifying Multipurpose Staging Areas (MSA) to provide rally points for incoming mutual aid and /or a staging area for support and recovery activities.
- Receive and employ resources as may be provided by neighboring jurisdictions and state, federal and private agencies.
- Create an ongoing preventative maintenance measure plan, implement it, and maintain it with appropriate funds and involved agencies for public safety and disaster readiness.

Objectives:

- Coordinating inter-county mutual aid through Emergency Management Systems.
- Dispatching reports to the appropriate agencies as the emergency situation develops and as changes in the emergency situation dictates.

- Coordinate with local fire stations within the Care and Shelter Facilities areas. To verify that communications and dispatching/reporting systems are operating.
- Create community gardens and complete disaster readiness staging within some of Care and Shelter Facilities for added support within a disaster/emergency event.
- Assist in flood fighting activities by providing sandbags and sand within designated facilities.

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8.3. HMP Web Pages

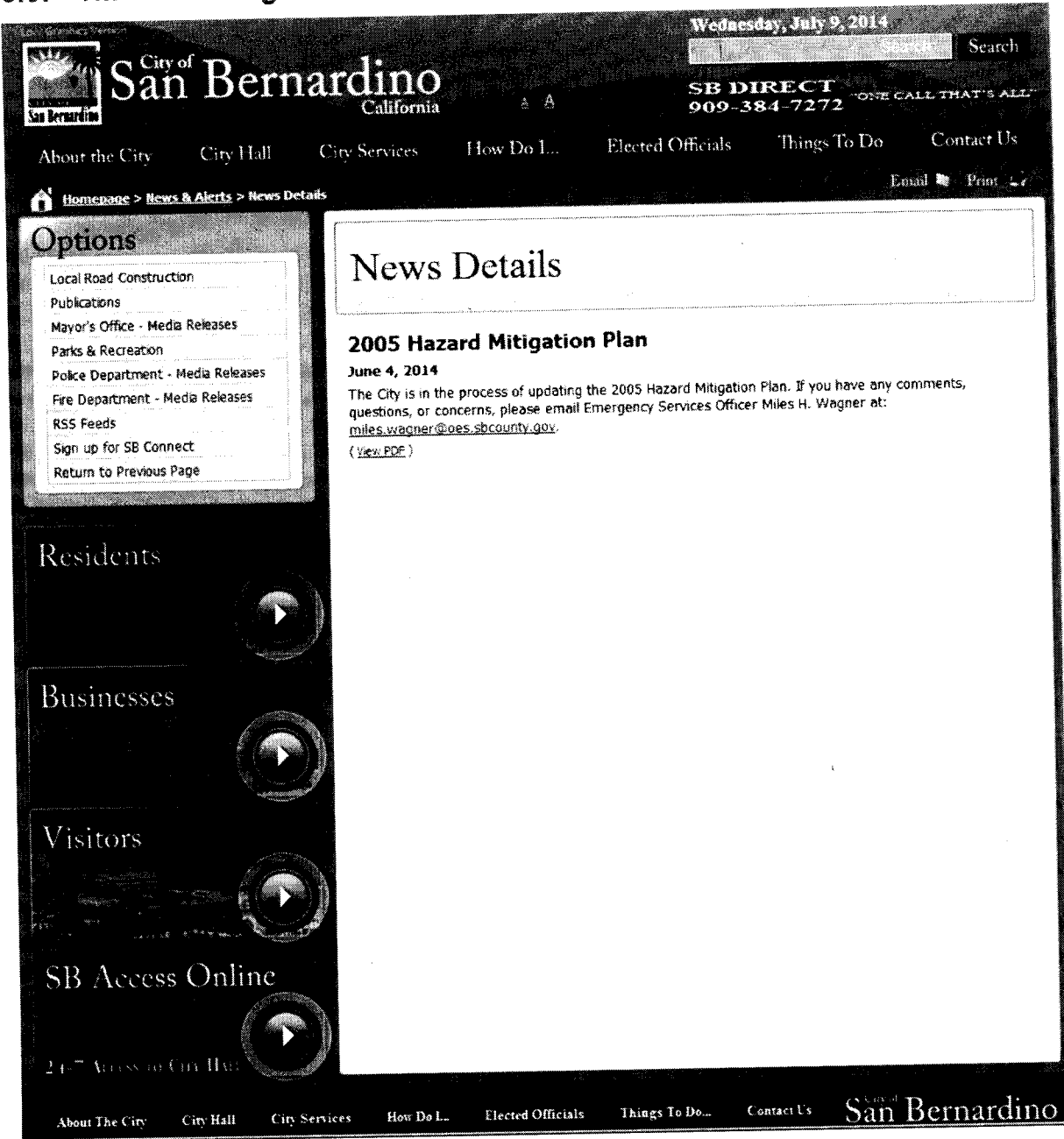


Figure 28 Web Page - Page One

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8.4. HMP Press Release

Contact: City of San Bernardino
 Parks, Recreation & Community Services
 Phone: (909) 384-5233
 Fax: (909) 384-5160

710 North D. Street
 San Bernardino, CA 92401
www.sbcity.org

HAZARD MITIGATION PLAN UPDATE 2014

PRESS RELEASE

The City of San Bernardino Hazard Mitigation Plan Update 2014

California, May 21, 2014: The City of San Bernardino today announces it plans to update the Adopted March 21, 2005, Hazard Mitigation Plan. The plan will address the following areas: 1) Description, Purpose & Community Information, 2) Jurisdictional Participation Information, 3) Planning Process Documentation and Public Involvement, 4) Risk Assessment, 5) Mitigation Strategy, and 6) Plan Maintenance for past and current hazard projects. These areas need to be addressed, revised and updated before funds can be allocated from Federal Emergency Management Agency (FEMA) to help with prevention and the aftermath of emergencies and disasters within our city/county areas.

The City of San Bernardino has developed this Hazard Mitigation Plan, in response to the Disaster Mitigation Act of 2000, Section 322 (a-d). This is a multiparty effort between The City of San Bernardino, who has prepared this Hazard Mitigation Plan in accordance with FEMA, the State of California Office of Emergency Services, and the San Bernardino County Office of Emergency Services to reduce or eliminate losses of life and property from emergencies and disasters.

Hazard mitigation ensures that costly cycles of paying recovery costs to recover from the same types of disasters year after year are broken and that post-disaster repairs and reconstruction result in a reduction in hazard vulnerability. While we cannot prevent disasters from happening, those efforts can be reduced or eliminated through a well-organized public education, and awareness effort, along with preventative and preparedness methods and mitigation strategies.

The drafted updated Hazard Mitigation Plan will be listed on the city website, www.sbcity.org and under the Parks, Recreation & Community Service- "**Latest News**" section for public view in a READ ONLY FILE format.

REQUIREMENT

IFRS 201.6 (C) (1): An open public involvement process is essential to the development of an effective plan. In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process shall include: (1) an opportunity for the public to comment on the plan during the drafting stage and prior to plan approval; (2) 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 businesses, academia and other private and non-profit interests to be involved in the planning process; (3) Review and corporation, if appropriate, of existing plans studies, reports, and technical information . [The plan shall document] the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.

The Hazard Mitigation Plan update process will be completed and submitted to FEMA by June 30, 2014 for approval and then returned to be submitted to the San Bernardino City Council. However, before this plan is approved all comments, and submission updates opportunities as stated in required section of **IFRS 201.6 (C) (1)** listed above shall be addressed and forward to: San Bernardino County Fire Department, Office of Emergency Service; Atten; Mr. Miles Wagner, 1743 Miro Way, Rialto, CA 92376. Or he can be reached at miles.wagner@oes.sbcounty.gov.

Contact: City of San Bernardino

Parks, Recreation &
Community Services
Phone: (909) 384-5233
Fax: (909) 384-5160

710 North D. Street
San Bernardino, CA 92401
www.sbcity.org

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Figure 32 Press Release

8.5. Newspaper Clipping

No articles were run in the local newspapers announcing the revision/updating of the City of San Bernardino Hazard Mitigation Plan.

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8.6. Parks and Recreation Community Services Commission Agenda

CITY OF SAN BERNARDINO
Parks, Recreation & Community
Services Department
AGENDA

FOR THE
 Regular Meeting OF THE PARKS & RECREATION COMMISSION
 OF THE CITY OF SAN BERNARDINO

THURSDAY, APRIL 17, 2014

3:00 PM

OPEN SESSION

PARKS, RECREATION & COMMUNITY SERVICES DEPARTMENT
 BOARD ROOM AT 201 N. "E" STREET, STE 301 3RD FLOOR SAN BERNARDINO, CA 92401
 WWW.SBCITY.ORG



Kyle Knabe		Fi
City Commissioner, Mayor's Appointee		Commissioner
-VACANT-		K
City Commissioner, Mayor's Appointee		Commissioner
Jessie Munoz		Ch
Commissioner, WARD 1		Commissioner
Deborah Sterner Matley		
Commissioner, WARD 2		Commissioner
Christopher Crosson		Mic
Commissioner, WARD 3	Director of Parks, Recreation & Comm	

Welcome to a meeting of the Parks, Recreation & Community Services Department and the Parks & Recreation Commission of the City of San

- o All documents for public review are on file with the City Clerk's Office located on the 2nd floor of City Hall, 300 North "D" Street, San Bernardino.
- o Anyone who wishes to speak during public comment or on a particular item will be required to fill out a speaker slip. Speaker slips should be turned in to staff. Public comments for agenda items that are not public hearings will be limited to three minutes. Public comments for items that are not on the agenda will be limited to 3 minutes.
- o Please turn off or mute your cell phone while the meeting is in session.

NOTICE TO COMMISSIONERS

The Chairperson has requested that any Commissioner with a question on any item please contact the appropriate Division Head or the Director prior to the meeting. You may telephone (909) 384-5030.

CALL TO ORDER.....Charle' Jacobs, Chairperson

FLAG SALUTE

ROLL CALL

Attendee Name	Present	Absent	Late
City Commissioner, Kyle Knabe	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
City Commissioner, VACANT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Commissioner, Ward 1 Jessie Munoz	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Commissioner, Ward 2 Deborah Sterner Matley	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Commissioner, Ward 3 Christopher Crosson	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Commissioner, Ward 4 Felix D'Amico	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Commissioner, Ward 5 Kathy Mallon	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Commissioner, Ward 6 Charle' Jacobs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Commissioner, Ward 7 Larry Guidry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Director, Mickey Valdivia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Executive Assistant to the Director, Deb Hansen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**COMMISSIONERS UNABLE TO ATTEND THE COMMISSION MEETING,
PLEASE CONTACT DEB HANSEN AT (909)384-5030. THANK YOU.**

1. PUBLIC COMMENTS ON ITEMS NOT ON THE AGENDA

This is the time set for anyone wishing to address the Commission. Any member of the public may address this meeting of the Parks and Recreation Commission. Issues brought before the Commission at this time and not already on this agenda will not be discussed by the Commission but will be referred to staff for further study, research, action and/or placed on a future Commission Agenda. Speakers who wish to present documents to the Commission may hand the documents to the staff member responsible. Anyone, wishing to address the Commission please state your name and address for the record.

2. APPROVAL OF MINUTES**A. Approval of minutes from March 20, 2013**

MOTION: To approve the minutes from the March 20, 2014 Parks & Recreation Commission meeting.

3. OLD BUSINESS**A. Vietnam Veterans Welcome Home Ceremony Video Presentation****B. Market Night Update****4. NEW BUSINESS****A. Introductions**

Ms. Aviana Cerezo came on board as our new Community Recreation Manager on Tuesday, April 8th.

B. Incredible Edible Garden Grand Opening**C. *Art in the Parks* Presentation by Dr. Ernie Garcia****D. Upcoming Parks and Recreation Commission Workshop****E. Hazardous Mitigation Plan****F. Garden Rules/Guidelines for Community Gardens – Discussion led by Chairperson Jacobs**

MOTION: To receive and file the report.

OR

MOTION: To adopt the five-page “Garden Rules” document (revised February 6, 2104) currently used at the City’s Garden site, and as presented to the Commission for general rules/guidelines for all community gardens within the City.

CITY OF SAN BERNARDINO
Parks, Recreation & Community
Services Department
AGENDA

FOR THE
 Regular Meeting OF THE PARKS & RECREATION COMMISSION
 OF THE CITY OF SAN BERNARDINO

THURSDAY, JUNE 19, 2014

3:00 PM

OPEN SESSION

PARKS, RECREATION & COMMUNITY SERVICES DEPARTMENT
 BOARD ROOM AT 201 N. "E" STREET, STE 301 3RD FLOOR SAN BERNARDINO, CA 92401
 WWW.SBCITY.ORG



Kyle Knabe	
City Commissioner, Mayor's Appointee	
-VACANT-	
City Commissioner, Mayor's Appointee	
-VACANT-	
Commissioner, WARD 1	
Deborah Sterner Matley	
Commissioner, WARD 2	
Christopher Crosson	
Commissioner, WARD 3	Director of Parks, Recr
<p>Welcome to a meeting of the Parks, Recreation & Community Services Department and the Parks & Recreation Commission of the City of San Bernardino.</p> <ul style="list-style-type: none"> ○ <i>The City of San Bernardino recognizes its obligation to provide equal access to public services to those individuals with disabilities. Please contact the Parks, Recreation and Community Services Department Director (384-5030) two working days prior to the meeting for any requests for reasonable accommodation to include interpreters.</i> ○ <i>All documents for public review are on file with the City Clerk's Office located on the 2nd floor of City Hall, 300 North "D" Street, San Bernardino.</i> 	

NOTICE TO COMMISSIONERS

The Chairperson has requested that any Commissioner with a question on any item please contact the appropriate Division Head or the Director prior to the meeting. You may telephone (909) 384-5030.

CALL TO ORDER.....Charle' Jacobs, Chairperson

FLAG SALUTE

ROLL CALL

Attendee Name	Present	Absent	
City Commissioner, Kyle Knabe	<input type="checkbox"/>	<input type="checkbox"/>	
City Commissioner, VACANT	<input type="checkbox"/>	<input type="checkbox"/>	
Commissioner, Ward 1, VACANT	<input type="checkbox"/>	<input type="checkbox"/>	
Commissioner, Ward 2 Deborah Sterner Matley	<input type="checkbox"/>	<input type="checkbox"/>	
Commissioner, Ward 3 Christopher Crosson	<input type="checkbox"/>	<input type="checkbox"/>	
Commissioner, Ward 4 Felix D'Amico	<input type="checkbox"/>	<input type="checkbox"/>	
Commissioner, Ward 5 Kathy Mallon	<input type="checkbox"/>	<input type="checkbox"/>	
Commissioner, Ward 6 Charle' Jacobs	<input type="checkbox"/>	<input type="checkbox"/>	
Commissioner, Ward 7 Larry Guidry	<input type="checkbox"/>	<input type="checkbox"/>	
Director, Mickey Valdivia	<input type="checkbox"/>	<input type="checkbox"/>	
Executive Assistant to the Director, Deb Hansen	<input type="checkbox"/>	<input type="checkbox"/>	

COMMISSIONERS UNABLE TO ATTEND THE COMMISSION MEETING, PLEASE CONTACT DEB HANSEN AT (909)384-5030. THANK YOU.

1. PUBLIC COMMENTS ON ITEMS NOT ON THE AGENDA

This is the time set for anyone wishing to address the Commission. Any member of the public may address this meeting of the Parks and Recreation Commission. Issues brought before the Commission at this time and not already on this agenda will not be discussed by the Commission but will be referred to staff for further study, research, action and/or placed on a future Commission Agenda. Speakers who wish to present documents to the Commission may hand the documents to the staff member responsible. Anyone, wishing to address the Commission please state your name and address for the record.

2. APPROVAL OF MINUTES

B. Approval of minutes from May 15, 2013

MOTION: To approve the minutes from the May 15, 2014 Parks & Recreation Commission meeting

4. NEW BUSINESS

- G. *Art in the Parks* -- presented by Dr. Ernie Garcia
- H. Cypress Recreation and Community Services Commission Recognized its Volunteers
- I. Garden Committee Update – presented by Garden Committee Chairperson Mallon

5. ANNOUNCEMENTS

- A. Director's Report
- B. Commissioner Announcements

6. ADJOURNMENT

MOTION: That the Parks and Recreation Commission adjourn to the next regular meeting scheduled for July 17, 2014 at 3:00 p.m. at the Parks, Recreation and Community Services Administration office located at 201-B North "E" Street, Suite 301, 3rd Floor, San Bernardino, CA 92401.