ITEM NO. 3

STAFF REPORT

DATE: DECEMBER 20, 2011

TO: HONORABLE MAYOR AND CITY COUNCIL

FROM: ROD FOSTER, CITY MANAGER

PREPARED BY: TOM HENDRIX, FIRE CHIEF

SUBJECT: ADOPTION OF THE 2010 LOCAL HAZARD MITIGATION PLAN UPDATE

RECOMMENDED ACTION

Staff recommends that the City Council adopt Resolution No. R-99-11, adopting the 2010 Local Hazard Mitigation Plan Update, authorizing future non-substantive amendments to the Plan, and rescinding Resolution No. R-18-05.

GOAL STATEMENT

The proposed action will support the City's goal to maintain a Disaster Preparedness Program.

BACKGROUND

The Federal Disaster Mitigation Act of 2000 (DMA 2000) was enacted on October 10, 2000, establishing new requirements for state and local government agencies to submit a comprehensive Disaster Mitigation Plan (Plan) to the California Emergency Management Agency (Cal EMA) and to the Federal Emergency Management Agency (FEMA) in order to be eligible for hazard mitigation grant funding. The regulation further requires that plans be updated and resubmitted to FEMA for approval every five (5) years in order for an agency to remain eligible for FEMA hazard mitigation assistance programs.

ISSUES/ANALYSIS

The current Plan for the City of Colton was approved by City Council on March 1, 2005. The City recently engaged in the planning process to revise the Plan according to compliance standards set forth by FEMA. Staff has reviewed and revised the Plan to reflect changes in development, progress in local mitigation efforts, and changes in priorities. Consistent with the standards set forth by FEMA, the updated Plan describes the process for identifying hazards, risks and vulnerabilities; identifies and prioritizes mitigation actions; encourages the development of local mitigation; and provides technical support for those efforts. The Plan represents the City's commitment to reduce risks from natural hazards and serves as a guide for decision-makers as they commit resources toward reducing the effects of potential hazards.

Pursuant to mitigation planning regulations, the City of Colton Plan was submitted to Cal EMA for initial assessment. At the conclusion of that process, Cal EMA forwarded the Plan to FEMA for final review and approval. FEMA conducted a formal review of the Plan in accordance with the Code of Federal Regulations and notified the City in August that the Plan was granted final approval (pending adoption by the City Council).

FISCAL IMPACTS

Failure to prepare and adopt a Hazard Mitigation Plan could result in a loss of federal funding for disaster assistance and federal fire response reimbursement.

ALTERNATIVES

1. City Council may provide alternate direction to staff.

ATTACHMENTS

1. Resolution No. R-99-11
2. Hazard Mitigation Plan

ATTACHMENT 1

Resolution No. R-99-11

RESOLUTION NO. R-99-11

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF COLTON, CALIFORNIA, ADOPTING THE 2010 LOCAL HAZARD MITIGATION PLAN UPDATE, AUTHORIZING FUTURE NON-SUBSTANTIVE AMENDMENTS TO THE PLAN, AND RESCINDING RESOLUTION NO. R-18-05

WHEREAS, The preservation of life and property is an inherent responsibility of local, State and Federal government; and

WHEREAS, The City of Colton joined with agencies in San Bernardino County to develop, adopt and maintain a multi-jurisdictional Hazard Mitigation Plan; and

WHEREAS, The City is charged and entrusted with the protection of persons and property prior to and during emergencies, and/or disaster conditions; and

WHEREAS, The goal of a Hazard Mitigation Plan is to minimize, reduce or eliminate loss of life and/or property; and

WHEREAS, This Hazard Mitigation Plan represents a comprehensive description of the City's commitment to reducing, preventing or eliminating potential impacts of disasters caused by natural and human-caused hazards; and

WHEREAS, The City of Colton previously adopted its Hazard Mitigation Plan with the adoption of Resolution No. R-18-05; and

WHEREAS, The City Council desires to rescind Resolution No. R-18-05 and adopt the updated Hazard Mitigation Plan in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS, The City has undertaken a comprehensive planning effort in developing the Local Hazard Mitigation Plan by organizing resources, assessing risks, and developing and implementing a mitigation plan and monitoring process; and

WHEREAS, The Hazard Mitigation Plan is a Federal requirement under the Disaster Mitigation Act of 2000 for the City to receive Federal funds for disaster recovery and mitigation; and

WHEREAS, The Hazard Mitigation Plan established a coordinated effort to support mitigation activities and identifies measures to combat natural and man-made hazards within our City; and

WHEREAS, The Hazard Mitigation Plan is an extension of the State of California Multi-Hazard Mitigation Plan, and will be reviewed and exercised periodically and revised as necessary to meet changing conditions; and

WHEREAS, The City of Colton agrees to adopt this Hazard Mitigation Plan and urges all officials, employees, public and private organizations, and citizens, individually and collectively, to do their share in furthering the goals and objectives of hazard mitigation within the City of Colton.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF COLTON DOES HEREBY RESOLVE AS FOLLOWS:

SECTION 1. Resolution No. R-18-05 is hereby rescinded.

SECTION 2. The City Council approves the 2010 Local Hazard Mitigation Plan of the City of Colton.

SECTION 3. The City Council authorizes the Fire Chief to make necessary administrative and operational changes to the plan that are in keeping with the intent of the plan as approved.

SECTION 4. The City Council authorizes the Fire Chief, or his duly appointed representative, to perform all duties required to carry out the Local Hazard Mitigation Plan.

SECTION 5. The staff report accompanying this resolution is found to be true, adopted as findings and incorporated into this resolution.

PASSED, APPROVED AND ADOPTED this 20th day of December 2011.

ATTEST:

SARAH S. ZAMORA
Mayor

EILEEN C. GOMEZ, CMC
City Clerk

ATTACHMENT 2

Hazard Mitigation Plan

City of Colton

HAZARD MITIGATION PLAN

Prepared by
Colton Fire Department

July 25, 2011

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Section 1 Introduction

1.1 Purpose of the Plan

Hazard mitigation reduces or eliminates losses of life and property. After disasters, repairs and reconstruction are often necessary to restore to pre-disaster conditions. Such efforts expedite a return to normalcy; however, the replication of pre-disaster conditions could result in a cycle of damage, reconstruction, and repeated damage. Hazard mitigation is the only phase of emergency management specifically dedicated to breaking the cycle of damage, reconstruction, and repeated damage. This Plan identifies hazards and the mitigation actions implemented to reduce the effects of these hazards.

1.1.1 Overview

The *Robert T. Stafford Disaster Relief and Emergency Assistance Act* (Stafford Act), as amended by the *Disaster Mitigation Act* of 2000 (DMA 2000), switched the focus from hazard-specific Mitigation Plans to Multi-Hazard Mitigation Plans in an effort to promote a more comprehensive, dynamic planning approach. Additionally, DMA 2000 encourages combining single jurisdictional planning efforts to create Multi-Jurisdictional Hazard Mitigation Plans (MJHMP). It should also be noted that an approved Local Hazard Mitigation Plan (HMP) is required to receive federal assistance under the Hazard Mitigation Grant Program (HMGP) or Pre Disaster Mitigation (PDM) programs.

In 2005, the County of San Bernardino Office of Emergency Services (County OES) and approximately 56 cities, towns, and special districts collaborated to develop a countywide Multi-Jurisdictional Hazard Mitigation Plan (MJHMP) to meet the federal requirements. A web-based program, *Visual Risk*, was utilized to assist in the development of individual plans that allowed partners to insert information into a program which calculated the risks and produced a plan document. The Hazard Mitigation Plans are required to be updated, adopted and approved every five (5) years.

The current updates in 2011 are being done to satisfy the five-year federal requirements. Once again, the City of Colton is participating in the County's MJHMP and is one of 55 partners. The 55 partners include all 24 incorporated cities and towns, 30 special districts, and the unincorporated areas. County OES hired a contractor (ICF International) to support these efforts to update the 55 local HMPs and the *San Bernardino County Operational Area Multi-Jurisdictional Multi-Hazard Mitigation Plan*. This support includes providing technical expertise, resource material and tools, not only to expedite the HMP update process, but also to ensure that the updates are in compliance with federal requirements of the program. The tools, resource material, and other project related information are being maintained on a project web portal https://tmsprojects.icfi.com/sbHMPupdate/default.aspx to ensure the same information is available to all participants.

Although the HMPs are intended to identify, assess, and mitigate community risk; the FEMA *Local Multi-Hazard Mitigation Planning Guidance* emphasizes that the HMP should be more "performance standard" rather than "prescriptive"; meaning that the plans should identify "*what*" needs to be done rather than "*how*" it should be done.

1.2 Authority

The DMA 2000, Section 322 (a-d) requires that local governments, as a condition of receiving federal disaster mitigation funds, have a mitigation plan that describes the process for identifying hazards, risks and vulnerabilities, identifies and prioritizes mitigation actions, encourage the development of local mitigation and provides technical support for those efforts. This mitigation plan serves to meet those requirements for the City of Colton.

1.3 Community Profile

1.3.1 Physical Setting

The City of Colton lies on the southern edge of the mid San Bernardino Valley (Map 1.1). Most of the city lies within the valley with an average elevation of 1000 feet. The Santa Ana River bisects the city. In the southern portion of the city the valley floor transitions into the hills of the Reche Canyon and La Loma Hills area. The highest point in Colton is the summit of Blue Mountain with an elevation of 2414 feet.

1.3.2 History

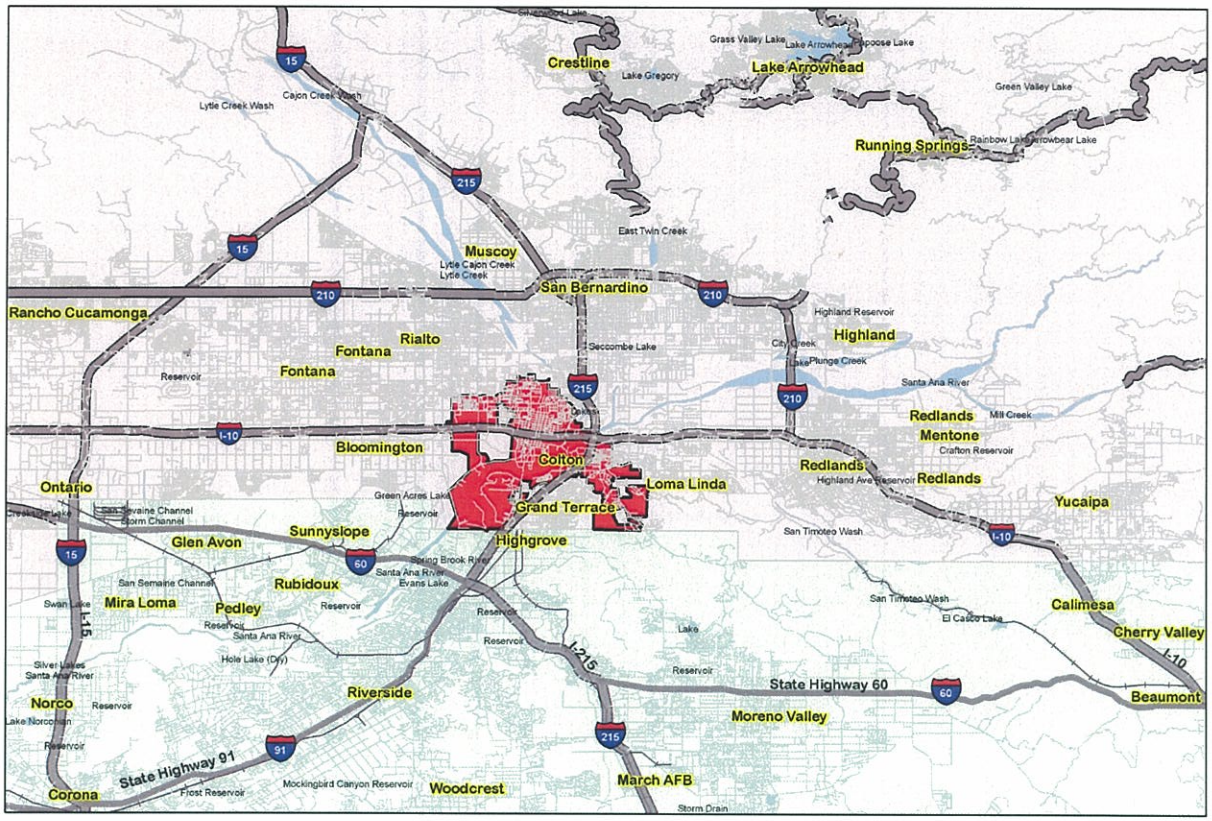
The City of Colton was formally founded in 1875 and incorporated in 1887 but its history goes back to the 1770's when several explorers from Mexico searched routes from Sonora, Mexico to Monterey, bringing the first Europeans to the Colton area. Prior to this time, the area was inhabited by the Gua-chama, Serrano and San Gorgonio Indians.

By 1840 Colton was part of two large privately owned ranchos, the Jurupa and the San Bernardino Ranchos. The southwest section of Colton is referred to as Agua Mansa ("Gentle Waters"); the area settled by New Mexico Pioneers in 1842.

The town of Colton was laid out when the Southern Pacific Railway was constructed through the valley on its way eastward from Los Angeles in 1875. Colton was named for Civil War General David Colton who was also Vice President of the Southern Pacific Railroad Company.

Today the City of Colton encompasses an area of approximately 15 square miles and operates as a general law city, governed by the City Council, of the State of California. Colton, with a current population of over 51,000 is located between the Cities of San Bernardino and Riverside, in the middle of the Inland Empire, one of the fastest growing regions in the United States. Colton is now a thriving and well-balanced community offering affordable housing, many family support programs, recreation and parks, health services, a quality education system, public safety programs, two community centers, and an aggressive problem-solving government.

San Bernardino Valley Map (Map 1.1)



1.3.3 Demographics

As of the census of 2000, there were 47,662 people, 14,520 households, and 10,904 families residing in the city. The population density was 1,217.9/km² (3,154.3/mi²). There were 15,680 housing units at an average density of 400.7/km² (1,037.7/mi²). The racial makeup of the city was 42.7% White, 11.0% African American, 1.3% Native American, 5.3% Asian, 0.2% Pacific Islander, 34.5% from other races, and 5.1% from two or more races. Hispanic or Latino of any race were 60.7% of the population.

There were 14,520 households out of which 46.5% had children under the age of 18 living with them, 48.3% were married couples living together, 19.5% had a female householder with no husband present, and 24.9% were non-families. 19.4% of all households were made up of individuals and 4.6% had someone living alone who was 65 years of age or older. The average household size was 3.3 and the average family size was 3.8.

In the city the population was spread out with 34.9% under the age of 18, 11.9% from 18 to 24, 31.5% from 25 to 44, 15.2% from 45 to 64, and 6.4% who were 65 years of age or older. The median age was 27 years. For every 100 females there were 97.2 males. For every 100 females age 18 and over, there were 93.8 males.

The median income for a household in the city was $35,777, and the median income for a family was $37,911. Males had a median income of $32,152 versus $25,118 for females. The per capita income for the city was $13,460. About 18.2% of families and 19.6% of the population were below the poverty line, including 25.2% of those under age 18 and 10.9% of those age 65 or over. (Wikipedia, 2010)

1.3.4 Existing Land Use

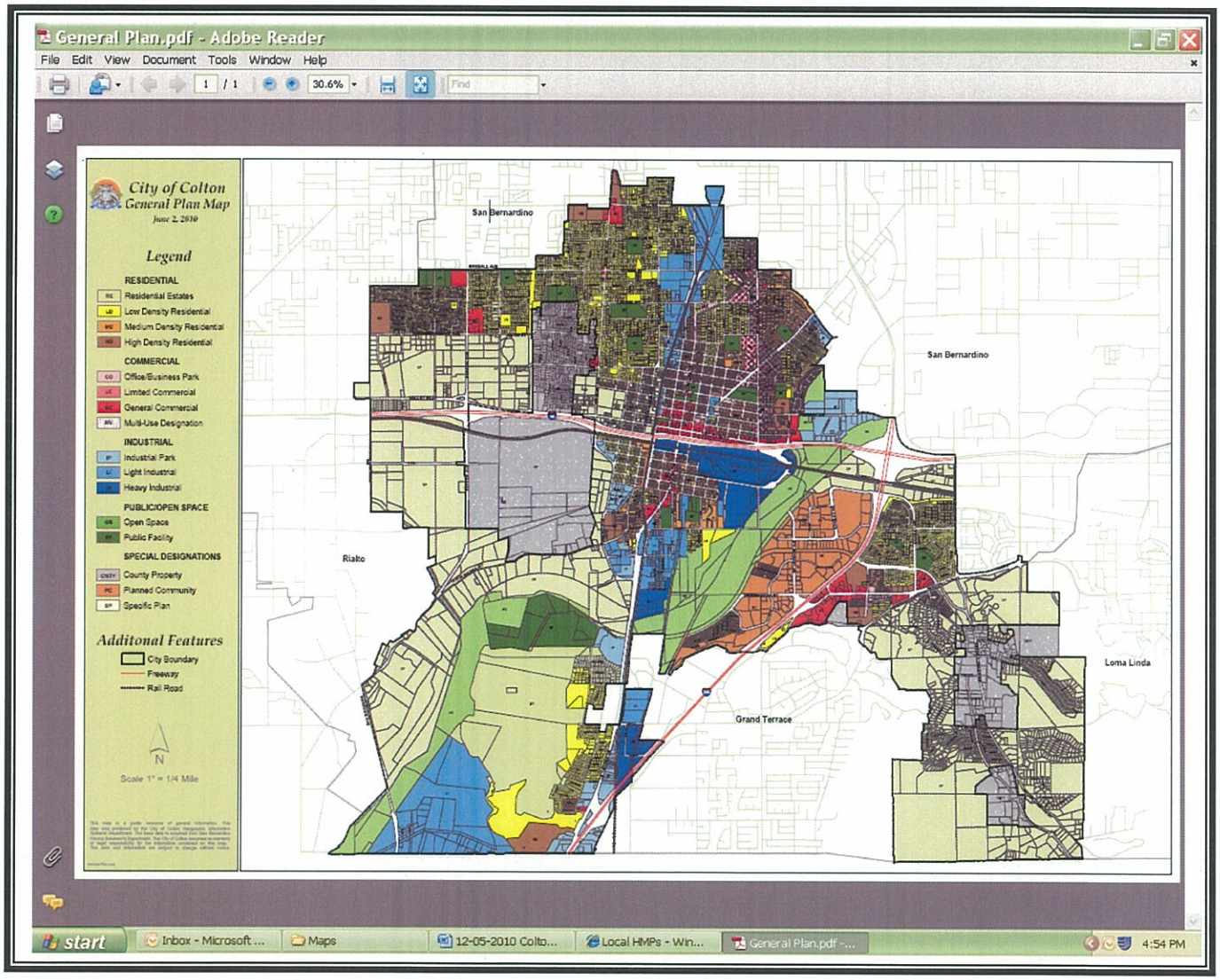
The City of Colton encompasses 9,613 acres or 15.0 square miles and has a combination of residential, commercial, and industrial uses.

A land use inventory was prepared in 1985 as part of the last update of the Land Use Element of the General Plan, which showed that over fifty percent of the land in the City was vacant open space. In 1985, all residential land uses accounted for about 15 percent of the City with single-family residences making up about 12 percent of the City. Commercial land uses accounted for roughly 3.3 percent of the City, with retail and personal services making up nearly 50 percent of the commercial acreage of the City.

Industrial developments accounted for almost 6 percent of the entire City; however, the large quarry operations at Slover Mountain, as well as office developments in existing industrial parks were not included in this acreage count. Public service land uses such as fire stations, schools, hospitals, utilities and landfills made up about 2.5 percent of the entire City. School facilities made up over half of all existing public service land use acreage within Colton. Various open space uses, such as parks, golf courses, cemeteries and agricultural fields, accounted for about 4 percent of the City. Finally, improved roadways, freeways, railroads, and flood control channels accounted for 1, 830 acres or 19 percent of the entire City area leaving the remainder with a net area of 7, 783 acres, or 81 percent to accommodate existing land use activities

Since then, much of the vacant land has been developed in conformance with the land use designations of the adopted General Plan. The location and distribution of land use designations within the city and its sphere of influence, which totals 11,775 acres or 18.4 square miles, are illustrated by the *Land Use Map* (Map 1.2). The land uses of the City are predominately residential (38.5%) and industrial (10.8%). Remaining land uses include commercial (3.2%), public facilities and (10.23%), and roads and railroads (16.1%).

Land Use Map (Map 1.2)



1.3.5 Development Trends

The City of Colton expects moderate resident and employee population growth in the near future. According to SCAG, it is anticipated that an additional 3,705 dwelling units will be constructed by the Year 2014 in order to meet the city's RHNA (Regional Housing Needs Assessment). The majority of these additional dwelling units will be constructed on the city's available vacant land in the western and southern parts of the City since the majority of the City is built-out. Likewise, the development of the vacant land will provide opportunities for commercial and industrial development.

Development within the built-out portions of the City is limited due to the lack of vacant properties. The development trend within the built-out portions of the City is focused on underutilized or vacant infill properties and the recycling of existing properties for various commercial (e.g., retail, auto repair) and industrial (e.g., warehouse) uses.

Large scale development is anticipated within the large vacant areas of the City that allow development. This includes industrial development within the Agua Mansa Specific Plan area, which encompasses the southwestern part of the City. To complement the recent development of the Arrowhead Medical Center (at Pepper Avenue, north of the I-10 Freeway), the City is updating the West Valley Specific Plan area to allow for a mix of regional commercial uses, hospitality uses, residential uses, and medical uses complementary to the Medical Center.

A new residential community, including neighborhood commercial uses, is planned for the Pellesier Ranch Specific Plan area in the south part of the City. Limited new hillside residential development is anticipated in vacant portions of the Reche Canyon Specific Plan Area, including Iron Horse Hills, located at Washington Street along the Grand Terrace city limits, and Crystal Ridge, located near the center of the Reche Canyon.

Section 2 Plan Adoption

2.1 Adoption by Local Governing Body

Although this HMP is coordinated and maintained by the Colton Fire Department, it is actually the culmination of recommendations from numerous stakeholders from City Departments, local organizations, private businesses, and the general public. Adoption of the 2011 HMP is implemented by the Colton City Council as a supporting document to the City's General Plan. The 2011 HMP represents a description of the City's commitment to significantly reduce or eliminate impacts of natural and human caused disasters through preparing and implementing comprehensive hazard mitigation plans and actions. Once the City HMP is approved by the Federal Emergency Management Agency it will be adopted by the Colton City Council.

2.2 Promulgation Authority

The Colton City Council is responsible for the review, approval and adoption of the 2011 Update of the Hazard Mitigation Plan (HMP) for the City of Colton. It is also the intent of the City Council to take appropriate actions to incorporate the 2011 HMP into the City's General Plan. The HMP was adopted by the City Council on Month Day, 2011. A copy of the resolution is located in the front of this HMP.

2.2.1 Letter of Promulgation Signatory Authority

Sarah S. Zamora, Mayor
David Toro, District 1 Council Member
Frank Gonzales, District 2 Council Member
Vincent Yzaguirre, District 3 Council Member
Susan Oliva, District 4 Council Member
Deirdre Bennett, District 5 Council Member/ Mayor Pro Tempore
Alex Perez, District 6 Council Member

2.3 Primary Point of Contact

The Point of Contact for information regarding this plan is:

Tim McHargue
Battalion Chief
Colton Fire Department
303 E. "E" Street
Colton, CA 92324
(909) 370-5102

Section 3 Planning Process

3.1 Preparing for the Plan Updates

Planning creates a way to solicit and consider input from diverse interests. Involving stakeholders is essential to building community-wide support for the Plan. The planning process involves other city departments (e.g., development services, public works, etc.) businesses, community based organizations, civic groups, and schools.

The City HMP planning efforts included the development of a *HMP Planning Process* and *HMP Next Steps* to identify timelines and meeting schedules. Planning meeting discussions also included the identification of specific items in the HMP that need to be updated and appropriate staff that would have access to the information necessary for these updates. These planning documents and meeting agendas can be found in Appendix A.

3.1.1 Planning Team

The Planning Team consisted of representatives from City departments who specialize in various areas to provide needed expertise in the development of the HMP. *(Figure 3.1)*

HMP Planning Team

Name	Title	Agency
Cisneros, Angel	I.S. Coordinator	City of Colton
deDianous, Chuck	Police Lieutenant	City of Colton
Gallegos, Rebecca	Executive Assistant, Utility Services	City of Colton
Hendrix, Tom	Fire Chief	City of Colton
Jarrin, Jay	Senior Planner	City of Colton
Kreske, Debra	Consultant, Emergency Services Coordinator	City of Loma Linda
Lunt, Tim	T&D Superintendent	City of Colton
McHargue, Tim	Fire Battalion Chief	City of Colton
Sandoval, Gerald	ARMC Facilities Manager	Arrowhead Regional Medical Center
Siegfried, Anthony	Substation Superintendent	City of Colton
Tapia, Maritza	Assistant Public Works Director	City of Colton
Tomich, Mark	Development Services Director	City of Colton

Figure 3.1

The Planning Team met several times to discuss the planning process, timelines and meeting schedules (Figure 3.2). The City's consultant coordinated individually with appropriate planning members to gather information for Plan development and data inclusion. The Planning Team also reviewed the existing HMP to determine which sections of the plan will need to be updated.

Planning Meetings/Activities

Date	Activity
6/10/2010	MJHMP Kick-off Meeting with County and all
8/12/2010	MJHMP 2010 Update (In-Person) to discuss next steps
8/19/2010	MJHMP 2010 Update Conference Call

8/26/2010	MJHMP 2010 Update Conference Call
9/9/2010	MJHMP 2010 Update Conference Call
9/23/2010	MJHMP 2010 Update Conference Call
10/7/2010	MJHMP 2010 Update Conference Call
11/23/2010	Kick Off Planning Team Meeting to overview the planning process, timelines and meeting schedules, and the roles of planning members.
12/2/2010	MJHMP
12/6/2010	Team Meeting to distribute HMP
12/6 – 16/2010	HMP Review
12/15/2010	MJHMP 2010 Update Conf. Call
12/16/2010	Team Meeting to discuss changes to the HMP

Figure 3.2

3.2 Coordination with Other Jurisdictions, Agencies, and Organizations

As noted in 1.1, the City of Colton is one of 55 partners in the development of the 2010 Multi-Jurisdictional Hazard Mitigation Plan. The Fire Battalion Chief and/or City consultant attended the MJHMP meetings at various locations as well as participating on conference calls (Figure 3.2). The consultant was also a member of the MJHMP Working Group which was a sub-group of partners to discuss planning efforts with County OES and the consultant.

The City of Colton and other stakeholders coordinated with County OES in the discussion of various methodologies we would take as partners to update the countywide Multi-Jurisdictional Hazard Mitigation Plan (MJHMP). Partners in the MJHMP agreed that we should contract with a consultant to assist in managing the updates for all partners. As noted in earlier, County OES took the initiative to hire a consultant with Homeland Security Grant Program (HSGP) funding. In addition the City of Colton hired a consultant to assist with updates on the City HMP.

Coordination also took place within in the City of Colton. Representatives from Arrowhead Regional Medical Center were part of the planning team. These representatives also reviewed the 2005 HMP and identified changes that were included in the 2011 HMP.

3.3 Public Involvement/Outreach

Public review created a way for the City to solicit and consider input to the HMP from various viewpoints. Involving the public was essential to building community-wide support for the plan and mitigation efforts throughout the City *(Figure 3.3)*.

An HMP email was sent to all our CERT and ECS volunteers to inform them of the availability of the HMP for review. We also informed the public through our website and local television station that the plan was available for their review.

Public Meetings

Date	Public Meetings/Outreach
12/2010	Public Announcements on Channel 3
12/2010	Public Announcements on City website
12/2010	CERT Distribution
12/2010	ECS Distribution
TBD	Chamber of Commerce

Figure 3.3

3.4 Plan Review

Planning Team members provided information of events and projects that have occurred since the 2005 HMP. Once this information was included in the 2011 HMP it was distributed to Planning Team members for review. Team member comments and corrections were evaluated and included in the Plan. Following this review, the Plan was open for public comment and review.

The City informed the public through the City's website and local television station that the HMP was available for their review. A hardcopy of the HMP was available at the front counter of Fire Station #1 for all visitors to review. The HMP was also accessible on the City's website for review for people were unable to go to the fire station. An email was distributed to all CERT and RACES volunteers to inform them of the availability of the HMP for review. There were no public comments on the plan.

Once all reviews were completed, the Plan was forwarded to county OES, then submitted to State OES for an informal review, and finally delivered to FEMA for final review.

Section 4 Risk Assessment

The goal of mitigation is to reduce the future impacts of a hazard on lives, property and the environment. Mitigation also serves to reduce property damage, reduce disruption to local and regional economies, and reduce the amount of public and private funds spent to assist with recovery. However, mitigation should be based on risk assessment.

This risk assessment measures 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 community could be affected by a hazard, and the impact on community assets. Data collection and document review were important first steps in the identification and screening of hazards.

4.1 Hazard Identification

4.1.1 Hazard Screening Criteria

Data collection and document review were important first steps in the identification and screening of hazards. The first step in this process was to identify which natural hazards exist in the City, starting with the hazards identified in the 2005 HMP and augmenting as necessary. After the potential hazards were identified they went through the screening process.

In 2005, the HMP focused on the three (3) highest priority hazards: earthquakes, wildfires, and flooding. The 2011 HMP update will include the three (3) highest priority hazards as well as describe the following five (5) additional hazards of concern: hazardous waste and materials, slope failure, airplane crash, railroad accidents, and terrorism. There are no new or emerging hazards since 2005.

The intent of screening of hazards was to help prioritize which hazard created the greatest concern in the City. The hazard screening criteria is based on evaluation done by the City of Colton to analyze the geography and industry in and around the jurisdiction to identify the hazards that could impact the City. The 2005 Local HMP identified the top three (3) hazards facing the community to be earthquakes, flood, and fires. The table below, *2005 Critical Priority Risk Index* (Figure 4.1), represented the 2005 Critical Priority Risk Index which the *Visual Risk* web-based program produced.

2005 Critical Priority Risk Index

Hazard	Probability	Magnitude/ Severity	Warning Time	Duration	Priority Risk Index
Earthquake	Likely	Catastrophic	Less 6 Hours	Less than 6 hrs	3.25
Wildfires	High Likely	Limited	Less 6 Hours	Less than one day	3.2
Flooding	High Likely	Limited	Less 6 Hours	Less than one day	3.2

Figure 4.1

The 2011 Local HMP will also rank these top three (3) as the highest profile hazards *(4.1.2 Hazard Prioritization and Assessment)*. Additional hazards have been identified and are listed in the table below, *2011 Colton Hazards* (Figure 4.2). The table starts with the highest profile hazards first followed by other potential hazards that are a risk to the City. The table lists the hazard name, general location of the hazard, description of the hazard, number of major historic events, and the impacts of previous events (if known).

2011 Colton Hazards

Hazard Name	Location	Description	Number of Major Historic Events	Known Impact of Previous Events
Earthquake	Citywide (fault lines/zones in specific areas)	See 4.2.1 and 4.2.1.1	5	$492,000.00
Wildfires	South end of City along hills	See 4.2.2 and 4.2.2.1	5	$1,774,000.00
Flooding	East section of the City	See 4.2.3 and 4.2.3.1	4	$71,000.00
Hazardous Waste and Materials	Near Freeway and train tracks.	There are two Interstate Freeways that run through the north and northeast section of the City that continuously has trucks on these routes, some of which carry hazardous waste. The City is know as the "hub" City because of the major train tracks that run through the City and intersect in the northeastern section of the City. There have been some accidents on these routes, but no major events.	0	0
Slope Failure	South end of City along the hills	There are some steep cliffs near some residential and businesses. These cliffs have not "failed" but continue to be observed for stability.	0	0
Airplane/ Helicopter Crash	Citywide	There are multiple small airports in neighboring cities and an international airport in Ontario. The City is in the flight path of some of these airports. There have not been any airplane crashes in the City, but first responders continue to be trained for response.	0	0
Railroad Accidents	Along train tracks.	The City is know as the "hub" City because of the major train tracks that run through the City and cross over each other in the northeastern section of the City. Some trains that travel these routes carry large amounts of hazardous material. There have been some train derailments, but no major "disasters" have resulted from these incidents.	0	0
Terrorism	Citywide	Terrorism continues to be a threat throughout all cities. First responders continue to be trained for response.	0	0

Figure 4.2

4.1.2 Hazard Prioritization and Assessment

In prioritizing hazards there is no "right" way to identify ranking. It is difficult to equate or compare hazards and their impacts. To prioritize the identified hazards within the City a non-numerical ranking system was utilized using the *Hazard Assessment Matrix (Figure 4.3)*. This process consists of generating a non-numerical ranking (High, Medium, or Low) rating for "Probability" and "Impact" from each screened hazard.

The Probability refers to the chance of the hazard happening again. The Impact refers to the impact the hazard has on the community. The hazards are included in the table below. The red boxes represent the higher priority hazards, the yellow and green are the lower priority hazards.

Hazard Assessment Matrix

		Impact		
		High	**Medium**	**Low**
Probability	**High**	• Earthquake	• Wildfires	
	Medium	• Flooding	• Hazardous Waste and Materials	• Slope Failure • Airplane Crash • Railroad Accidents
	Low	• Terrorism		

Figure 4.3

Probability
High = Highly Likely
Med. = Possible
Low = Unlikely

Impact
High = Catastrophic/Critical
Med. = Limited
Low = Negligible

4.2 Hazard Profile

This section discusses the three (3) highest priority natural hazards in the City; earthquakes, wildfire, and flood. Additional hazards are listed in Figure 4.2, *2011 Colton Hazards*. Each section below will describe the hazard, list known historical events, and display the extent of the hazard in the City.

4.2.1 Earthquakes

The City of Colton is located within the San Bernardino Valley, which is essentially a sediment-filled basin bounded by two major earthquake faults. (Map 4.1) The San Andreas Fault runs along the northern border of the San Bernardino Valley approximately 8 miles from the City of Colton. The San Jacinto fault borders and enters the Northeast portion of the City of Colton. It runs in a line extending from San Bernardino Valley College, through the area of the Guthrie Interchange (I10 and I215) and out through the Reche Canyon area. Both faults present a significant natural hazard to the City of Colton. Comparing the two faults in the San Bernardino Valley, the probability of a major earthquake M6.5 or larger, during a 30 year period from 1994 to 2024 is 28% on the San Andreas Fault and 37% on the San Jacinto Fault. There are no earthquake related repetitive losses in the City.

Earthquakes in Southern California occur as a result of movement between the Pacific and North American plates. Faults of the San Andreas system are used to mark the boundary between the plates, but the deformation, faulting and associated earthquakes occur in a broadly distributed zone that stretches from offshore California to Nevada.

The faults considered most significant, though not necessarily located within the limits of the Planning Area, are detailed in Figure 4.4. Other faults exist in the area, but due to their distance from the City and lower probability of producing a large earthquake, they are considered to present a less significant risk to the City.

Major Active Faults Affecting the City

Fault	Distance (Miles)	Direction from City	Maximum Credible Earthquake (Richter)	Maximum Probable Magnitude (Richter)
San Jacinto	0	---	7.5	6.5 – 7.5
San Andreas	8	NE	8.25	6.8 – 8.0
Cucamonga	13	NW	6.5	6.0 – 7.0
Elsinore	22	SW	7.5	6.5 – 7.5
Newport-Inglewood	48	SW	7.0	6.0 – 7.4

Figure 4.4 (Source: Southern California Earthquake Data Center.)

The Alquist-Priolo Earthquake Fault Zoning Act (Alquist-Priolo Act) was passed in 1972 to mitigate the hazard of surface faulting to structures built for human occupancy. The Act's main purpose is to prevent the construction of buildings used for human occupancy on the surface trace of active faults. This law required the State Geologist to establish regulatory zones (Earthquake Fault Zones) around the surface traces of active faults and to issue appropriate maps, which are then distributed to affected Cities, Counties, and State agencies for use in planning and/or regulating new or renewed construction in such zones. No habitable structure is permitted across the known trace of any active fault. Setback zones (generally 50 feet on either side of the fault trace) are established for habitable structures. The width and location of any required setback is dependent on the geology a particular site, the characteristics of the fault, and

the degree of certainty on the fault's location. The Seismic Hazards Mapping Act of 1990 became law in 1991. The purpose of this Act is to protect public safety from the effects of strong ground shaking, liquefaction, landslides, or other ground failures, or other hazards caused by earthquakes. The 1990 Act is a companion and complement to the Alquist-Priolo Act.

The strength of seismic ground shaking at any given site is a function of many factors. Of primary importance is the size of the earthquake, its distance, the paths the waves take as they travel through the earth, the rock or soils underlying the site, and topography (particularly whether a site sits in a valley, or atop a hill). The amount of damage also depends on the size, shape, age, and engineering characteristics of the affected structures. Of the earthquake faults in the Planning Area, only the San Jacinto Fault is considered active and, due to this designation, an earthquake hazard zone has been established along the trace of this fault. The largest earthquake expected in an area under the current tectonic environment is termed to be the maximum credible earthquake (MCE). Using the Richter scale, the MCE for the San Jacinto Fault is 7.5.

Soils in the area range from gravelly loam to sandy loam. The soils on the alluvial valley floors and fans are well drained and very deep. The soils in the southern foothills are moderately deep to deep and overlay sandstone and shale on the hills.

Liquefaction occurs primarily in saturated, loose, fine-to-medium-grained soils in areas where the groundwater table is within 50 feet of the surface. Shaking suddenly increases pore water pressure, causing the soils to lose strength and behave as liquid. Groundwater basins underlie portions of the City. There is a moderate to moderately high susceptibility for liquefaction hazards in the eastern portion of the City and the southern reaches of Reche Canyon (Map 4.2).

4.2.1.1 Earthquake Historical Events

1.1992 Landers 6/28/1992

The Lander's Earthquake occurred on June 28, 1992, at 4:57 am. It came as a relatively heavy shock at a magnitude of 7.3 on the Richter Scale. The depth of the rupture was estimated to be about 1.1 km deep, and the largest aftershock was the Big Bear Earthquake, which measured 6.4 on the Richter Scale. Approximately $400,000.00 worth of damage occurred in Colton.

2. 1992 Big Bear 6/28/1992

While technically an "aftershock" of the Landers earthquake (indeed, the largest aftershock), the Big Bear earthquake occurred over 40 km west of the Landers rupture, on a fault with a different orientation and sense of slip than those involved in the main shock -- an orientation and slip which could be considered "conjugate" to the faults which slipped in the Landers rupture.

The Big Bear earthquake rupture did not break the surface; in fact, no surface trace of a fault with the proper orientation has been found in the area. However, the earthquake produced its own set of aftershocks, and from these, we know the fault geometry -- left-lateral slip on a northeast-trending fault.

Following the Landers main shock by three hours (it occurred while TV news coverage of the Landers earthquake was being broadcast live from Caltech), the Big Bear earthquake caused a substantial amount of damage in the Big Bear area, but claimed only one life. Landslides triggered by the jolt blocked roads in the San Bernardino Mountains, however, aggravating the clean-up and rebuilding process. The response and/or recovery costs were approximately $92,000.00

3. 1923 San Jacinto 7/22/1923
The San Jacinto Earthquake occurred on July 22, 1923 at 11:28PM approximately 7 miles south of San Bernardino and 55 miles east of Los Angeles. It came as a relatively heavy shock at a magnitude of 6.3 on the Richter scale. This earthquake event was on the San Jacinto fault, a right-lateral strike-slip fault.

Saunders (1986) indicates that the sparse instrumental and intensity data for this event are consistent with a location on the San Jacinto fault zone near Loma Linda. Richter (1958) estimated M6.2 for this event. At San Bernardino chimneys fell and brick walls were badly cracked. At the Patton State Hospital many brick walls were cracked and some of the older ones were partially destroyed, and parts of the roof caved in.

Damage from this quake, which awoke sleepers across southern California, was greatest in San Bernardino and Redlands, though it consisted primarily of minor damage -- chimneys thrown down, broken windows, and the like. Two people were critically injured, but no one was killed. Those buildings which sustained significant damage in the shaking were generally of poor construction. The San Bernardino County Hospital and the Hall of Records were badly damaged. Probably the greatest damage occurred at the State Hospital at Patton, about two miles from the epicenter. Trees fell in the nearby San Bernardino Mountains. In Los Angeles, damage was slight. The shaking was felt as far away as Needles and Santa Barbara. (Southern California Earthquake Data Center)

4. 1918 San Jacinto 4/21/1918
The San Jacinto Earthquake occurred on April 21, 1918 at 2:32 pm near the town of San Jacinto approximately 70 miles ESE of Los Angeles. It came as a relatively heavy shock at a magnitude of 6.8 on the Richter scale. This earthquake event was on the San Jacinto fault, a right-lateral strike-slip fault.

While the damage caused by the San Jacinto earthquake of 1918 was high, its timing was fortunate, and kept the number of fatalities and injuries low. Most of the damage caused by the quake occurred in the business districts of the towns of San Jacinto and Hemet, where large masonry structures collapsed in the shaking. Luckily, the quake struck on a Sunday afternoon, when the business districts were empty. Still, as it was, several people were injured and one death was reported. Two miners were trapped in a mine near Winchester, but were eventually rescued, uninjured. In another display of amazingly good fortune, two men in an automobile were swept off a road by a landslide, and would have rolled several hundred feet down a hillside had they not been stopped by a large tree, before they had moved far very off the road at all.

The shaking cracked the ground, concrete roads, and concrete irrigating canals, but none of the cracks left behind were thought to represent actually surface rupture, though in one place, the alignment of a road was said to be off by about 7.5 centimeters (3 inches). Landslides, as mentioned above, were triggered, and the road from Hemet to Idyllwild was blocked in several places. Huge boulders rolled down nearby slopes. The flow rates of several springs in the area were altered, and it is claimed that the temperature of nearby hot springs changed. Sand craters were formed on one farm, and an area near Blackburn Ranch seemed to have "sunk" roughly one meter during the quake.

The earthquake caused minor damage outside the San Jacinto area, as well, and was felt as far away as Taft (west of Bakersfield), Seligman (Arizona), and Baja California. (California Earthquake Data Center)

5. 1857 Fort Tejon 1/9/1857

The Fort Tejon Earthquake occurred on January 9, 1857 at 8:20 am northeast of San Luis Obispo, about 75 miles northwest of Bakersfield. It came as a heavy shock at a magnitude of 8.0 on the Richter scale.

This earthquake event was one of the greatest earthquakes ever recorded in the U.S., and left an amazing surface rupture scar over 350 kilometers in length along the San Andreas fault, a right lateral strike-slip fault. Yet, despite the immense scale of this quake, only two people were reported killed by the effects of the shock -- a woman at Reed's Ranch near Fort Tejon was killed by the collapse of an adobe house, and an elderly man fell dead in a plaza in the Los Angeles area (?).

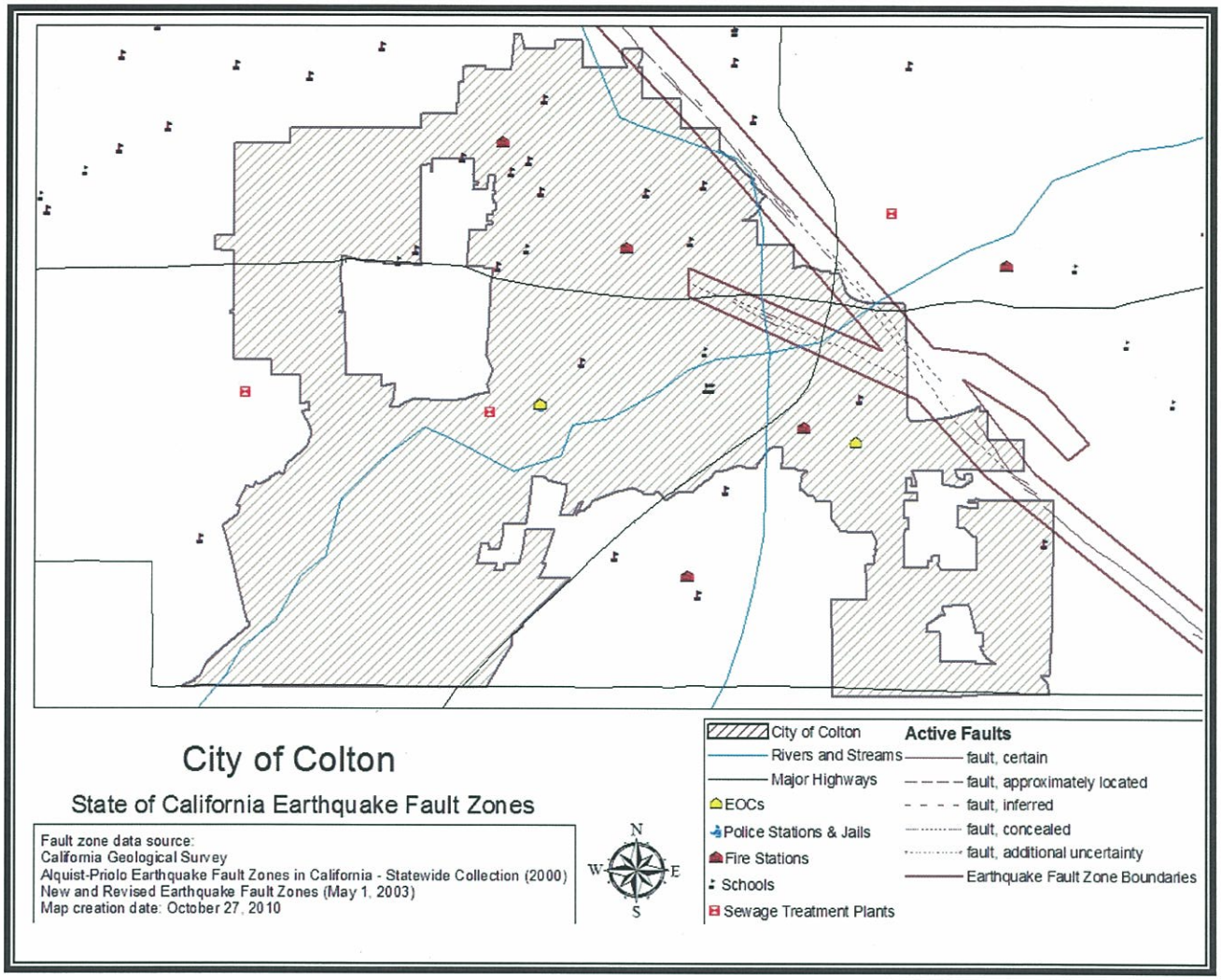
The fact that only two lives were lost was primarily due to the nature of the quake's setting; California in 1857 was sparsely populated, especially in the regions of strongest shaking, and this fact, along with good fortune, kept the loss of life to a minimum. The effects of the quake were quite dramatic, even frightening. Were the Fort Tejon shock to happen today, the damage would easily run into billions of dollars, and the loss of life would likely be substantial, as the present day communities of Wrightwood, Palmdale, Frazier Park, and Taft (among others) all lie upon or near the 1857 rupture area.

As a result of the shaking, the current of the Kern River was turned upstream, and water ran four feet deep over its banks. The waters of Tulare Lake were thrown upon its shores, stranding fish miles from the original lakebed. The waters of the Mokelumne River were thrown upon its banks, reportedly leaving the bed dry in places. The Los Angeles River was reportedly flung out of its bed, too. Cracks appeared in the ground near San Bernardino and in the San Gabriel Valley. Some of the artesian wells in Santa Clara Valley ceased to flow, and others increased in output. New springs were formed near Santa Barbara and San Fernando. Ridges (mole tracks) several meters wide and over a meter high were formed in several places. In Ventura, the mission sustained considerable damage, and part of the church tower collapsed. At Fort Tejon, where shaking was greatest, damage was severe. All around southern and central California, the strong shaking caused by the 1857 shock was reported to have lasted for at least one minute, possibly two or three.

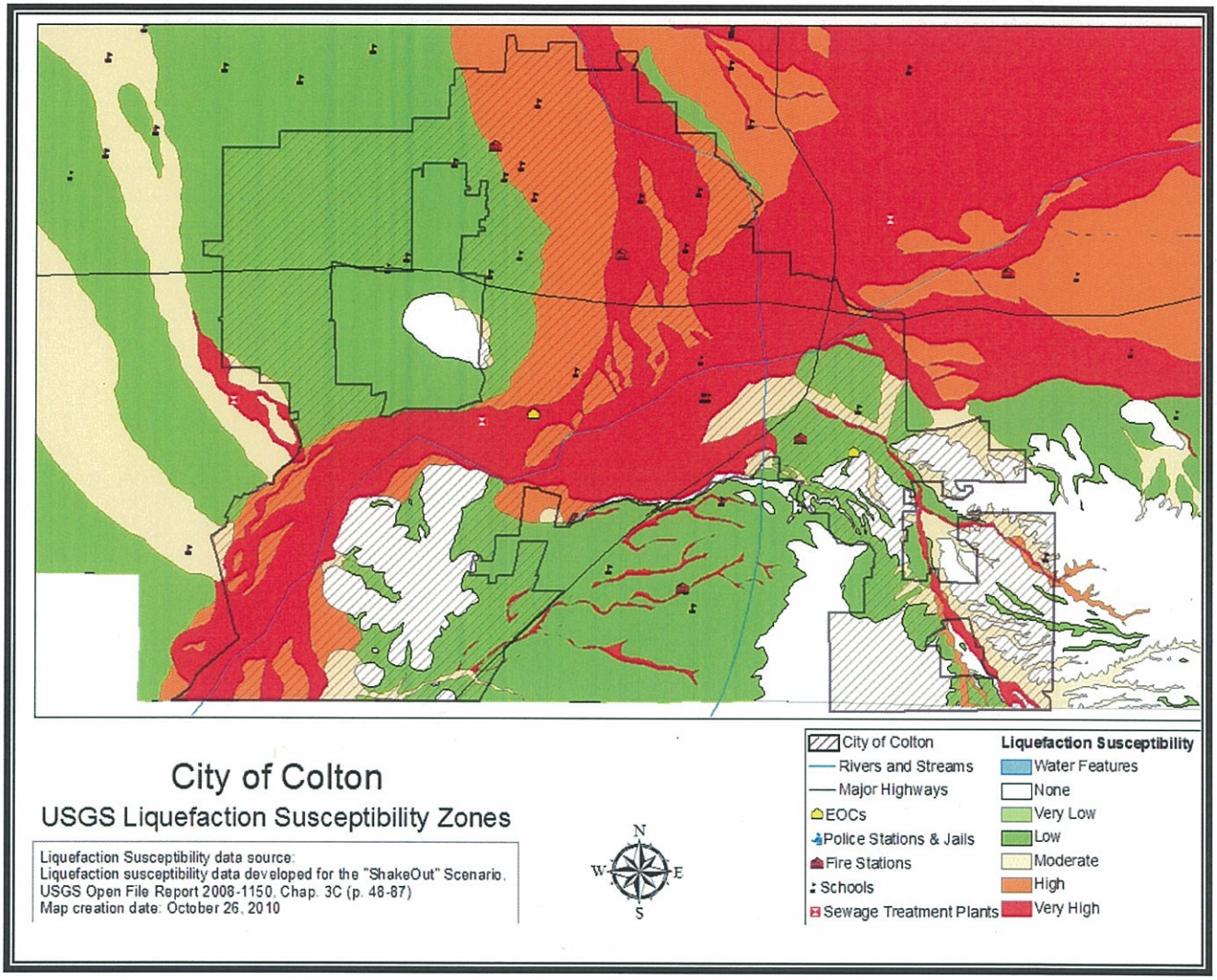
The surface rupture caused by the quake was extensive. The San Andreas fault broke the surface continuously for at least 350 km (220 miles), possibly as much as 400 km (250 miles), with an average slip of 4.5 meters (15 feet), and a maximum displacement of about 9 meters (30 feet) (possibly greater) in the Carrizo Plain area. Kerry Sieh (1978) noted that the Elkhorn Thrust, a low-angle thrust fault near the San Andreas, may have slipped simultaneously in the 1857 quake -- an observation that a team of researchers (1996) have recently used to support the idea that future movements along the San Andreas fault zone might produce simultaneous rupture on thrust faults in and near the Los Angeles area, causing a terrible "double earthquake".

The location of the epicenter of the Fort Tejon earthquake is not known. As the name suggests, one idea is to locate it near the area of strongest reported shaking -- Fort Tejon. However, there is evidence that foreshocks to the 1857 earthquake may have occurred in the Parkfield area. (Southern California Earthquake Data Center)

Geologic Hazard Map (Map 4.1)



USGS Liquefaction Susceptibility Zones (Map 4.2)



4.2.2 Wildfires

There are three different classes of wildland or wildfires. A surface fire is the most common type and burns along the floor of a forest, moving slowly and killing or damaging trees. A ground fire is usually started by lightning and burns on or below the forest floor. Crown fires spread rapidly by wind and move quickly by jumping along the tops of trees. Wildfires are usually signaled by dense smoke that fills the area for miles around. Wildfires present a significant potential for disaster in the southwest, a region of relatively high temperatures, low humidity, and low precipitation during the summer, and during the spring, moderately strong daytime winds. Combine these severe burning conditions with people or lightning and the stage is set for the occurrence of large, destructive wildfires.

The City of Colton faces the hazard of wildfires in two areas of the city. Those two areas are the La Loma Hills and the Reche Canyon area. (Map 4.3) The La Loma Hills are located in the extreme southwest corner of the City of Colton. They rise above the valley floor to an elevation of 1,478 feet. They provide fuel for wildfires in the form of annual grasses and light brush. On the eastern and southern aspects they interface with residential housing areas and present a moderate hazard to those homes. The northeast section of the hills is home to a limited use County Landfill. To the north and west of the hills the terrain flattens out into the Santa Ana River basin. No significant interface issues exist here, but the ravine vegetation presents a continued wildfire hazard.

The Reche Canyon area is located in the southeast portion of the City of Colton. Reche Canyon Road runs through the canyon floor and is a major thoroughfare connecting the San Bernardino Valley with the Moreno Valley area of Riverside County. The hills rise on both sides of Reche Canyon Road to an elevation of 2,414 feet at the top of Blue Mountain. The area is home to lower density residential homes, ranches, and open land. The fuel model is light annual grasses and light brush. It represents a significant urban interface threat to the homes in the canyon. A portion of the area burns virtually every year. In 2003 the Pass Fire burned over 2,387 acres and destroyed 21 structures.

Virtually every year portions of the La Loma Hills and the Reche Canyon area burn. We have listed the three most recent prototypical fires that have hit the areas. The Prado Fire and the Pass Fire were in the Reche Canyon area; the Tropica Rancho Fire was in the La Loma Hills area. Usually the fires are controlled without major property damage, loss of life or injuries. However, the Pass Fire of 2003 demonstrates the destructive potential of the wildfire hazard we face. The Pass Fire burned 2,387 acres, destroyed 26 structures, and injured three people. There have been two fires since 2005; the Pico Fire and Scott Fire. However, even with the threat of these fires, there have not been any repetitive human or private losses.

4.2.2.1 Wildfires Historical Events

1. Pass Fire 10/21/2003

A vegetation fire that burned in the Reche Canyon area in October 2003. There were 3 injuries and 500 people displaced. The response and/or recovery costs were approximately $1,729,000.00.

2. Prado Fire 9/12/2003

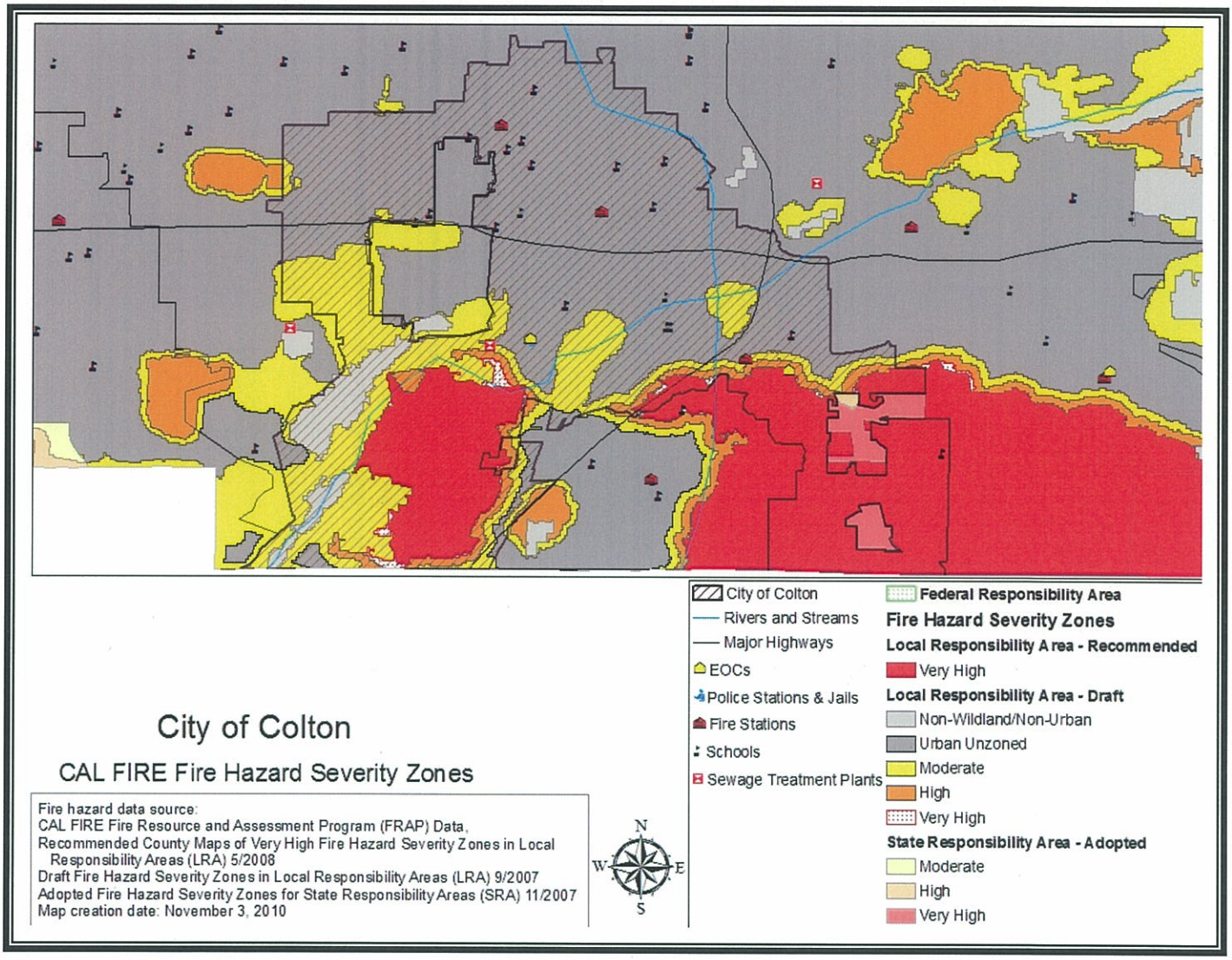
A wildland fire in the Reche Canyon Area in September 2003. The response and/or recovery costs were approximately $45,000.00.

3. Tropica Rancho Fire
A wildland fire in the La Loma Hills area of the southern section of the City of Colton. Three separate fires were started in three distinct areas. They burned over 15 acres and required the response of 20 fire units from Colton and 7 surrounding agencies. The response and/or recovery costs were approximately $20,000.00.

4. Pico Fire 7/6/2006
A vegetation fire that burned 420 acres in the Reche Canyon area in July 2006. The response and/or recovery costs are unknown.

5. Scott Fire 11/6/2010
A vegetation fire that burned 125 acres in the Reche Canyon area in November 2010. The response and/or recovery costs are unknown.

CAL FIRE Fire Hazard Severity Zones (Map 4.3)



4.2.3 Flooding

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

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 from: overflow of inland or tidal waters, unusual and rapid accumulation or runoff of surface waters from any source, or a mudflow. The 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 that result in a flood."

Floods can be slow or fast rising but generally develop over a period of days. Mitigation includes any activities that prevent an emergency, reduce the chance of an emergency happening, or lessen the damaging effects of unavoidable emergencies. Flooding tends to occur in the summer and early fall because of the monsoon season and is typified by increased humidity and high summer temperatures. The standard for flooding is the so-called "100-year flood," a benchmark used by the Federal Emergency Management Agency to establish a standard of flood control in communities throughout the country. Thus, the 100-year flood is also referred to as the "regulatory" or "base" flood.

Actually, there is little difference between a 100-year flood and what is known as the 10-year flood. Both terms are really statements of probability that scientists and engineers use to describe how one flood compares to others that are likely to occur. In fact, the 100-year flood and the 10-year flood are only a foot apart on flood elevation-which means that the elevation of the 100-year flood falls somewhere in between. The term 100-year flood is often incorrectly used and can be misleading. It does not mean that only one flood of that size will occur every 100 years. What it actually means is that there is a one percent chance of a flood of that intensity and elevation happening in any given year. In other words, it is the flood elevation that has a one percent chance of being equaled or exceeded each year. And it could occur more than once in a relatively short period of time. By comparison, the 10-year flood means that there is a ten percent chance for a flood of its intensity and elevation to happen in any given year. (*Rod Bolin, The Ponca City News, July 18, 2002).*

The Santa Ana River bisects the City of Colton. It enters Colton in the Northeast corner and exits Colton in the Southwest corner. The Lytle Creek Flood Control Channel and the Reche Canyon Flood Control Channel both enter the Santa Ana River in the City of Colton. (Map 4.4)

The 100-year flood boundaries indicate a significant portion of the central part of Colton is a risk from flooding. The Cooley Ranch area and the areas bounding the Santa Ana River are at risk. Because the City of Colton has the Santa Ana wash running through it, there are some liquefaction zones (Map 4.2).

An ongoing flooding problem exists in the area north of Interstate 10 bounding Valley Boulevard. When the freeway (I-10) was constructed in the 1960s there was inadequate drainage provided for the run off that had historically run south, down to the Santa Ana River. The elevated freeway blocked that natural drainage. The result has been annual, repeated flooding of the area that runs parallel to Valley Boulevard between La Cadena Avenue west to Riverside Avenue. However, this has been the only repetitive loss.

The most widely distributed flood map product is the Flood Insurance Rate Map (FIRM). The Federal Emergency Management Agency (FEMA) is mandated by the Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973 to evaluate flood hazards and provide FIRMs for local and regional planners to further promote sound land use and floodplain development. FIRM maps prepared by FEMA also show potential flood zones within the City limits. Flood hazard areas in the City are shown on Map 4.4. As depicted on FIRM maps, flood hazard areas in the City of Colton are identified in the following manner:

The City of Colton participates in the National Flood Insurance Program (NFIP). Basic NFIP actions include:

- Adoption and enforcement of floodplain management requirements, including regulating all and substantially improved construction in Special Flood Hazard Areas.
- Floodplain identification and mapping, including any local requests for map updates.
- Description of community assistance and monitoring activities.

4.2.3.1 Flooding Historical Events

Major flooding along the Santa Ana River (property damage, injury, loss of life) has occurred in our area in each of the following years; 1859, 1862, 1867, 1884, 1891, 1910, 1916, 1938, 1943, 1965, 1969, 1983, 1993, 1995, and 1998. However, the Seven Oaks Dam, completed in 1999, helps in flood control along the Santa Ana River. *(Source: San Bernardino County Flood Control District)*

1. December 2010 Winter Storms

During the December 2010 Winter Storms there was flooding and mudslides in the Reche Canyon area. A mudslide on a cliff in the southeast section of the city slid into a mobile home park damaging their recreation facilities. There was also localized street flooding throughout the city. Road and bridge systems were also affected. The response and recovery costs are approximately $655,000.00.

2. Flood of 2/23/1998

There was major flooding along the Santa Ana River in February 1998. The federal disaster number is FEMA 1203-DR-CA. The response and/or recovery costs were approximately $30,000.00.

3. Flood of 1/10/1995

There was major flooding along the Santa Ana River in January 1995. The federal disaster number is FEMA 1044-DR-CA. The response and/or recovery costs were approximately $41,000.00.

4. Flood of February/March 1938

Over a period of several days from late February to early March 1938, central and southern California from the coast to the Mojave Desert experienced a series of rainstorms. The storms produced some of the heaviest rainfall ever recorded for the region (Troxell et al., 1942). A storm arrived on the 27th of February and continued for five days. The heavier rainfall was in the mountains, but no area was exempt. In Orange County, rainfall on the 2nd of March alone was an extraordinary 10 inches, two inches of it occurring in a single hour (Orange County Water District 2001).

Rain fell most heavily in the San Gabriel and San Bernardino Mountains, which encompass the headwaters of the Santa Ana River and its tributaries. The size of the watershed, roughly 2500 square miles, the velocity and volume of runoff, the steep stream gradient in the mountains, geology that inhibits absorption, and the quantity of organic debris all contributed to the impact the raging river made downstream from Colton to Corona, and further on in Orange County. Sustained rainfall and voluminous runoff caused some flooding in the San Bernardino Valley around the 1st and 2nd of March.

5. Flood of January 1862

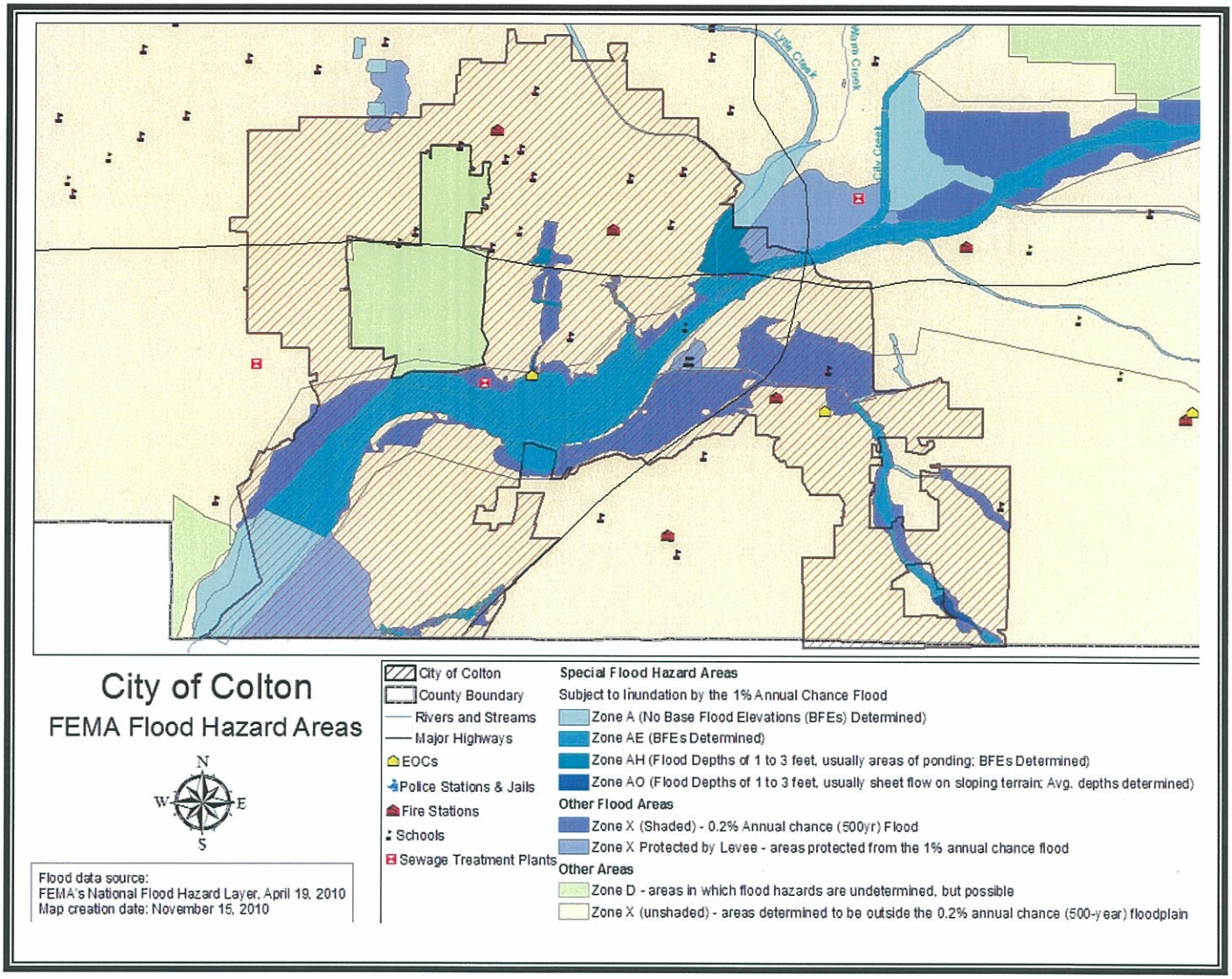
In November 1861, rain began falling in southern California and continued for 15 days, saturating the ground (Engstrom 1996). This was followed by a period of relatively dry weather until the 24th of December. On the 24th, the rain started again and continued for 30 days with only two brief interruptions (Friis 1983). By the third week of January 1862 the basin had received at least three times the rainfall of a normal season (Engstrom 1996). Some areas recorded twenty inches of rainfall between the 18th and 19th alone (Fawcett 1999).

On the 22nd of January, east of the Santa Ana Mountains, a flash flood occurred at Agua Mansa. All structures except the church and a store were wiped out (San Bernardino County Museum 2002) and flooding continued in the region for another 15 days (Terracciano, Croy 1998). Peak discharge at Riverside Narrows was 317,000 cubic feet per second (cfs). West of the Santa Ana Mountains, branches and trees from the mountains created debris jams, which obstructed the rushing torrent, forcing it out of its channel to flood the surrounding plain.

The river breached its levees in the vicinity of Anaheim, and the streets of the small German settlement there were inundated by four feet of water. Most of the buildings, which were for the most part simple structures, scarcely more than shacks, were destroyed. From Anaheim the floodwaters spread out over Orange County's inland and coastal plains, standing four feet deep four miles from the river and three feet deep over much the county, creating a large inland lake (Saltzman 1995). Irrigation ditches dug by the German settlers and by the previous owners of the land, may have added to the magnitude of the damage by "inviting" floodwater off the main stream, water that came in quantities the diversion channels were not built to handle. On the floodplain, the ground was already saturated from November's rains and could absorb no more. The flooding went on for 20 days, while the rains continued intermittently. The 25th to the 27th of January was another period of heavy rain. In fact, measurable rainfall was recorded every month through June.

Near Colton, the flood ravaged the villages of La Placita and Agua Mansa (ironically named "gentle water"). About 200 immigrants from New Mexico lived in these neighboring communities, which were established in the 1840s. With fertile soil and natural irrigation, it was perfect for farming. As the flood hit, La Placita residents escaped to nearby hills. Agua Mansa villagers, after being warned by the roaring sound of the river and by church bells, took refuge in their church, which was located on higher ground. Although no known drowning occurred, all the homes in Agua Mansa were destroyed. All the trees were swept away and thick layers of sand replaced the soil. Even though ditches were dug to restore irrigation, the crop yield was much less than it had been before the flood (Patterson and Engstrom).

FEMA Flood Hazard Areas (Map 4.4)



4.3 Inventory Assets

Another 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, essential facilities, as well as critical infrastructure.

4.3.1 Population

Colton's population is an estimated 51,781 according to the State of California Department of Finance January 2006 report.

4.3.2 Buildings

Regional building inventory databases were used to analyze the building inventory for the following tables which were developed from County Assessor's data, under FEMA funding, as part of the San Bernardino County Essential Facilities Risk Assessment (SBEFRA) Project completed in 2009. The SBEFRA project report may be downloaded from: http://www.fema.gov/library/viewRecord.do?id=3804

The table below (Figure 4.5) summarizes the number and value of structures in the City by "general occupancy class" listing the building inventory, building replacement value, contents replacement value, building square footage, and building count. This information is necessary to generate the loss estimations.

Building Inventory Information by General Occupancy Class

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
Residential	$1,559,966	$779,991	15,283	10,153
Commercial	$589,031	$602,073	6,460	413
Industrial	$151,540	$227,308	1,921	91
Other	$209,050	$134,489	1,381	430
TOTAL	**$2,509,587**	**$1,743,861**	**25,044**	**11,087**

Figure 4.5

The table below (Figure 4.6) displays the number and value of structures in the City by "general building type" by listing the general building type, the building replacement value (by dollars and percent), estimated building count, and percent of building count.

Selected Building Inventory Data by General Building Type

Selected Building Inventory Data by General Building Type	Building Replacement Value ($1,000)	Building Replacement Value (%)	Estimated Building Count	% of Building Count
Concrete	$199,894	8.0%	135	1%
Manufactured Housing	$15,573	0.6%	436	4%
Precast Concrete	$117,197	4.7%	61	1%
Reinforced Masonry	$267,093	10.6%	302	3%
Steel	$71,737	2.9%	59	1%
Unreinforced Masonry	$20,338	0.8%	21	0%
Wood Frame (Other)	$597,386	23.8%	588	5%
Wood Frame (Single-family)	$1,220,370	48.6%	9,484	86%
TOTAL	**$2,509,587**		**11,087**	

Figure 4.6

4.3.3 Essential Facilities

The Essential Facilities includes facilities that are necessary to remain in operation during and immediately after a catastrophic event. This list focuses on the essential facilities rather that the "critical facilities". The critical facilities encompass facilities of importance but not necessarily essential to disaster operations (Figure 4.7). The essential facilities below were included in the 2005 HMP within the critical facilities list. The "essential facilities" are as follows:

- Fire Station 211
- Fire Station 212
- Fire Station 213 (City EOC also)
- Fire Station 214
- Police Department
- Birney Elem. School
- Cooley Ranch Elem. School
- Grant Elem. School
- Lincoln Elem. School
- McKinley Elem. School
- Reche Canyon Elem. School
- Rogers Elem. School
- Wilson Elem. School
- Colton Middle School
- Colton High School
- Washington High School

4.3.4 Critical Facilities

The Critical Facilities listed in the 2005 HMP are included in the table below. As noted in 4.3.3, the critical facilities encompass facilities of importance but not necessarily essential to disaster operations. The table displays the facility name, the type of facility and its 2005 ranking. Since 2005, there was a new sub-station built, North Substation, and is included in this table.

Critical Facilities

Facility Name	Type	2005 Ranking
Colton Fire Station 211	Emergency Response Facilities	Critical
Colton Fire Station 212	Fire Stations	Critical
Colton Fire Station 213/EOC	Fire Stations	Critical
Colton Fire Station 214	Fire Stations	Critical
City Hall	Government Facilities	High
Police Headquarters	Police Stations	Critical
Gonzales Community Center	Other	High
Hutton Center	Other	High
Arrowhead Regional Medical Center	Medical Facilities	Critical
Luque Center	Other	High
Alice Birney Elementary School	Other	High
Cooley Ranch Elementary School	Other	High
Grant Elementary School	Other	High
Lincoln Elementary School	Other	High
McKinley Elementary School	Other	High
Reche Canyon Elementary School	Other	High
Rogers Elementary School	Other	High
San Salvador Preschool	Other	High
Wilson Elementary School	Other	High
Colton Middle School	Other	High
Slover Mountain High School	Other	High
Colton High School	Other	High
Washington Alternative High School	Other	High
City Corporate Yards	Government Facilities	High
Civic Center Annex	Government Facilities	High
City Electric Yards	Energy Related	High
Wild Canyon Reservoir	Water and Sewer	High
Montecito Reservoir	Water and Sewer	High
Collins Reservoir	Water and Sewer	High
La Loma Reservoir	Water and Sewer	High
Walnut 1 and 2 Reservoirs	Water and Sewer	High
Domecq1 and 2 Reservoirs	Water and Sewer	High

Rialto 1 and 2 Reservoirs	Water and Sewer	High
Well Katz	Water and Sewer	High
Prado Booster Station 21, 22	Water and Sewer	High
Booster Stations 24 and 25	Water and Sewer	High
Reche Canyon Booster Stations	Water and Sewer	High
Mojave Booster Station 15 and 16	Water and Sewer	High
Walnut Pump Stations 2,3,5,and 6	Water and Sewer	High
Domecq Booster Stations 8,9,10	Water and Sewer	High
Well #22	Water and Sewer	High
Well #23	Water and Sewer	High
Water Distribution System	Water and Sewer	High
Wastewater Treatment Plant	Water and Sewer	High
Century Substation	Energy Related	High
Hub Substation	Energy Related	High
Drews Substation	Energy Related	High
North Substation	Energy Related	High
Electric Transmission System	Energy Related	High
Electric Distribution System	Energy Related	High
Agua Mansa Generating Plant	Energy Related	High
Well #8	Water and Sewer	High
Well #13	Water and Sewer	High
Well #15	Water and Sewer	High
Well #16	Water and Sewer	High
Well #17	Water and Sewer	High
Well #19	Water and Sewer	High
Well #21	Water and Sewer	High
Well #24	Water and Sewer	High
Well #26	Water and Sewer	High
Well #27	Water and Sewer	High
Well #28	Water and Sewer	High
Well #29	Water and Sewer	High
Roadways	Major Roads/Bridges	High
Wastewater Collection System	Water and Sewer	High
Guthrie Interchange	Major Roads/Bridges	High
Major Bridges	Major Roads/Bridges	High
Wastewater Pump Stations	Water and Sewer	High
RIX Water Reclamation Facility	Water and Sewer	High

Figure 4.7

4.4 Vulnerability Assessment

The vulnerability assessment assesses the highest priority hazards (earthquake, fire, flood) and their impact to the population and buildings. The methodology used to create some of these estimates was with the latest version of HAZUS (HAZUS-MH MR-4). This included the improved regional building and essential facility inventory databases developed under FEMA funding for the San Bernardino County Essential Facilities Risk Assessment (SBEFRA) Project.

The SBEFRA project provided to create several flood and earthquake HAZUS scenarios for San Bernardino County. While the HAZUS software is delivered with default data to allow regional analyses, the accuracy of HAZUS results can be greatly improved with input of various "user supplied" data. FEMA's project will enhance both the regional building inventory data, and the site-specific essential facilities databases, which includes police and fire stations, hospitals, and schools.

4.4.1 Earthquake Results

The following table (Figure 4.8) summarizes citywide earthquake loss estimates, critical facility damage and functionality.

Earthquake Loss Estimates

		Earthquake Scenario		
	FACILITY TYPE	**M7.8 ShakeOut Scenario (including Liquefaction)**	**M6.7 San Jacinto Fault (including Liquefaction)**	**M6.7 Chino Hills Fault (including Liquefaction)**
Fire Stations	**Colton Fire Department**			
	Total Number of Buildings	**4**		
	Damage:			
	# Buildings with >50% Probability of Moderate or Greater Damage	2	1	0
	# Buildings with >50% Probability of Complete Damage	1	0	0
	Functionality:			
	Functionality < 50 % on Day 1	2	2	0
	Functionality 50 - 75% on Day 1	2	2	0
	Functionality >75% Day 1	0	0	4
EOCs	**City of Colton**			
	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	1	1	0
	Functionality >75% Day 1	0	0	1
Police Facilities	**Colton Police Department**			
	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	1	1	0
	Functionality 50 - 75% on Day 1	0	0	0
	Functionality >75% Day 1	0	0	1
Schools	**Colton Joint Unified School District**			
	Total Number of Buildings	**794**		
	Damage:			
	# Buildings with >50% Probability of Moderate or Greater Damage	42	19	0
	# Buildings with >50% Probability of Complete Damage	3	0	0
	Functionality:			
	Functionality < 50 % on Day 1	694	536	0
	Functionality 50 - 75% on Day 1	100	256	1
	Functionality >75% Day 1	0	2	793
Schools	**Colton Redlands Yucaipa ROP***			
	Total Number of Buildings	**9**		
	Damage:			
	# Buildings with >50% Probability of Moderate or Greater Damage	1	0	0
	# Buildings with >50% Probability of Complete Damage	1	0	0
	Functionality:			
	Functionality < 50 % on Day 1	9	2	0
	Functionality 50 - 75% on Day 1	0	6	0
	Functionality >75% Day 1	0	1	9

Figure 4.8

4.4.2 Wildfire Results

The following information displays the 2005 potential losses due to wildfires confronting the community. However, due to slow growth in the City, this data is still pertinent.

Summary of Economic Losses:

a. The economic loss (impact) resulting from this hazard is approximately $4,311,371
b. The loss from damage to structures from this hazard is approximately $8,749,440
c. The following is a description of the estimated losses: Wildfires within the City of Colton are intense and of short duration. The fuel model of annual grasses and light brush does not provide the fuel load to do major damage to most of the city's critical facilities. Only a very small portion of the city's critical facilities lie in the wildfire hazard zone. We expect to see losses primarily in residential housing in the interface zones of Reche Canyon and to a lesser extent in the La Loma Hills. The possibility exists for damage to the electric system transmission and distribution lines.

Summary of Human Losses

a. The estimated number of fatalities resulting from this hazard is approximately 0.
b. The estimated number of injuries resulting from this hazard is approximately 5.
c. The estimated number of displacees resulting from this hazard is approximately 1400.
d. Total number of people affected: 1405
e. Percent of community's population at risk: 2.95%

4.4.3 Flooding Results

The following information displays the 2005 potential losses due to flooding confronting the community. However, due to slow growth in the City, this data is still pertinent.

Summary of Economic Losses:

a. The economic loss (impact) resulting from this hazard is approximately $126,772,815.
b. The loss from damage to structures from this hazard is approximately $338,364,456.
c. The following is a description of the estimated losses: Flooding presents the danger of major economic losses to the City of Colton. The 100-year flood zone impacts a number of our critical facilities. The primary economic loses would be associated with the damage to roadways, bridges, and utility infrastructure. All the roads and bridges that cross the Santa Ana River could be damaged or lost.

   Water wells, the water distribution system, the electric transmission and distribution systems, the Century Electric Sub-station, the wastewater collection system, and the wastewater treatment facilities are subject to damage or loss in the area of the 100-year flood zone.

   Fire Station 213, which houses the City EOC, lies within the flood zone and may be damaged or lost.

Summary of Human Losses

a. The estimated number of fatalities resulting from this hazard is approximately 4.
b. The estimated number of injuries resulting from this hazard is approximately 12.
c. The estimated number of displacees resulting from this hazard is approximately 500.
d. Total number of people affected: 516
e. Percent of community's population at risk: 1.08%

Section 5 Community Capability Assessment

This section describes the resources and tools the City has in place that can assist, promote, and implement mitigation actions in the community.

5.1 Agencies and People

The table below (Figure 5.1) displays City Departments, agency, or organizations that are involved in promoting or implementing mitigation and risk reduction activities.

Agencies and People Involved with Mitigation and Risk Reduction

City Departments and Other Agencies	Role in Disaster Mitigation and Management
Mayor and City Council	• Adopts policies, codes and standards and approves plans. • Comprise the Disaster Council.
Fire Department	• Ensure emergency response equipment is in working order. • Coordinates CERT Program. • Coordinates RACES Program. • Conducts Community Disaster Preparedness Meetings. • Conducts post-disaster safety assessments.
Police Department	• Coordinates VIPS program. • Conducts post-disaster safety assessments.
Development Services	• General Plan, land use regulations, environmental assessments. • Regulates construction and occupancy of all residential, commercial and industrial buildings in order to ensure life, fire, and health safety. • Conducts post-disaster safety assessments.
Public Works and Utility Services	• Provides leadership, planning, and administration of all public works programs, including engineering for capital projects. • Conducts post-disaster safety assessments. • Coordinates mitigation programs and projects.
IT	• Ensure technical readiness of Emergency Operations Center. • Collects, maintains and provides digital mapping services.
Finance	• Establishes vendor resources list for disaster response.
Electric	• Regulates electric utilities. • Conducts post-disaster safety assessments.
Arrowhead Regional Medical Center (ARMC)	• Collaboration with City and other agencies in emergency preparedness. • Conduct emergency exercises/drills. • Develops Emergency Operations Plans for each of its facilities. • Stores emergency caches for Medical Center personnel.
Chamber of Commerce	• Collaboration with City and other agencies in emergency preparedness.
American Red Cross	• Provides support in emergencies. • Provides training for citywide mass care and sheltering.
Community Based Organizations (i.e., churches, community organizations)	• Collaboration with City and other agencies in emergency preparedness.

Figure 5.1

5.2 Existing Plans

The City of Colton has adopted the philosophy that HMP integration is an essential element to future and long-term community sustainability. The City's long-term goal is to integrate all aspects of comprehensive planning and development to correlate with a continuum of adopted codes and standards to support this philosophy. Current and future plans will define important City policies and support the ordinances and activities described below. For example, the goal is to enhance the objectives of hazard mitigation, including the Health and Safety Element of the General Plan. Other plans focus on different aspects of disaster management such as emergency response or have implications that are relevant to hazard mitigation, such as plans related to spending on public facilities and storage of hazardous materials. These plans are listed below:

- General Plan
- Emergency Operations Plan
- Urban Water Management Plan
- Master Plan of Drainage
- Capital Improvement Program (CIP)
- Mutual Aid Agreements

5.3 Regulations, Codes, Policies, and Ordinances

The following codes include regulations and ordinances on the below issues and topics related to hazard mitigation. These codes remain the same as in 2005.

1. 2001 California Building Code
2. 2001 California Mechanical Code
3. 2001 California Plumbing Code
4. 2007 California Electrical Code
5. 1997 Edition of the Uniform Sign Code
6. 1997 Edition of the Uniform Code of the Abatement of Dangerous Buildings
7. 1997 Edition of the Uniform Administrative Code
8. 2000 Edition of the Uniform Swimming Pool, Spa and Hot Tub Code
9. 1997 Edition of the Uniform Code for Building Conservation
10. 1997 Edition of the Uniform Housing Code

5.4 Fiscal Resources

As in 2005, the City of Colton is a general law city that receives funding from a number of different sources. Funding comes from taxes (property, sales, and designated taxes), fees, grants, State and Federal Transportation funds, Re-development funds, and utility enterprise funds.

5.4.1 Pre-Disaster Programs

The Pre-Disaster Mitigation Program (PDM) – authorized by DMA 2000, can provide funding to states, communities, and tribes for cost-effective hazard mitigation planning activities that complement a comprehensive mitigation program and reduce injuries, loss of life, and damage and destruction of property before a disaster strikes.

The Flood Mitigation Assistance Program (FMA) – provides funding to assist states and communities in implementing measures to reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes and other insurable structures. The three types of grants

available through FMA are planning, project, and technical assistance grants. Only communities that participate in the National Flood Insurance Program (NFIP) can apply for project and technical assistance grants. Planning grants are to be used by states and communities to prepare flood mitigation plans, with a focus on repetitive loss properties. Currently, funding for FMA is providing through the NFIP and is funded at $20 million annually.

5.4.2 Post-Disaster Programs

The Stafford Act (Public Law 100-107, as amended) – authorizes funding for all federal disaster-related assistance in place today.

The Hazard Mitigation Grant Program (HMGP) – authorized by Section 404 of the Stafford Act, (provides grants to state, local, and tribal governments (up to 15% of the FEMA disaster fluids they receive) to implement long-term hazard mitigation measures after a major disaster declaration.

The Assistance to individuals and Households Grant Program – is authorized by Section 411 of the Stafford Act and authorizes grants to be used for mitigation measures to cover serious unmet, disaster-related real property losses.

The Public Assistance Program (PA) – is authorized under Section 406 of the Stafford Act. This program provides funding, following a disaster declaration, for the repair, restoration, or replacement of damaged facilities belonging to governments and to private nonprofit entities, and for other associated expenses, including emergency protective measures and debris removal. The program also funds mitigation measures related to the repair of damaged public facilities.

Section 6 Mitigation Strategies

6.1 Overview

The City of Colton mitigation strategy is derived from the in-depth review of the existing vulnerabilities and capabilities outlined in previous sections of this plan, combined with a vision for creating a disaster resistant and sustainable community for the future. This vision is based on informed assumptions, recognizes both mitigation challenges and opportunities, and is demonstrated by the goals and objectives outlined below.

6.2 Mitigation Goals and Objectives

Below are the mitigation goals and objectives listed in the 2005 HMP; these goals and objectives remain the same for the 2011 HMP.

6.2.1 Avoid Damages to Property

Goal Description:

The strengthening of building, mechanical, and fire codes is critical to the protection of property and life and the reduction of seismic risk, fire and flood hazards. These codes help the city design and construct buildings that resist the forces of nature and ensure safety. Land use laws assist with this effort by requiring communities to keep buildings and development out of the most hazardous areas. It is essential that mitigation planning be incorporated into all land use planning activities at the local and state levels. This includes integrating mitigation efforts into the city's general plan. Earthquakes, floods, and other natural hazards can disrupt critical infrastructure of the city. Transportation routes, utilities, government facilities, hospitals, etc., are essential to the city's ability to provide assistance to the citizens of Colton. In addition, retrofitting facilities by priority based on vulnerability will protect important buildings, occupants, and informational records. The protection of property also includes the preservation of valuable operational data, historical information, and other non-structural assets.

Goal Objectives:

· Discourage development in high hazard areas
· Encourage property protection measures for all structures located in hazard areas
· Reduce or eliminate all repetitive property losses due to flood, fire and earthquake
· Research, develop, and adopt cost-effective codes and standards to protect properties beyond the minimum of protecting life safety
· Establish a partnership among all levels of government and the business community to improve and implement methods to protect property

6.2.2 Ensure Effective Responses to Hazards

Goal Description:

Ensure that city resources can respond effectively to any natural hazard. Ensure that we can respond in an efficient organized manner using SEMS coordinated from a central Emergency Operations Center.

Goal Objectives:

Provide effective response in a disaster, for life-saving and the curtailment of property damage and social dislocation; enhance emergency preparedness through community education and self-help programs; and prevent serious damage and injuries through effective hazard mitigation.

6.2.3 Integrate Hazard Mitigation in Policy

Goal Description:

Currently communities have implemented hazard mitigation polices and measures in an ad hoc fashion. New mitigation policies, programs, and projects are often developed in response to the latest disaster. As the population of the state and the City of Colton continues to grow in areas most susceptible to natural and man-caused hazards, comprehensive hazard mitigation is becoming more imperative. Planning and education are the best steps toward increased awareness and integration.

Goal Objectives:

· Integrate hazard mitigation policies into local general plans
· Update the City's Multi-Hazard Mitigation Plan annually to integrate local hazard mitigation plans and the results of disaster-and hazard-specific planning efforts
· Increase understanding of the importance of hazard mitigation among the general public and the business sector, stressing the benefits of reduced losses to life and property, the reduced cost of disaster recovery, and the increased benefit of the continuity of operations of business and government
· Strengthen the message of hazard mitigation in disaster preparedness programs

6.2.4 Protect the Environment

Goal Description:

Natural disasters not only destroy the man-made environment, but they can also adversely affect the physical environment. Dead and diseased trees create unhealthy forests and provide fuel for wildland fires that damage or eliminate habitat necessary to the survival of plants and wildlife. Flooding can adversely affect water quality in the rivers and streams that support fisheries and can also damage critical spawning habitat. Geologic hazards can result in landslides that can block streams and prevent fish migration. Debris from natural disasters can pollute the water, foul the land, and diminish air quality if not disposed of properly.

Goal Objectives:

· Ensure that all mitigation projects are reviewed for compliance with all applicable environmental laws
· Encourage hazard mitigation measures that result in the least adverse effect on the natural environment and that use natural processes
· Ensure that the city's hazard mitigation planning effort reflects the goal of protecting the environment
· Develop and implement wildfire mitigation and watershed protection strategies that reduce losses to wildlife and habitat and protect water while also reducing damage to development

6.2.5 Save Lives and Reduce Injuries

Goal Description:

Protecting the safety of our citizens is one of the city's primary responsibilities. Many state and local laws have public safety of our citizens as their primary concern. Protecting lives is the basis for emergency planning, response, and mitigation activities.

Goal Objectives:

· Continually improve the understanding of the location and potential impacts of natural

hazards, the vulnerability of building types, and community development patterns and the measures needed to protect life safety
· Continually provide citizens with updated information about hazards, vulnerabilities, and mitigation measures
· Ensure that all city codes and standards ensure the protection of life
· Ensure that all structures in the city meet minimum standards for life safety
· Ensure that all development in high-risk areas is protected by mitigation measures that provide for life safety.
· Identify and mitigate all imminent threats to life safety

6.3 Mitigation Projects 5-Year Progress Report

The table below, Figure 6.1, displays the status of the Five (5) mitigation projects described in the City's 2005 HMP.

5-Year Mitigation Project Progress Report

2005 Mitigation Project	2011 Status	Comments
EQ2 – Seismic Survey	Postponed	Budget constrains have postponed this project.
GIS1 – GIS Mapping Project	Postponed	Budget constrains have postponed this project.
EOC – EOC Relocation	Postponed	Budget constrains have postponed this project.
Flood2 – 3 to 5 Storm Drain Project	On-Going	Budget constrains have caused some delays in this project.
ESC1 – Emergency Services Coordinator	Postponed	Budget constrains have postponed this project.

Figure 6.1

6.4 Mitigation Projects

The mitigation projects are categorized for the three high risk hazards facing the City that were extensively examined in the risk assessment section: earthquakes, floods, and wildfires.

6.4.1 Earthquake Mitigation Projects

Name: EQ2, Seismic Survey
Description: Perform a structural engineering survey of City Critical Facilities to identify mitigation measures that can add to the seismic safety of the structures.
Alternatives: Status quo; to keep things as they are.
Strategy: Contract a structural engineer to conduct the survey.
Status: Proposed
Completion Date: TBD
Total Cost: $50,000.00
Funding Description: TBD

6.4.2 Wildfire Mitigation Projects

Name: Weed Abatement Program

Description: This program addresses the vegetation management and nuisance abatement on vacant parcels within the City. This allows cities and counties to enter someone's vacant property (no improvements) after proper notification and public hearings without going through a warrant process to manage annual weed growth and trash issues.

Strategy: Annually each March the City passes a resolution declaring weeds and trash a public nuisance and gives the Fire Chief direction to approve a contractor, to perform the abatement and to place all fees on the county tax rolls for collection. Additionally a Public Hearing is schedule to hear any objections from the affected property owners. Notices are then sent to all properties reported to us from the County as being vacant/unimproved indicating a due date for owner initiated abatement. Those properties not abated by the due day are then subject to abatement from the City's appointed contractor. All fees (contractor charges and an administrative fee of 100.00 per parcel) are billed to the owner of record with those that are not paid direct placed on the tax roll for that year.

Leading Department: Fire

Completion Date: On-going

Total Cost: Contractor charges and an administrative fee of 100.00 per parcel

Funding Description: Property owners are billed.

6.4.3 Flood Mitigation Projects

Name: Flood2, 3-5 Storm Drain Project

Description: Phases 2,3, and 4.

Design and construct a storm drain system from Valley and Pepper extending East to Rancho and Agua Mansa. Will relieve the flooding problems along Valley Boulevard north of the Interstate 10 Freeway.

Alternatives: Continued flooding along Valley Boulevard north of Interstate 10.

Strategy:

Phase 1 Under freeway and UP Railroad tracks.
Phase 2 UP Railroad tracks to Agua Mansa.
Phase 3 Rancho to Meridian
Phase 4 Capacity Enhancement

Status: Proposed

Completion Date: TBD

Total Cost: $11,400,000.00

Funding Description: TBD

6.4.4 All-Hazard Mitigation Projects

Name: GIS1, GIS Mapping Project

Description: Create a GIS database of each parcel and structure in the City of Colton. Database to include size, use, construction, and hazards. This will allow for much more detailed accurate hazard mitigation planning for future plan updates.

Alternatives: Continue planning efforts without access to more accurate data. Currently the GIS Department does not have the staff to attempt the project.

Strategy: Hire 3 interns to complete the above-mentioned database, in terms of both field surveys

and data input.
Status: Proposed
Completion Date: TBD
Total Cost: $60,000.00
Funding Description: TBD

Name: EOC Relocation
Description: Move our existing EOC that is collocated with a fire station to an area outside the 100-year floodplain and earthquake liquefaction zone.
Alternatives: Leave the building in the floodplain and earthquake liquefaction zone and hope it survives to help coordinate the response to the rest of the community.
Strategy: Seek federal, state and local funding to secure property outside the flood and earthquake liquefaction hazard zones and build an earthquake resistant building to house the EOC and Fire Station 213.
Status: Proposed
Completion Date: TBD
Total Cost: $1,900,000.00
Funding Description: TBD

Name: ESC1, Emergency Services Coordinator
Description: Secure funding for a full time Emergency Services Coordinator. The requirements for the position are far beyond the abilities of a part time coordinator that has **other full time responsibilities.**
Alternatives: Continue to under fund and under staff Disaster Preparedness planning in our City.
Strategy: Seek funding and City support to staff a full time Emergency Services Coordinator position.
Status: Proposed
Completion Date: TBD
Total Cost: $75,000.00
Funding Description: TBD

6.5 Mitigation Priorities

Hazard mitigation has been a high priority in the City since it's incorporation in 1887. The City has implemented several mitigation projects in the past that has brought the City up to exceptionally safe standards. Currently, because there are so few mitigation projects, prioritizing projects is not necessary, they all are considered high priority. However, if we had additional projects the City would use the following methodology to prioritize mitigation projects. Three (3) mitigation projects were described in Section 6.4 of this Plan that all require different funding sources.

To assist in identifying mitigation priorities, the following priority ranking was developed:

- *High Priority* – Projects that will be the primary focus of implementation over the next five (5) years.
- *Medium Priority* – Projects that may be implemented over the next five (5) years.
- *Low Priority* – Projects that will not be implemented over the next five (5) years unless conditions change (i.e., new program, funding sources, etc.)

To validate these priorities, each project received the following criteria/factor questions to confirm priority levels:

Does the mitigation project:

1. solve the problem?
2. address Vulnerability Assessment?
3. reduce the exposure or vulnerability to the highest priority hazards?
4. address multiple hazards?
5. address more than one (1) Goal/Objective?
6. benefits equal or exceed costs?

Can the mitigation project:

7. be implemented with existing funds?
8. be implemented by existing stated or federal grant programs?
9. be completed within the 5-year life cycle of the HMP?
10. be implemented with currently available technologies?

Will the mitigation project:

11. be accepted by the community?
12. be supported by community leaders?
13. adversely impact segments of the population or neighborhoods?
14. require a change in local ordinances or zoning laws?
15. result in legal action such as a lawsuit?
16. positively or negatively impact the environment?
17. comply with all local, state, and federal environmental laws and regulations?
18. comply with NFIP regulations?

Is there:

19. sufficient staffing to undertake the project?
20. existing authority to undertake the projects?

6.6 Implementation Strategy

An implementation strategy is the key to any successful planning effort. To assist in implementing the mitigation projects, the *Implementation Strategy* matrix below (Figure 6.2) was developed to identify the strategies that will focus on the 2011 mitigation projects which may be implemented during the 5-year HMP cycle. The matrix includes the 2011 mitigation project, the responsible lead agency, the hazard being mitigated, project funding source, estimated cost (if known) and expected timeframe.

Implementation Strategy

Mitigation Project	Lead Agency	Hazard	Funding Source	Cost	Timeframe
EQ2, Seismic Survey	Public Works	Earthquake	TBD	$50,000.00	TBD
Weed Abatement Program	Fire	Fire	Property owners billed	$100.00 per parcel	On-Going
Flood2, 3-5 Storm Drain Project	Public Works	Flood	TBD	$11,400,000.00	TBD
GIS1, GIS Mapping Project	Electric	All-Hazards	TBD	$60,000.00	TBD
EOC Relocation	Fire	All-Hazards	TBD	$1,900,000.00	TBD
ESC1, Emergency Services Coordinator	Fire	All-Hazards	TBD	$75,000.00	TBD

Figure 6.2

Section 7 Plan Maintenance

7.1 Monitoring, Evaluating and Updating the Plan

The City of Colton will continue to monitor hazards for a better understanding of these hazards and identification of new hazards. As the City monitors these hazards and learns how to mitigate these hazards more efficiently, additional projects may be developed over time.

The inclusion of the HMP into other existing Colton municipal plans will continue to be a collaborative process that involves multiple stakeholders from associated agencies and departments. Because the HMP 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. To facilitate the hazard mitigation planning process, the HMP will be reviewed annually and revisions will be provided to FEMA in a 5-year cycle, as required. The Fire Department will be responsible for initiating this process.

Departments who are managing mitigation projects will track the status of the projects through the entire life cycle from concept to completion. Each year proposed projects will be reviewed during budget development and selected projects are submitted for funding to the appropriate funding source. These funding sources include, General Fund, grant funds, and private funds.

On an annual basis, the Planning Team will review the plan and update project status and other sections as necessary. The HMP will be updated every five (5) years and submitted to Cal EMA and FEMA.

7.2 Implementation Through Existing Programs

Mitigation strategies are regularly reviewed through the City's existing programs, including General Plan review and updates, building and safety code review and updates, commercial and residential code compliance, housing authority programs, capital improvement plans and projects, and emergency plan updates.

The HMP goals and actions will be incorporated into various general operations of government. For example, some information from the HMP will be included in the City of Colton Emergency Operations Plan (EOP) that is expected to be updated in 2011. As future plans are developed, the HMP will be an asset in any plan development efforts. As noted earlier, much of the information contained in this HMP is from the City's General Plan and is already part of the planning process.

7.3 Continued Public Involvement

Public involvement will continue to be important and they will be able to directly comment on and provide feedback about the plan. The public will be able to review the plan through the City of Colton web site. Information will be shared through the City Public Access Television Channel. The City will continue to seek broad public input during annual review of the Plan and work toward the five-year revision. Active public input will be sought as the City seeks to define and profile the Human and Technological Hazards in the five-year revision.

Appendix A

Planning Materials

HMP Planning Team Meeting Agenda

November 23, 2010
10:00pm – 11:00pm

Colton Fire Department, Station 213 (City EOC)

1100 S. La Cadena, Colton

I. **Welcome/Introductions**

II. **Planning Team Members**

III. **Hazard Mitigation Planning Process**

IV. **Hazard Mitigation Plan Next Steps**

V. **Next Meeting**

a. **Tentative: December 6, 2010**

City of Colton
Hazard Mitigation Planning Process

Local Hazard Mitigation Plans (LHMP) are required to be updated every 5 years. The City of Colton's current plan was submitted in 2005 as part of the County's Multi-Jurisdictional Hazard Mitigation Plan and is due to be updated in 2010.

All 24 cities/towns and approximately 30 special districts throughout the County of San Bernardino are participating in the 2010 Multi-Jurisdictional Hazard Mitigation Plan (MJHMP).

Timeline:

Nov. 23	Kick-Off Meeting
Dec. 6	HMP Planning Team Meeting (HMP Partial/Complete Distribution)
Dec. 7 - 16	Internal review
Dec. 16	HMP Planning Team Meeting
Dec. 19	Updates complete from internal review (Tentative)
TBD	Public Meeting – City Council Meeting ??
TBD	Public Meeting – Planning Commission Meeting ??
Dec. 30	Submit HMP to County OES for review
2011	City Council – HMP Approval/Adoption

Planning Team:

Name	Title

2010 HMP Next Steps Follow-up

Update Population Data

- Newest Census data available?
- **ACTION:** Do GIS personnel have the 2010 Census LL population?

Update Critical Facilities

- 2005 HMP critical facilities were:
  - Fire Stations
  - Police Stations
  - Schools
  - Community Centers
  - Utilities/Water Facilities
  - Arrowhead Regional Medical Center
  - Government Facilities
  - Colton Joint Unified School District Facilities
  - High Economic Facilities (residential housing units, Stater Brothers warehouse, RV sales, Telco foods, railroads, Kinder Morgan pipelines, Ashley Furniture, Angelica Linen Service.
- **ACTION:** All, is there any additional critical facilities we want to add? (Whatever we add we'll have to include in the "risk analysis".)

Status of 2005 HMP Mitigation Projects

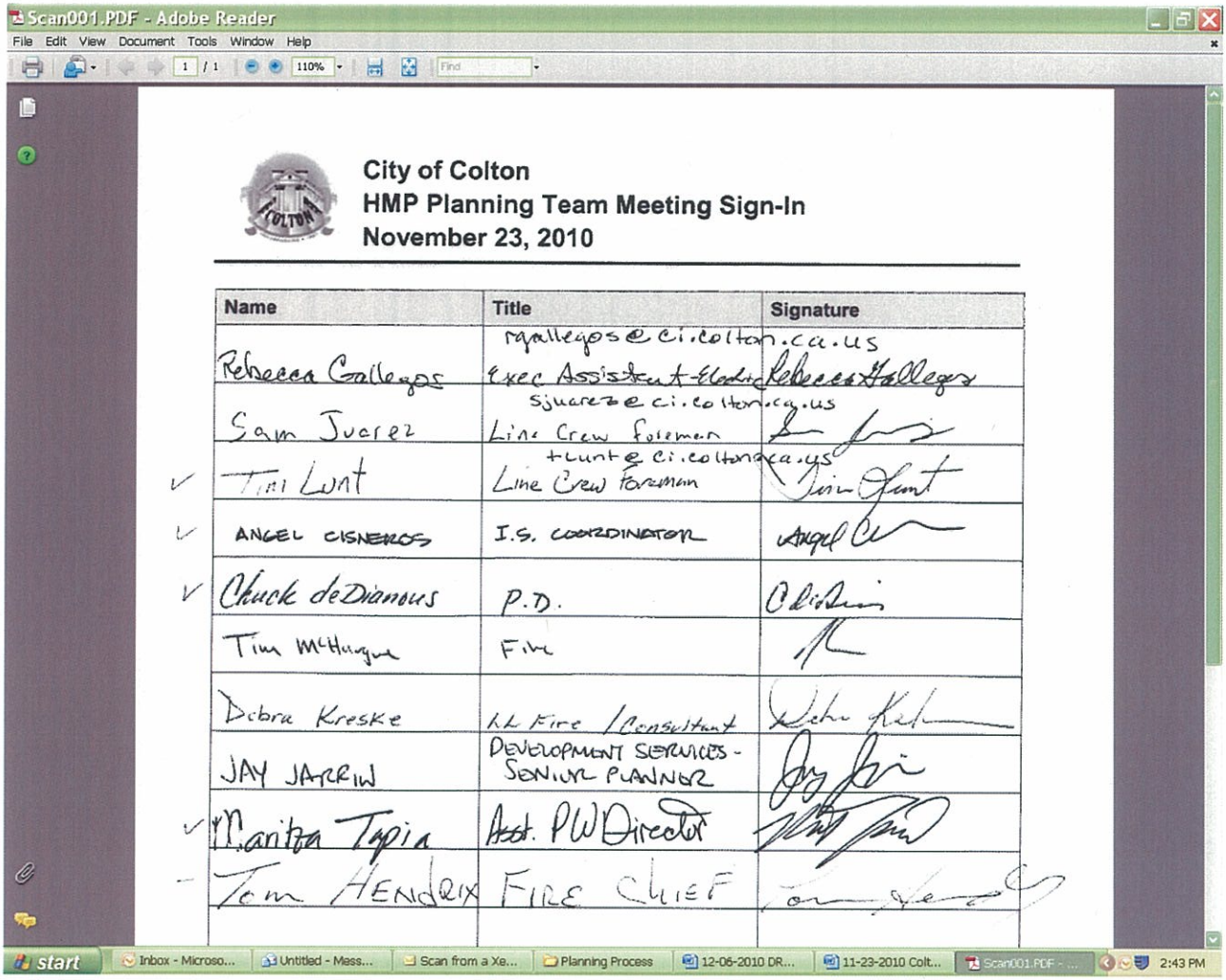
- Projects listed in HMP:
  - Fire – Weed Abatement
  - Flood – 3-5 Storm Drain Projects
  - Earthquake – Seismic Retrofit (7 Bridges)
- **ACTION:** Public Works and Fire Department identify status of above mitigation projects.

Identify New Mitigation Projects for 2010

- **ACTION:** All identify mitigation projects that happened after April 2005, identify current projects, and future known projects.
- We will need to know as much of the following information as possible for each new project:
  - Name
  - Description
  - Alternatives
  - Strategy
  - Status
  - Completion Date
  - Local Priority
  - Hazards Mitigated
  - Total Cost
  - Calculated BC Ratio
  - Funding Description

Identify Hazard Events Since April 2005

- 2005 HMP events were described for the top 3 hazards; Earthquake, Flood, Fire.
- Looking at the events listed in 2005 HMP will help identify the degree of events that need to be listed in the 2010 HMP. The 2005 HMP events listed were:
  - Earthquakes
    1. 1992 Landers EQ
    2. 1992 Big Bear
    3. 1923 San Jacinto
    4. 1918 San Andreas Fault
    5. 1857 Fort Tejon
  - Fire
    1. 2003 Pass Fire
    2. 2003 Prado Fire
    3. Tropica Rancho Fire
  - Flooding
    1. FEMA 1203-DR-CA; Flood of 1998
    2. FEMA 1044-DR-CA; Flood of 1995
    3. Flood of 1969
-
- **ACTION:** All, identify hazards that have happened to Colton since April 2005.



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City of Colton
HMP Planning Team Meeting Sign-In
November 23, 2010

	Name	Title	Signature
	Rebecca Gallegos	rgallegos@ci.colton.ca.us Exec Assistant-Elected	Rebecca Gallegos
	Sam Juarez	sjuarez@ci.colton.ca.us Line Crew Foreman	
✓	Tim Lunt	tlunt@ci.colton.ca.us Line Crew Foreman	
✓	ANGEL CISNEROS	I.S. COORDINATOR	
✓	Chuck deDiamous	P.D.	
	Tim McHargue	Fire	
	Debra Kreske	LL Fire / Consultant	
	JAY JARRIN	DEVELOPMENT SERVICES - SENIOR PLANNER	
✓	Manitou Tapia	Asst. PW Director	
–	Tom HENDRIX	FIRE CHIEF	

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HMP Planning Team Meeting Agenda

December 06, 2010
10:00pm – 11:00pm

Council Conference Room

650 N. La Cadena Drive, Colton

I. **Welcome/Introductions**

II. **Planning Team Member Additions?**

III. **Hazard Mitigation Plan Status**

IV. **Hazard Mitigation Plan Next Steps**

V. **Next Meeting**

a. **December 16, 2010**

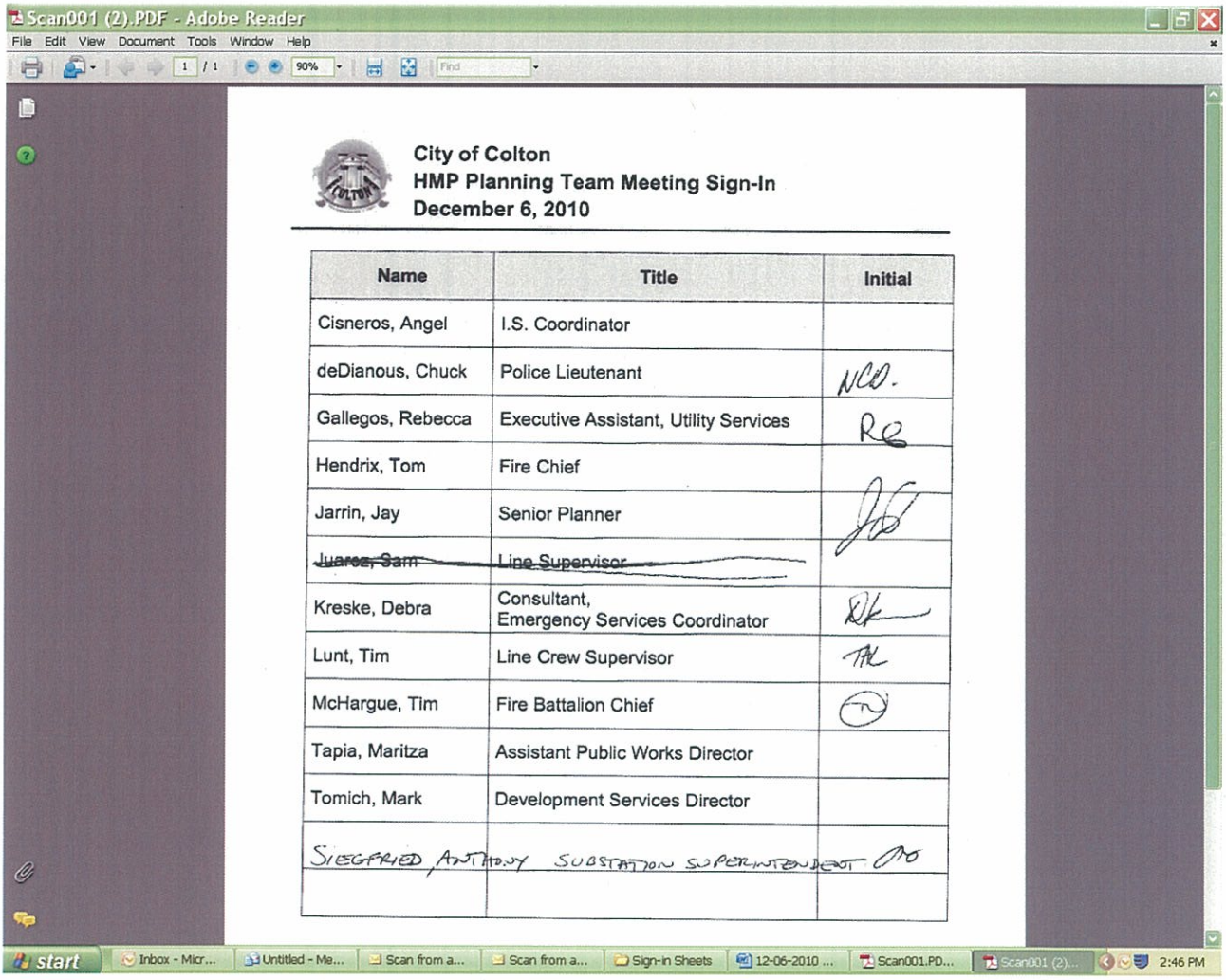
City of Colton
Hazard Mitigation Planning Process
December 6, 2010

Timeline:

Nov. 23	Kick-Off Meeting
Dec. 6	HMP Planning Team Meeting (HMP Partial/Complete Distribution)
Dec. 6 - 16	Internal review
Dec. 16	HMP Planning Team Meeting
Dec. 19	Updates complete from internal review (Tentative)
TBD	Public Meetings
Dec. 30	Submit HMP to County OES for review
2011	City Council – HMP Approval/Adoption

Planning Team:

Name	Title	Agency
Cisneros, Angel	I.S. Coordinator	City of Colton
deDianous, Chuck	Police Lieutenant	City of Colton
Gallegos, Rebecca	Executive Assistant, Utility Services	City of Colton
Hendrix, Tom	Fire Chief	City of Colton
Jarrin, Jay	Senior Planner	City of Colton
Juarez, Sam	Line Supervisor	City of Colton
Kreske, Debra	Consultant, Emergency Services Coordinator	City of Loma Linda
Lunt, Tim	Line Crew Supervisor	City of Colton
McHargue, Tim	Fire Battalion Chief	City of Colton
Tapia, Maritza	Assistant Public Works Director	City of Colton
Tomich, Mark	Development Services Director	City of Colton



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City of Colton
HMP Planning Team Meeting Sign-In
December 6, 2010

Name	Title	Initial
Cisneros, Angel	I.S. Coordinator	
deDianous, Chuck	Police Lieutenant	NCD.
Gallegos, Rebecca	Executive Assistant, Utility Services	RG
Hendrix, Tom	Fire Chief	
Jarrin, Jay	Senior Planner	
~~Juarez, Sam~~	~~Line Supervisor~~	
Kreske, Debra	Consultant, Emergency Services Coordinator	
Lunt, Tim	Line Crew Supervisor	TAL
McHargue, Tim	Fire Battalion Chief	
Tapia, Maritza	Assistant Public Works Director	
Tomich, Mark	Development Services Director	
SIEGFRIED, ANTHONY	SUBSTATION SUPERINTENDENT	AS

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Public Television Station and Website HMP Announcement

The Colton Fire Department is updating the

City of Colton Hazard Mitigation Plan

The 2010 Draft City of Colton Hazard Mitigation Plan is available for public review and comment :

Colton Fire Station 211
303 East E Street
Monday-Thursday
December 9-23
8:00 a.m.-4:00 p.m.
909-370-5100