2017 Santa Barbara County Multi-Jurisdictional Hazard Mitigation Plan

County of Santa Barbara
City of Buellton
City of Carpinteria
City of Goleta
City of Guadalupe
City of Lompoc
City of Santa Barbara
City of Santa Maria
City of Solvang

Submitted to CalOES and FEMA by
Santa Barbara County Office of Emergency Management
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Prepared with the assistance of
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SECTION 1 INTRODUCTION

Across the United States, natural and manmade disasters have led to increasing levels of death, injury, property damage, and interruption of business and government services. The impact on families and individuals can be immense and damages to businesses can result in regional economic consequences. The time, money and effort to respond to and recover from these disasters divert public resources and attention from other important programs and problems. Santa Barbara County, California recognizes the consequences of disasters and the need to reduce the impacts of all hazards. The elected and appointed officials of the County also know that with careful selection, mitigation actions in the form of projects and programs can become a long-term, cost effective means for reducing the impact of these hazards.

The Santa Barbara County *Multi-Jurisdictional Hazard Mitigation Plan* (the Plan) was prepared and formulated with input and coordination from each incorporated city, the County of Santa Barbara, citizen participation, responsible officials, and support from the State of California Governor's Office of Emergency Services (CalOES) and the Federal Emergency Management Agency (FEMA). The process to update the Plan included nearly a year of coordination with representatives from all of the incorporated cities within the County and County representatives who comprised our Mitigation Advisory Committee (MAC). The Plan guides the Santa Barbara County Operational Area toward greater disaster preparedness and resistance in harmony with the character and needs of the County and its communities.

Mitigation is commonly defined as action(s) taken to reduce or, where possible, eliminate risks to people and property from hazards and their effects. ***Hazard mitigation*** focuses attention and resources on actions that will reduce or eliminate long term risks to persons or property from natural hazards.

The impact of expected yet often unpredictable natural and human-caused events can be reduced through planning. History has demonstrated that it is less expensive to mitigate against disaster damage than to repeatedly repair damage in the aftermath. A mitigation plan states the aspirations and specific courses of action jurisdictions intend to follow to reduce vulnerability and exposure to future hazard events.

It is the County's hope the Plan continues to be used as a tool for all stakeholders to increase public awareness of local hazards and risks, while at the same time providing information about options and resources available to reduce those risks. Informing and educating the public about potential hazards will help County, City residents, and visitors protect themselves against their effects.

The emphasis of the Plan is on the assessment of identified risks, identifying mitigation measures for existing exposures, and ensuring critical infrastructure are capable of surviving a disaster. Hazard mitigation strategies help to eliminate losses by limiting new exposures in identified hazard areas, diverting the hazard by reducing the impact, and developing an awareness of hazard area location to avoid future development.

Federal legislation has historically provided funding for disaster preparedness, response, recovery, and mitigation. The Disaster Mitigation Act of 2000 (DMA 2000) is legislation designed to improve the delivery of mitigation programs through sound and viable planning. The legislation reinforces the importance of mitigation planning and emphasizes planning for disasters before they occur. As such, DMA 2000 establishes a pre-disaster hazard mitigation program, outlining requirements for the post-disaster Hazard Mitigation Grant Program (HMGP).

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

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

- Preparing and submitting a local mitigation plan;
- Reviewing and updating the Plan every five years; and
- Monitoring Projects.

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

This Plan has been prepared to meet FEMA and CalOES requirements thus continuing the County's eligibility for funding and technical assistance from state and federal hazard mitigation programs, such as the HMGP, Pre Disaster Mitigation, and Flood Mitigation Assistance programs.

SECTION 2 PLAN PURPOSE AND AUTHORITY

Authority to create this Plan is derived from the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Public Law 93-288), as amended by the Disaster Mitigation Act of 2000 (DMA 2000). The requirements and procedures for mitigation plans are found in the Code of Federal Regulations (CFR) at Title 44, Chapter 1, Part 201 and the associated Interim Final Rule changes. The federal law and associated rule changes and regulations establish planning and funding criteria for states and local communities.

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

- Provide *Inter-Jurisdictional Coordination of Mitigation-Related Programming* – to ensure that proposals for mitigation initiatives are reviewed and coordinated among the participating jurisdictions within the County.
- Achieve *Regulatory Compliance* – To qualify for certain forms of federal aid for pre- and post-disaster funding, local jurisdictions must comply with the federal DMA 2000 and its implementing regulations (44 CFR Section 201.6). DMA 2000 intends for hazard mitigation plans to remain relevant and current. Therefore, Local plans (including Santa Barbara County's) are updated every five years. This means that the Hazard Mitigation Plan for Santa Barbara County uses a "five-year planning horizon". It is designed to carry the County through the next five years, after which its assumptions, goals, and objectives will be revisited and the Plan resubmitted for approval. Section 7 details specific goals and objectives with regard to implementing mitigation activities over the life of this Plan. In Section 8, Santa Barbara County has outlined a more aggressive approach to ensuring the Plan is implemented, evaluated, monitored and updated.

On the following pages are the resolutions that adopted the 2017 Plan.

RESOLUTION OF THE BOARD OF SUPERVISORS OF THE COUNTY OF SANTA BARBARA, STATE OF CALIFORNIA

A RESOLUTION IN THE MATTER OF THE ADOPTION OF THE 2017 SANTA BARBARA COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN	**Resolution No.** 17-175

WHEREAS, the Federal Disaster Mitigation Act of 2000 ("Act"), as described in 44 Code of Federal Regulations Section 201.6 (44 CFR § 201.6) mandates local governments to submit and maintain a Federal Emergency Management Agency ("FEMA") approved local hazard mitigation plan; and

WHEREAS, the County of Santa Barbara Office of Emergency Management, working with the Public Works Department and other County departments, and has coordinated the hazard mitigation planning efforts among the incorporated cities of the county; and

WHEREAS, the Santa Barbara County Multi-Jurisdictional Hazard Mitigation Plan, ("Plan") identifies a county-wide risk assessment and mitigation strategies to reduce the impacts of natural, technological, and human caused disasters on the public and local government; and

WHEREAS, identification of hazards in the county assists with response planning, exercise development, public education and awareness, and other emergency management functions; and

WHEREAS, the Act specifies documentation that the Plan has been approved by the FEMA and formally adopted by the Santa Barbara County Board of Supervisors; and

WHEREAS, on June 28, 2017, FEMA approved the County's Plan; and

WHEREAS, the Office of Emergency Management will coordinate the incorporated cities respective Annexes submitted to FEMA for inclusion in the Plan after they are adopted by their City Councils.

NOW, THEREFORE, BE IT RESOLVED, that the County of Santa Barbara Board of Supervisors hereby adopts the Santa Barbara County Multi-Jurisdictional Hazard Mitigation Plan and directs the Office of Emergency Management to continue its work with the incorporated cities to include their respective Annexes to the Plan.

A Resolution in the Matter of the Adoption of the 2017 Santa Barbara County Multi-Jurisdictional Hazard Mitigation Plan

PASSED AND ADOPTED by the Board of Supervisors of the County of Santa Barbara, State of California this 22nd day of August, 2017 by the following vote:

AYES: Supervisors Williams, Wolf, Hartmann, Adam, and Lavagnino

NOES: None

ABSTAIN: None

ABSENT: None

JOAN HARTMANN, CHAIR
BOARD OF SUPERVISORS

ATTEST:
MONA MIYASATO
CLERK OF THE BOARD

By _____
Deputy

APPROVED AS TO FORM:
MICHAEL C. GHIZZONI
COUNTY COUNSEL

By _____
Deputy

APPROVED AS TO FORM
RISK MANAGEMENT
RAY AROMATORIO

By: _____

Date: 8/9/17

APPROVED AS TO FORM
THEODORE A. FALLATI, CPA
AUDITOR-CONTROLLER

By: _____

Date: 8.9.17

DIRECTOR OF EMERGENCY MANAGEMENT
ROBERT LEWIN
OFFICE OF EMERGENCY MANAGEMENT

By _____

Date: 8-9-17

RESOLUTION OF THE BOARD OF SUPERVISORS OF THE COUNTY OF SANTA BARBARA, STATE OF CALIFORNIA

A RESOLUTION TO INTEGRATE BY REFERENCE THE 2017 MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN INTO THE NEXT SANTA BARBARA COUNTY SAFETY ELEMENT UPDATE OF THE GENERAL PLAN	**Resolution No.** 17-176

WHEREAS, the Governor's Office of Emergency Services (Cal OES) Mitigation Division requires a Board Resolution recognizing the adoption of the County Multi-Jurisdictional Hazard Mitigation Plan into the Safety Element of the County General Plan; and

WHEREAS, the Santa Barbara County Board of Supervisors adopted the revised Safety Element to the General Plan August 10, 2010; and

WHEREAS, the Santa Barbara County Board of Supervisors adopted the FEMA approved Multi-Jurisdictional Hazard Mitigation Plan on this date, August 22, 2017; and

WHEREAS, this Resolution enables Santa Barbara County to qualify for additional mitigation funding after a disaster; and

WHEREAS, the Safety Element of the General Plan currently integrates the Multi-Jurisdictional Hazard Mitigation Plan, in accordance with California Government Code Sections 8685.9, 65302 and 65302.6; and

NOW, THEREFORE, BE IT RESOLVED that the Board of Supervisors of Santa Barbara County hereby accepts and adopts the Santa Barbara County Multi-Jurisdictional Hazard Mitigation Plan and resolves to integrate the updated Plan by reference into the Safety Element of the General Plan with the next Safety Element update in accordance with the requirements of Government Code sections 65302, 65302.6 and 8685.9 (AB 2140(2006), and there is no possibility that the activity in question may have a significant impact on the environment and is therefore exempt from the provisions of CEQA, General Rule-Section 15061(b)(3).

PASSED AND ADOPTED by the Board of Supervisors of the County of Santa Barbara, State of California this 22nd day of August, 2017 by the following vote:

AYES: Supervisors Williams, Wolf, Hartmann, Adam, and Lavagnino

NOES: None

ABSTAIN: None

ABSENT: None

JOAN HARTMANN, CHAIR
BOARD OF SUPERVISORS

ATTEST:
MONA MIYASATO
CLERK OF THE BOARD

By _____
Deputy

APPROVED AS TO FORM:
MICHAEL C. GHIZZONI
COUNTY COUNSEL

By _____
Deputy

APPROVED AS TO FORM
RISK MANAGEMENT
RAY AROMATORIO

By: _____

Date: 8/14/17

APPROVED AS TO FORM
PLANNING and DEVELOPMENT
GLENN S. RUSSELL,PHD

By: _____
Deputy

Date: 8/14/17

DIRECTOR OF EMERGENCY MANAGEMENT
ROBERT LEWIN
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By _____

Date: 8-14-17

SECTION 3 PLANNING PROCESS

3.1 OVERVIEW

The planning process implemented for updating the Santa Barbara County Multi-jurisdictional Hazard Mitigation Plan (HMP) utilized two (2) different planning teams. The first team is the Mitigation Advisory Committee (MAC) and the second is the Local Planning team. All eight (8) incorporated cities (City of Buellton, City of Carpinteria, City of Goleta, City of Guadalupe, City of Lompoc, City of Santa Barbara, City of Santa Maria, and City of Solvang) joined the County of Santa Barbara in the preparation of this Multi-Jurisdictional Hazard Mitigation Plan. Each of the participating jurisdictions had representation on the MAC and was responsible for the administration of their own Local Planning Team.

The planning process followed the concepts and principles outlined in the Comprehensive Preparedness Guide (CPG) 101. Both the MAC and the Local Planning teams focused on these underlining philosophies:

- *Focus on the mitigation strategy*
  The mitigation strategy is the plan's primary purpose. All other sections contribute to and inform the mitigation strategy and specific hazard mitigation actions.
- *Process is as important as the plan itself*
  In mitigation planning, as with most other planning efforts, the plan is only as good as the process and people involved in its development. The plan should also serve as the written record, or documentation, of the planning process.
- *This is the community's plan*
  To have value; the plan must represent the current needs and values of the community and be useful for local officials and stakeholders. Develop the mitigation plan in a way that best serves your community's purpose and people.
- *Intent is as important as Compliance*
  Plan reviews will focus on whether the mitigation plan meets the intent of the law and regulation; and ultimately that the plan will make the community safer from hazards.

The planning process for the Santa Barbara County Multi-jurisdictional Hazard Mitigation Plan (HMP) incorporated the following steps:

- *Plan Preparation*
  - Form/Validate planning team members
  - Establishing common project goals
  - Setting expectations and timelines
- *Plan Development*
  - Validate and revise the existing conditions/situation within planning area; the *Capabilities Assessment and Hazard Assessment Sections* in the HMP
  - Develop and review the risk to hazards (exposure and vulnerability) within the planning area; the *Vulnerability Assessment Section* in the HMP

  - Review and identify mitigation actions and projects within the planning area; the Mitigation Strategy in the HMP
- *Finalize the Plan*
  - Review and revise the plan
  - Approve the plan
  - Adopt and disseminate the plan

Throughout this process, and though other standard practices, opportunities for public involvement was offered and encouraged. More details about public engagement is provided under Section 3.4.

The MAC team was guided through the planning process; and as material was shared and decisions were made, it was the MAC team's responsibility to bring these findings back to their Local Planning Team. Below is a summary of the collaborative planning process of the MAC and Local Planning team.

During the 2017 update of the HMP, the MAC reviewed several other plans, utilized the information provided, and cross referenced where applicable; including:

- 2011 Santa Barbara County Multi-Jurisdictional Hazard Mitigation Plan
- 2013 Santa Barbara County Emergency Management Plan
- 2009 Santa Barbara County Comprehensive Plan-Safety Element
- 2016 Santa Barbara County Operational Area THIRA
- 2013 California Enhanced Hazard Mitigation Plan
- 2015 Ventura County Hazard Mitigation Plan
- 2014 San Luis County LHMP

3.2 MITIGATION ADVISORY COMMITTEE (MAC)

3.2.1 MAC Members

The Mitigation Advisory Committee (MAC) is a standing committee that works together throughout the year to discuss and provide input on a variety of activities. The MAC is led by Santa Barbara County Office of Emergency Management and has representation from all of the local jurisdictions, as well as County Departments and CalOES. These representatives also represent other regional agencies such as Fire Protection Districts, Water Agencies, and schools. A press release was also sent out announcing the planning process and soliciting input and involvement from adjacent agencies and the public. This press release is attached in the Appendixes.

The MAC was utilized for the updating of the Santa Barbara County Multi-Jurisdictional Hazard Mitigation Plan. To assist with this effort Santa Barbara County Office of Emergency Management

hired a consultant to support and assist each jurisdiction with their Local Hazard Mitigation Plan; contained as an annex in the Santa Barbara County Multi-Jurisdictional Hazard Mitigation Plan.

Table 3.1 Members of the Mitigation Advisory Committee 2017

Names	Organization	MAC Member Status
Michael Dyer	Santa Barbara County – Emergency Manager	New Member
Shannon McCrone	Santa Barbara County – Emergency Services Planner	New Member
Robert Troy	Santa Barbara County – Deputy Director Emergency Management	New Member
Tylor Headrick	Santa Barbara County- GIS/Emergency Services Planner	New Member
Rob Hazard	Santa Barbara County Fire – Battalion Chief	New Member
Rudy Martel	Santa Barbara County Agricultural Commissioner	New Member
Joyce Tromp	Santa Barbara County Flood Control	New Member
Jon Frye	Santa Barbara County Flood Control	New Member
Jan Koegler	Santa Barbara County Health	Returning Member
Marc Bierdzinski	City of Buellton – City Manager/Planning Director	Returning Member
Mimi Audelo	City of Carpinteria – Program Manager	New Member
Claudia Dato	City of Goleta – Senior Project Manager (Public Safety)	Returning Member
Gary Hoving	City of Guadalupe – Public Safety Director	New Member
Kurt Latipow	City of Lompoc – Fire Chief	New Member
Yolanda McGlinchey	City of Santa Barbara – Emergency Services Manager	Returning Member
Roy Dugger	City of Santa Maria – Emergency Preparedness Coordinator	Returning Member
Lisa Martin	City of Solvang	New Member
Yvette LaDuke	Cal OES – Emergency Services Coordinator	New Member
Andrew Petrow	Consultant	New Member

3.2.2 Overview of MAC Meetings

The MAC meetings were arranged and scheduled to follow the planning process steps outlined in Section 3.1. Each meeting was designed to walk the MAC members through sections of the Santa Barbara County Multi-Jurisdictional Hazard Mitigation Plan and annexes. In addition to reviewing and validating material, the intent was to also educate MAC members on the planning process and purpose of each section. By taking this step it will help ensure that each MAC member could bring this knowledge back to their Local Planning Teams. The table below (**Table 3.2**) provides a list and the main purpose of each of the MAC meetings.

Table 3.2 Mitigation Advisory Committee (MAC) Meetings Summary

Date	Purpose
April 2015	**Kick Off (in person)** • Reviewed and discussed the hazards in the Plan; including initial ranking. • Each jurisdiction was asked to review their previous goals and objectives with a local planning team.
December 2015	**MAC Meeting (in person)** • Recap of previous MAC meeting • Goal of the project • Understanding of HMP update requirements • Validation of team members • Proposed Planning Process • Review of Capabilities Assessment Section • Review results of Outreach Survey and incorporate into Plan where necessary
January 2016	**MAC Meeting (conference call)** • Recap of previous MAC meeting • Review of Capabilities Assessment Section • Discussion of public outreach efforts • Preparation for next MAC meeting
February 2016	**MAC Meeting (in person)** • Recap of previous MAC meeting • Review of Hazard Assessment Section • Presentation of Vulnerability Assessment results • Discussion of public outreach efforts • Preparation for next MAC meeting
March 2016	**MAC Meeting (conference call)** • Recap of previous MAC meeting • Review of Capabilities Assessment and Vulnerability Assessment Sections • Preparation for next MAC meeting
April 2016	**MAC Meeting (in person)** • Recap of previous MAC meeting • Initial discussion of mitigation projects and actions
May 2016	**MAC Meeting (conference call)** • Recap of previous MAC meeting • Discussion of mitigation actions and projects • Discussion of update process • Preparation for next MAC meeting

Date	Purpose
June 2016	**MAC Meeting (in person)** • Recap of previous MAC meeting • Discussion of mitigation actions and projects • Discussion of update process

3.3 COUNTY LOCAL PLANNING TEAM

3.3.1 Local Planning Team Planning Process

Meetings were conducted to review the existing Hazard Mitigation Plan, update the capabilities and hazard assessments, and discuss existing, recurring, or new mitigation strategies. This Plan was developed as a county-wide hazard mitigation plan focusing on collaboration to implement mitigation strategies throughout the county, while maintaining accountability within each participating City to identify and track specific mitigation actions.

Each of the following sections detail the methodologies for development and updates since the 2011 Plan. The *Capability Assessment* (Section 4) has been updated to reflect changes in county departments and organizational structure. As necessary, the discussions of local planning documents have been revised to reflect updates since 2011.

The *Hazard Assessment*, detailed in Section 5, presents the methodology in which the Local Planning team reviewed the previously identified hazards and discussed revisions to their prioritization. A profile for each hazard is included which summarizes the type of hazard, location and extent, history of past occurrences, and probability of future occurrences. The hazard identification and ranking documented in this section form the foundation for prioritizing mitigation actions.

The Local Planning team reviewed the previous *Mitigation Strategy* and reported on progress made in implementing the listed actions. In addition, based on updates to the hazard identification, profiles, vulnerability assessments, and the capability assessment new mitigation actions were identified. The progress report and new mitigation actions are presented in the updated *Mitigation Strategy* (Section 7).

The Local Planning team held regular meetings and continually worked on the Plan. The Local Planning team coordinated and consulted with other entities and stakeholders to identify and delineate natural hazards within the County to assess the risks and vulnerable property in identified hazard areas. From the start, every attempt was made to establish an open public process to provide an opportunity for all sectors of the overall community to be involved in the planning process. In some cases direct public input was successful and in others the residents were represented in the process by their jurisdictions staff, by necessity.

3.3.2 Local Planning Team Members

Table 3.3 lists the members of the Santa Barbara County Local Planning Team. These individuals collaborated to identify/validate the unincorporated County's critical facilities, provide relevant information/material (i.e., plans), review/update sections, and report on progress and suggest new mitigation actions.

Table 3.3 County Planning Committee 2017

	Name	Title
Office of Emergency Management	Michael Dyer	Emergency Manager
	Shannon McCrone	Emergency Services Planner
	Robert Troy	Deputy Director Emergency Management
Fire	Rob Hazard	Battalion Chief
Community Services	George Chapjian	Director
Flood	Jon Frye	Engineering Manager
Public Works	Tom Fayram	Deputy Director
General Services	Anne Fearon	Enterprise Leader-Special Project Manager
Planning	Matthew Schneider	Deputy Director
	Mindy Fogg	Supervising Planner
Ag Commissioner	Rudy Martel	Deputy Commissioner
GIS	Tylor Headrick	Office of Emergency Management

3.3.3 Overview of Local Planning Team Meeting

The County Planning Committee met regularly during the planning process to discuss data needs and organize data collection.

Table 3.4 County Planning Committee Meetings Summary

Meeting Dates	Summary of Discussions
January 2016	**Meeting #1:** Discussed sections 1-4 update, also agreed to insert a County Land Use Section; The committee also agreed to standardize County GIS mapping, if possible.
March 2016	**Meeting #2:** Discussed Hazard Assessment (section 5) update; reviewed and agreed upon on 33 identified hazard profiles for the County; discussed hazard impacts on the County and agreed to the three scenarios for HAZUS run event (100-year flood event, San Luis Range South Margin Earthquake, and Red Mountain Range North Margin Earthquake); Agreed to use the Probability v. Impact Matrix for hazard prioritization.
May	**Meeting #3:** Discussed Vulnerability Assessment (Section 6) update; defined critical

Meeting Dates	Summary of Discussions
2016	facilities for the County; reviewed and revised the critical facilities list from 2011 plan; Reviewed the HAZUS default data and the three scenarios from the HAZUS run event; Agreed to run three types of hazard vulnerability methods (scientific Loss Estimation, Analysis of Exposure to Critical Facilities, and Qualitative Estimation of Impacts); Discussed steps for the update of County Mitigation Strategies (Section 7).
June 2016	**Meeting #4:** Discussed Mitigation Strategies (Section 7) update; reviewed Future Projects from 2011 Plan; categorized those projects by responsible Department/Agency; reviewed final timeline for plan update.

3.4 PUBLIC OUTREACH

There were two different Public Outreach campaigns used during the Santa Barbara County Multi-Jurisdictional Hazard Mitigation Plan update process: the first informing the Community of HMP Update, and the second educating the Community of Hazards. The second campaign (educating of the Community of Hazards) is an ongoing campaign that was leveraged during the Santa Barbara County Multi-Jurisdictional Hazard Mitigation Plan update process. Below is a summary of the campaigns:

3.4.1 Informing the Community of the HMP Update process

In July 2015, Santa Barbara County Office of Emergency Management issued a press release (in Spanish and English) announcing the commencement of the hazard mitigation planning process. This announcement invited the public to notify the County of their interest to participate in the planning process or submit comments.

Additionally, as part of the Public Outreach effort, Santa Barbara County Office of Emergency Management participated in a Radio interview and held two workshops to present the updates and solicit input from the public. Final drafts of the Santa Barbara County Multi-Jurisdictional Hazard Mitigation Plan were also made available to the public through the Aware and Prepare Website and hard copies were available in select Public Libraries. Input from the public was presented to both the MAC and Santa Barbara County Local Planning Team for consideration of incorporation into the HMP.

3.4.2 Ongoing Public Outreach

The County of Santa Barbara utilizes several platforms to educate the public about hazards in the community, relevant programs to safeguard and protect themselves from disaster, and actions they can take to prepare themselves for events. Below is a list of the different platforms used and a brief summary of the some of the programs:

- County Aware and Prepare Website
- Social Media (Facebook, Twitter)

- Meetings/Workshops
- Public Service Announcements- radio and television
- Public Surveys
- Community Emergency Response Team Training (CERT)
- Defensible Space Education
- Evacuation training for Schools and Communities
- Drought Education
- Flood emergency awareness

As part of the Santa Barbara County Multi-Jurisdictional Hazard Mitigation Plan process, the County issued a public survey (in Spanish and English) to seek input from the community about would prioritize hazards facing the county and what government officials could do to better communicate the risk. Hard copies of the bilingual surveys were also made available on public counters within the County offices and several City planning departments. The County posted a notification on their Facebook page and sent emails to key stakeholder groups such as the CAER Chapter (a government-industry group) and the Santa Barbara County Fire Safe Council about the survey.

SECTION 4 COUNTY CAPABILITY ASSESSMENT

4.1 SANTA BARBARA COUNTY - INTRODUCTION

Santa Barbara County, one of 58 counties in the State of California, was established on February 18, 1850. The County is located approximately 300 miles south of San Francisco and 100 miles north of Los Angeles, and covers 3,789 square miles, nearly 1,061 square miles (28%) of which is water and 2,735 square miles (72%) of which is land area. Elevation ranges from sea level to 6,820 feet at Big Pine Mountain. A corner of Kern and San Luis Obispo Counties border it to the north, Ventura County to the east, and the Pacific Ocean to the west and south. The County has 110 miles of coastline, and one third of the land area is located in the Los Padres National Forest.

Santa Barbara County is comprised of eight incorporated cities and 14 unincorporated communities including Vandenberg Air Force Base. According to the 2010 Census, the County's total population was 423,895 with a median household income of $62,779. Santa Barbara is currently the 19th most populous County in the state.

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

4.1.1 Economy

Santa Barbara can be subdivided into three economic regions, North County, Central County, and the South County. Each region has unique features which influence the economics of the area.

The North County is part of the central California coastal region. It is defined by the Santa Maria and Lompoc Valleys with several different communities, including Vandenberg Air Force Base. The presence of the base in the area has generated a variety of business opportunities, causing the region to evolve away from a strictly agriculture-based economy into one that is more diverse with hospitality, retail, and financial services.

The Central County is known primarily for its vineyards, horse ranches, Bed-and-Breakfasts and Cachuma Lake. Visitors come to the Los Padres National Forest and Cachuma Lake for a variety of outdoor activities including camping, boating, fishing, hiking, and rock climbing. The Danish village of Solvang also attracts a number of tourists to the region throughout the year.

The South County's economy is based largely on tourism, education, and services. Several educational institutions are located in South County including Westmont College and the University of California-Santa Barbara. Many festivals in South County attract visitors throughout the year. In addition to education and tourism, a variety of technological and agricultural businesses have headquarters in Goleta and Carpinteria. The City of Santa Barbara is the retail center of the region. The result is a healthy and diverse economy in the South County.

Agriculture is a major industry throughout the entire County and provides a significant opportunity for employment. A large percentage of the County's undeveloped area is devoted to agriculture. In spite of pressures from urbanization and foreign imports, agriculture continues to thrive. The top five crops by value are:

Strawberries: $464.7 million
Wine grapes: $155.3 million
Broccoli: $137.4 million
Cut flowers: $105.0 million
Nursery products: $86.0 million

Due to the significance that agriculture has on the economy and landscape of Santa Barbara County, impacts on agriculture from most of the hazards specified in this plan are identified.

4.1.2 Employment

Santa Barbara's percent unemployed in the civilian labor force, according to the July 2017 State of California Employment Development Department, was 4.7%. The top three Employers in the County are Higher Education, Department of Defense, and Local Government.

4.1.3 Climate

The Mediterranean climate in the Santa Ynez Valley is considered one of the finest in California. Temperatures in the winter range from an average of 33-degree lows at night to 55-degree highs during the day and in the summertime the daytime highs range in the 70s and 80s with lows ranging in the 50s and 60s. The Cuyama Valley has consistently warm days and cold nights, with gentle breezes keeping temperatures mild in the afternoon, and down-valley breezes cooling things off at night. In the mountains the climate is still considered Mediterranean, with mild rainy winters and warm dry summers.

4.1.4 Physical Features

Santa Barbara County has a mountainous interior, primarily made up of three mountain ranges; the Santa Ynez Mountains, the San Rafael Mountains, and the Sierra Madre Mountains. Most of the mountainous region is within the Los Padres National Forest. The forest contains the San Rafael and the Dick Smith Wildernesses. The valleys, especially those along the coast, is where the majority of the County's population resides. The cities of Santa Barbara, Goleta, and Carpinteria are all along the south coast, in the coastal plain south of the Santa Ynez Mountains. The Cuyama Valley in the north part of the County is less populated and more arid; oil production, ranching, and agriculture are the dominant land uses there. The County also includes four of the eight Channel Islands in the Pacific Ocean: San Miguel Island, Santa Barbara Island, Santa Cruz Island, and Santa Rosa Island. Santa Cruz Island is the only one of the four that is privately owned by The Nature Conservancy who has owned it since 1987. The other islands are part of the Channel Islands National Park.

Due to the Mediterranean climate of Santa Barbara County and the variability of rainfall, stream flow throughout the County is highly variable and directly impacted from rainfall with little snowmelt or base

flow from headwaters. Most streams in the County are dry during the summer months. Many streams in the County have flows that rise and fall in response to precipitation. Watercourses can experience a high amount of sedimentation during wet years and high amounts of vegetative growth during dry and moderate years.

The drainages in the southern part of the County are characterized by high intensity, short duration runoff events, due to the relatively short distance from the top of the Santa Ynez Mountains to the Pacific Ocean. The drainages in the northern part of the County are contained in the upper mountain areas, but broaden out into level coastal plains. The drainages in the northern part of the County are generally characterized by longer duration and less intense storms than the southern coastal areas. The majority of streams in Santa Barbara County only flow during winter months.

There are four (4) major reservoirs located in the County: Lake Cachuma, Twitchell, Gibraltar, and Jameson Lake. Lake Cachuma, Gibraltar Reservoir, and Jameson Lake are located along the Santa Ynez River, in North County. Lake Cachuma is the largest reservoir along the Santa Ynez River, with a drainage area of 421 square miles upstream of the Bradbury Dam. Gibraltar Reservoir has a drainage area of 214 square miles upstream of Gibraltar Dam and Jameson Lake has a drainage area of 14 square miles upstream of Juncal Dam.

In North County, the Twitchell Reservoir is located along the Cuyama River. The Cuyama River Basin has a drainage area of approximately 1,140 square miles and it is the confluence of the Cuyama and Sisquoc Rivers that form the Santa Maria River. The Twitchell Reservoir has a drainage area of 1,135 square miles above Twitchell Dam.

The County is divided into five (5) major watersheds: Santa Maria, Cuyama, San Antonio, Santa Ynez River, and South Coast. The Santa Maria Watershed includes the Cuyama and Sisquoc watersheds. The drainage areas for these watersheds are:

Watershed	Drainage Area
Santa Maria	1,845 square miles
Cuyama	1,140 square miles
San Antonio	165 square miles
Santa Ynez River	900 square miles
South Coast	416 square miles

4.1.5 Infrastructure

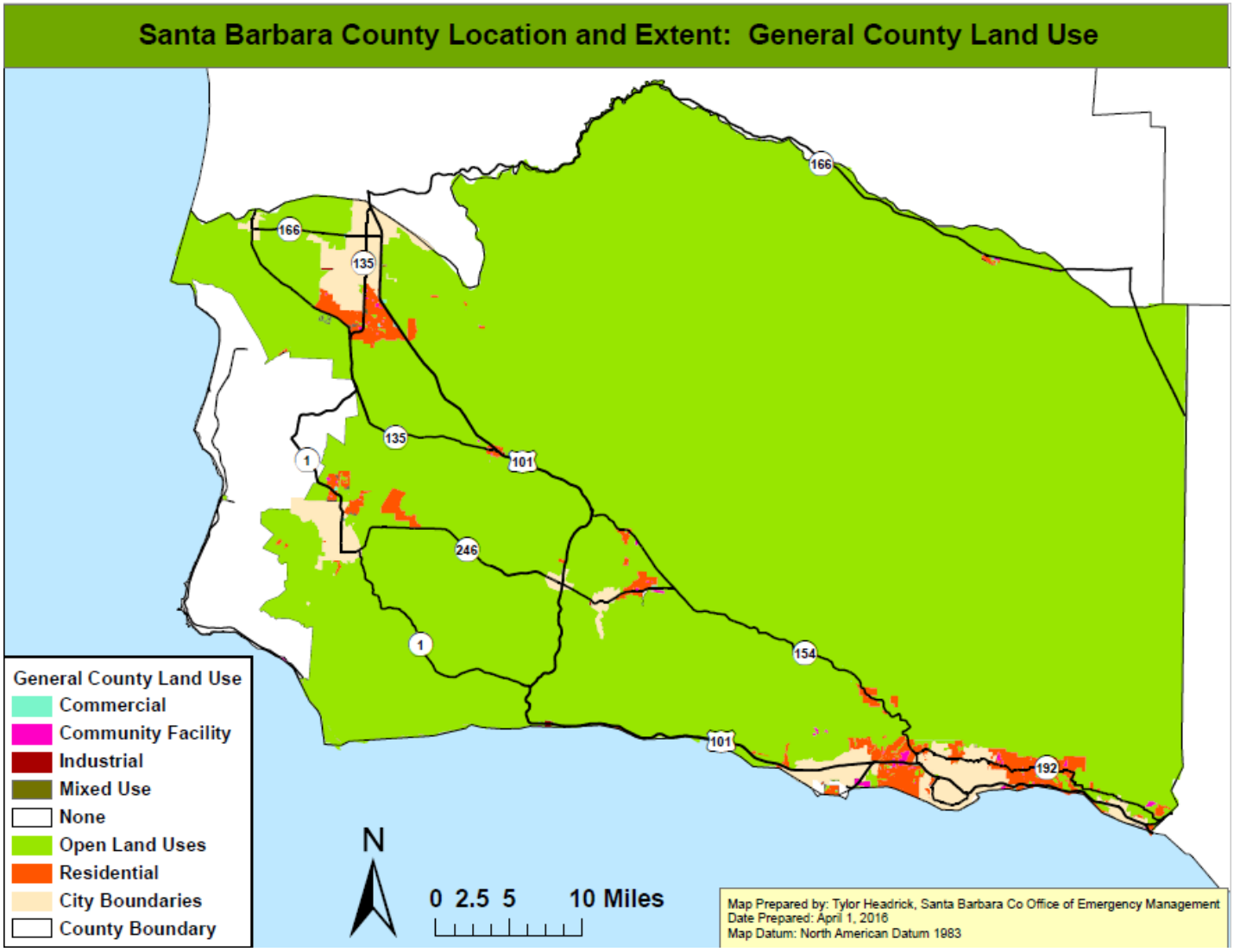
The infrastructure of Santa Barbara County supports its industries and residents. The Public Works Department maintains over 1,668 lane miles of major roads and local streets in the unincorporated portions of the County, including over 112 bridges. There are five airports in the County of Santa Barbara; Lompoc Airport, Santa Barbara Airport, Santa Barbara Municipal Airport, Santa Maria Public Airport, and Santa Ynez Airport. The County has been producing oil and gas since the late 1800's. It was in 1896 that oil producers constructed piers to access the underwater portion of the Summerland Oil Field, marking the beginning of offshore oil production. Several operational oil platforms are located along the Coast of Santa Barbara County, including one in the tidewaters. Groundwater is the primary source of potable water for many County residents. However, river water and rain water is collected into reservoirs and treated, serving

the majority of the South County population. However, the County has experienced excessive drought conditions over the last five years, nearly depleting its water resources. The Cachuma and Twitchell Reservoirs are owned by the federal government, administered by the Water Resources Division, and operated by local water purveyors. Prolonged drought has resulted in the installation of a pump in Cachuma Lake that will be used to pump out water from the deepest portion of the lake, if needed. The Gibraltor Reservoir is owned and operated by the City of Santa Barbara, and serves its residents. Jameson Reservoir is operated by the Montecito Water District and its water is delivered to the south coast via three tunnels through the Santa Ynez Mountains.

4.1.6 Land Use-Unincorporated County

Santa Barbara County is known for its natural scenic resources. The coastal terraces between ocean and mountains, the scenic inland valleys with large expanses of cultivated farmlands and gently rolling hillsides, and the rugged Los Padres National Forest are all key elements that define the county's resources. The unincorporated county is largely rural in character, with distinct compact urban communities separated by public open space and private grazing lands. The foothill elevations typically reach about 800 feet above sea level. The mountain ranges crest between four and five miles inland (north and east) from the coast and reach elevations between 3,200 and 3,800 feet above sea level. **Figure 4.1** shows General County Land Use overall.

Figure 4.1 General County Land Use



Santa Barbara County contains five main geographical sub regions for land use: 1) the South Coast Area, 2) Santa Maria Valley, 3) Lompoc Valley, 4) Santa Ynez Valley, and 5) Cuyama Valley. Development over the last five years in these sub regions, much like the county as a whole, has been limited to infill type projects; there has been no major new development. Additionally, there are no major planned development projects. However, any new major development will need to meet all current building codes and standards. This includes an assessment of the development against the Comprehensive Plan, especially the Safety Element which has incorporated lessons learned from the Multi-Jurisdictional Hazard Mitigation Plan update process. Descriptions of each of these sub regions follow.

1. **South Coast Area:**

The South Coast Area sub region is the largest designated urbanized area in the county, covering approximately 130 square miles, and includes the cities of Santa Barbara, Goleta, and Carpinteria. This

coastal area is characterized by numerous canyons between the foothills of the Santa Ynez Mountains and the Pacific Ocean. The unincorporated communities and sub-areas of the South Coast Area include: Summerland, Montecito, Toro Canyon, Mission Canyon, Eastern Goleta Valley, Isla Vista, and the Gaviota Coast.

Summerland

Summerland is located in southern Santa Barbara County between the Cities of Santa Barbara and Carpinteria, and is bordered by Ortega Ridge Road on the west, the Montecito Planning Area on the north, Padaro Lane on the east, and the Pacific Ocean on the south. Summerland is bisected by two major transportation corridors: U.S. Highway 101 and Union Pacific Railroad (UPRR), used by passenger and freight trains. These major transportation corridors separate most of the community from the Pacific Ocean.

Summerland is separated into two subareas: the urban area (where land uses are primarily residential), mixed-use, commercial, and the rural area (where land use is dominated by large residential developments and agricultural). Summerland's exiting land use includes: 249 acres of agriculture, 13 acres of commercial, 185 acres of residential, 235 acres of residential ranchette, and 38 acres of recreational. The area encompasses 706 existing residential units. Summerland currently has a small commercial strip centered on Lillie Avenue adjacent to U.S. Highway 101, and has a total of 111,004 sq. ft. of commercial development.

Montecito

Montecito is a low to medium density residential community comprising 13 square miles and 8,965 people. The community lies between the Pacific Ocean and the foothills of the Santa Ynez mountain range, with the City of Santa Barbara to the west and the community of Summerland to the east. The community contains approximately 3,010 residential units. The central urban sub-area, which lies between the Los Padres National Forest and U.S. Highway 101, is characterized by about 2,200 low-density residential parcels. The central urban sub-area also contains Montecito's only commercial center and Public Park. Montecito's coastal sub-area, which lies to the south of U.S. Highway 101, encompasses 290 acres, all of which exist in the Coastal Zone. The coastal sub-area is primarily developed with medium to high density residential. The mountain sub-area extends to the north of the Los Padres National Forest boundary and occupies the northern portion of the Montecito Planning Area. The mountain sub-area encompasses 9,984 acres and is dominated by mountainous open space with few residential units.

Toro Canyon

Toro Canyon is an area of mixed rural and semi-rural, agricultural and low-density residential uses of approximately 5,950 acres. Toro Canyon's existing land uses include large expanses of agriculture, a few concentrated and many scattered residential developments, two small commercial areas, recreation and undeveloped open space. The Toro Canyon Plan Area includes approximately 1,000 parcels and the following land uses: 850 residential units; 61,665 sq. ft. of commercial and industrial space; 5,236,132 sq. ft. of greenhouses and related development; 88,545 sq. ft. of institutional/educational development; and 130,399 sq. ft. of other non-residential development. Major access roads into Toro Canyon include U.S. Highway 101, Via Real and State Route 192 (East Valley Road/Foothill Road).

Santa Claus Lane and Via Real at the eastern Padaro Lane/Highway 101 interchange are the only commercial areas in Toro Canyon. Residential development is scattered throughout Toro Canyon, generally with larger

parcels to the north and smaller parcels to the south. Several neighborhoods with parcel sizes between 7,000 square feet to one acre exist in southern Toro Canyon, including beach front properties along Padaro Lane and Rural Neighborhoods (RNs) surrounded by agricultural and rural land. Upper Toro Canyon (generally north of East Valley Road and Paredon Ridge) residential development is characterized by parcel sizes of five acres or greater, and is generally associated with either agricultural uses or large estates.

Toro Canyon contains almost 2,700 acres designated for agriculture with zoning ranging from AG-I-5 (minimum 5-acre lots) to AG-II-100 (minimum 100-acre lots). In addition, almost 1,400 acres are designated Mountainous Area, with zoning that allows existing agricultural use along with some permit requirements for agricultural expansion.

Toro Canyon supports a high diversity of biological resources, including southern oak riparian woodland, coastal scrub and chaparral. The watersheds of both Toro Creek and Arroyo Paredon Creek support stretches of relatively undisturbed habitat serving as wildlife corridors between the mountainous Los Padres National Forest and the Pacific Ocean.

Mission Canyon

The Mission Canyon area is located in the foothills of the Santa Ynez Mountains, north of and adjacent to the City of Santa Barbara. Mission Canyon's 1,122 acres contain 1,141 parcels and support residential development, agriculture, and open space. There is no commercial or industrial development. Residential development occurs throughout the area, generally with larger parcels to the north and smaller parcels to the south. Residential parcels range from under 7,000 sq. ft. to over 40 acres. The South Foothill sub-area falls to the south of Foothill Road, and comprises 143 acres with 258 parcels that average 0.5 acre in size. The Mission Canyon Heights sub-area contains 550 parcels within its 160 acres of steeply sloped terrain, and averages about 0.5 acre per parcel. Finally, the Upper Mission Canyon sub-area comprises 817 acres of terrain occupied by low-density residential and open space. Several popular hiking trailheads are located in this sub-area.

Mission Canyon supports a diversity of biological resources, including coast live oak riparian woodland and chaparral. The upper watershed of Mission and Rattlesnake Creeks supports stretches of relatively undisturbed habitat serving as wildlife corridors within the area. The Mission Canyon Scenic Corridor runs north to south through the entire area.

Eastern Goleta Valley

Eastern Goleta Valley is located between the City of Santa Barbara and the City of Goleta. The unincorporated coastal plain and foothills reaching from Camino Cielo Road on the north to the Pacific Ocean on the south covers approximately 23,300 acres of between the Cities of Santa Barbara and Goleta. Of this area, about 15,300 acres lie within the designated Rural Area, and 7,900 acres lie within the designated Urban Area where the majority of the approximately 36,000 residents of Eastern Goleta Valley live. Eastern Goleta Valley is largely suburban residential in character, providing a range of residential types, including single family, condominium, apartment and mobile home types in the Urban Area, with ranchette neighborhoods on the peripheral areas of Hope Ranch and the foothills. There are currently 10,222 residential units in the area. There is a total of 3,187,463 sq. ft. of commercial development in Eastern Goleta Valley, most of it concentrated along the Hollister Avenue – State Street corridor. The mid to higher

elevations of Eastern Goleta Valley are designated as mountainous areas and are characterized by rugged terrain, habitat areas, headwaters of local watershed sub-basins, and clusters of rural residential neighborhoods. Much of the mountainous area lies within the boundaries of Los Padres National Forest, which is owned both publicly and privately. Per the Land Use Element, minimum parcel size in this area ranges from 40 to 320 acres, with 5- to 20-acre minimum parcel size residential zoning. The foothills of Eastern Goleta Valley support rural agriculture, typified by orchards, large parcel crop productions, and grazing land.

Isla Vista

Isla Vista is an unincorporated community located 9 miles west of the City of Santa Barbara. Surrounded on three sides by the University of California, Santa Barbara (UCSB), Isla Vista is located on a coastal bluff overlooking the Pacific Ocean. The current population of Isla Vista is approximately 20,000, and the area is ½ square mile. Much of Isla Vista is a densely populated residential community, with one of the highest concentrations of people in the state (62.5 people per acre). Isla Vista's downtown area is located on the eastern edge of the community adjacent to the UCSB Main Campus and contains 134,000 sq. ft. of commercial development.

Gaviota Coast

The Gaviota Coast is a 158 square mile (101,199 acres) unincorporated area of coastal plains and foothills north of the City of Goleta that contains 1,006 parcels with an average size of 110 acres. The area is bounded by Vandenberg AFB to the west, the Pacific Ocean on the South, the crest of the Santa Ynez Mountains on the north, and the City of Goleta to the east. Highway 101 is the primary thoroughfare, while Highway 1 provides access to the Lompoc Valley.

Agriculture is the predominant land use designation with 77,820 acres, followed by Mountainous Area of 26,051 acres, recreation/open space of 5,562 acres, and other miscellaneous designations for the balance of 2,266 acres. Much of the agricultural land includes Los Padres National Forest in the inland portions of the Gaviota Coast. Cattle's grazing is the primary agricultural use, in addition to orchards and other agricultural operations. The Los Padres National Forest covers 15,634 acres on the Gaviota Coast, and is owned by the U.S. Federal Government. Three major State parks and one County park exist within the Gaviota Coast: Gaviota State Park, El Capitan State Beach, Refugio State Beach, and Jalama Beach County Park. Commercial land uses in the Gaviota Coast are limited to approximately 100 acres of oil facilities contained within three industrial developments: Plains Exploration and Production Company (PXP) Point Arguello, ExxonMobil's Las Flores Canyon Processing Facility, and the Tajiguas Landfill. Residential development in the area is broadly dispersed, with single-family homes located on large agricultural zoned parcels. An exception is the small pocket of rural residential development at Arroyo Quemada, and developed smaller agricultural parcels at El Capitan Ranch and the upper reaches of Refugio Road near West Camino Cielo. A total of approximately 234 existing single-family dwellings exist in the Gaviota Coast.

2. **Santa Maria Valley:**

This sub region includes the Santa Maria Valley urbanized area. This urban area is the largest retail trade center in the North County. The valley is situated in the northwest corner of the county and is bounded by the Santa Maria River to the north, the Casmalia Hills to the west, the San Rafael Mountains to the east, and the

Solomon Hills to the south. The unincorporated communities of Orcutt and Los Alamos are located in this area, as are the cities of Santa Maria and Guadalupe. The land use outside these urbanized zones is largely rural in character, and dominated by cultivated agriculture, grazing, and open space.

Los Alamos
Los Alamos is a residential community located in a narrow valley transverse by the San Antonio Creek watershed between the Purisima Hills and the Solomon Hills approximately 15 miles southeast of the City of Santa Maria. The community is approximately one square mile, or 460 acres in area, with a population of about 1,900. The urban area is primarily composed of 10,000 sq. ft. residential lots. Agricultural land surrounding the community consists of large parcels (100 acres or greater), most of which are currently under active Williamson Act contracts.

Orcutt
The community of Orcutt is located immediately south of the City of Santa Maria and encompasses 14,650 acres with 10,300 parcels and approximately 11,000 residential units. There is 609,000 sq. ft. of commercial, industrial, or institutional development. Orcutt's central urban core is located in the northern part of the township and comprises 3,600 acres and 8,250 residential units. All of Orcutt's major commercial development is located in this area. South and West Orcutt are primarily low to medium density residential, with approximately 2,400 residential units in the 10,000 acre area. Agriculture dominates the land use outside the urban core and residential areas, with approximately 7,000 acres of land designated for agriculture in Orcutt, of which 6,000 is in production.

3. **Lompoc Valley:**

The Lompoc Valley is located in the mid-western portion of the county, adjacent to Vandenberg Air Force Base, and is separated from the rest of the county by the Purisima, Santa Rita, Santa Rosa, and White hills. The Santa Ynez River also traverses the Lompoc Valley in a westerly direction and eventually drains into the Pacific Ocean. This area includes the city of Lompoc and the unincorporated communities of Vandenberg Village and Mission Hills. Vandenberg Village is located in the Lompoc Valley at the westerly end of the Santa Ynez River Basin, and is bordered by Vandenberg AFB to the west and the City of Lompoc to the south. Vandenberg Village has a population of approximately 6,497 and is 5.2 square miles. The low to medium density residential core is surrounded primarily by agriculture and open space.

4. **Santa Ynez Valley:**

The Santa Ynez Valley is located in central Santa Barbara County, adjacent to the Cachuma Lake Recreation Area. The area extends north from the Santa Ynez River to the Woodstock Ranch and Oak Trails subdivisions, and east from the western outskirts of the City of Buellton to the Rancho Estates neighborhood. The Santa Ynez Valley is located at the base of several converging mountain ranges, including the San Rafael and Santa Ynez mountains, and the Purisima and Santa Rita hills. The Santa Ynez River is located to the south of this valley. The area is approximately 72 square miles (46,933 acres) and includes the unincorporated communities of Santa Ynez, Ballard, and Los Olivos.

The Santa Ynez Valley area contains 3,901 parcels with a net area of approximately 45,380 acres. Agriculture is the predominant land use designation with 43,441 acres, followed by residential at 1,580 acres, commercial at 110 acres, and industrial at 51 acres. The Santa Ynez Valley Community Plan separates the area into three distinct land use types: rural, inner-rural, and urban townships. About half of the area (22,915 acres) is designated as rural, with parcels larger than 40 acres and large-scale agricultural users. Inner-rural land, which surrounds the townships and is home to agriculture, recreational, and ranchette-style residential parcels of 5 to 40 acres, accounts for 20,434 acres of the area. The remaining 2,031 acres are designated as urban land use, or townships. Approximately 56% of the areas 9,850 residents reside in the three townships, which offer low to medium density residential development.

The township of Santa Ynez is located east of the City of Solvang and west of the junction of Highways 154 and 246. Approximately 4,000 residents inhabit the township's 1,565 acres, and land use is predominantly lower density residential surrounding a downtown commercial center located in the southeastern part of the town. The 137 acre reservation of the Santa Ynez Band of Chumash Indians is located within the urban boundary of Santa Ynez.

The township of Los Olivos is located in the northern part of the Santa Ynez Valley region, and consists of 287 acres with a population of approximately 1,000 people. There is a 22 acre commercial district at the northern end of the township. Low to medium density residential surrounds the commercial core and accounts for over 85% of the total land area of the township.

Located north of Santa Ynez and south of Los Olivos, the community of Ballard has an estimated 500 residents and encompasses 94 acres and 118 parcels. 75% of the township is designated for residential use, with approximately four acres of commercial property. A mix of smaller agricultural parcels (5 to 40 acres) surrounds Ballard.

5. **Cayuma Valley:**

The Cuyama Valley is isolated in the far northeastern portion of the county and is a large agricultural area bounded by the Caliente Mountain Range to the north and the Sierra Madre Mountains to the south. The San Andreas Fault is located to the east of the Cuyama Valley and travels in a northwest direction. The valley is bisected by the Cuyama River and includes the communities of Cuyama and New Cuyama. The area has a population of approximately 500, mostly concentrated in the community of New Cuyama.

4.2 Administrative and Technical Capacity

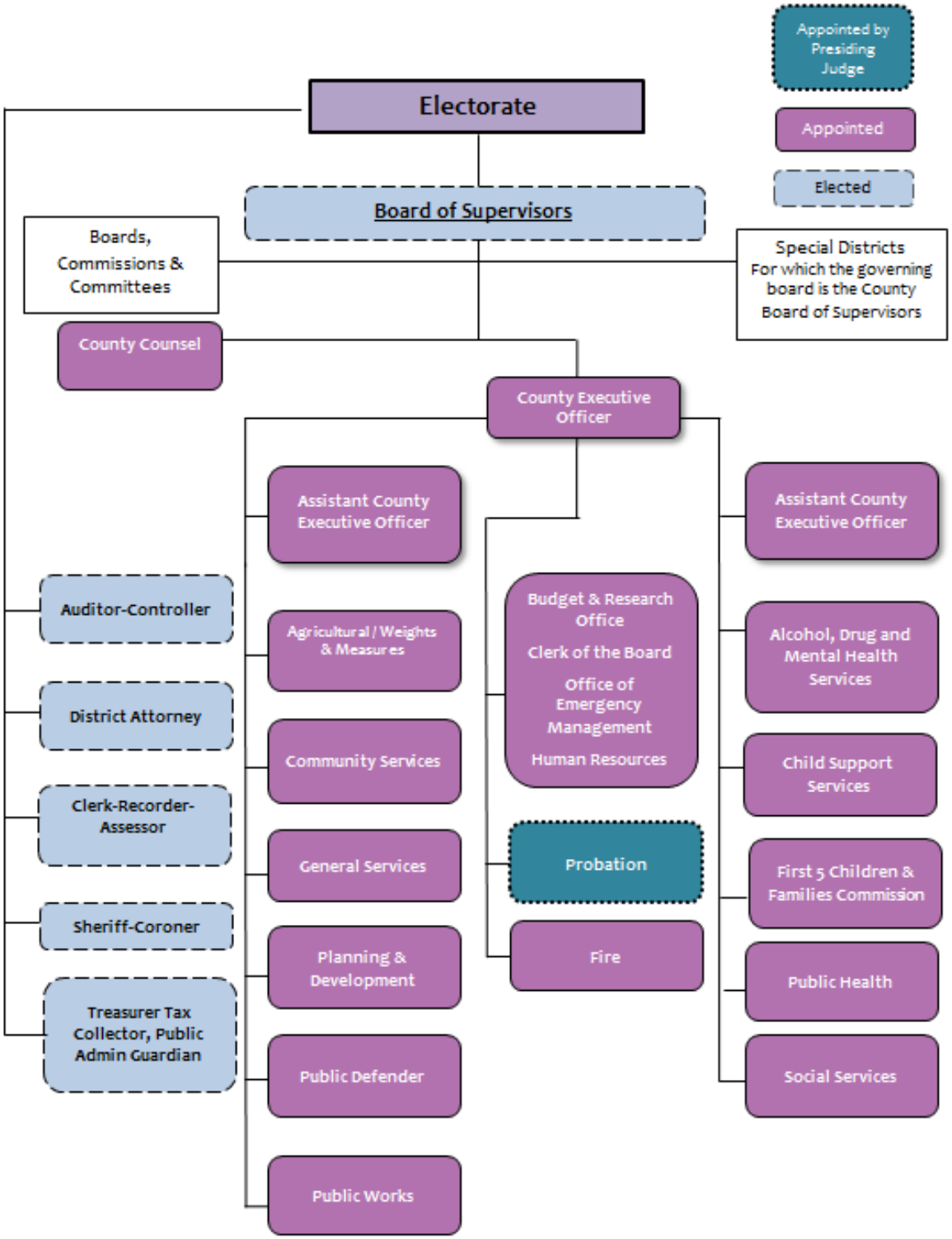
The County Local Planning Team identified current capabilities and mechanisms available for implementing hazard mitigation activities. This section includes a summary of departments and their responsibilities associated with hazard mitigation planning.

4.2.1 The Roles of County Departments in Hazard Mitigation

The following is a summary of County departments and their responsibilities related to hazard mitigation planning and implementation; as well as existing planning documents and regulations related to mitigation efforts within the community. The administrative and technical capabilities of the County, as shown in Table

4.3 provides an identification of department resources available to implement the actions identified in the mitigation section of the Plan. Specific resources reviewed include those involving technical personnel such as planners/engineers with knowledge of land development and land management practices, engineers trained in construction practices related to building and infrastructure, planners and engineers with an understanding of natural or manmade hazards, floodplain managers, surveyors, personnel with GIS skills and scientists familiar with hazards in the community. **Figure 4.2** shows the specific County departments that will have a significant role in implementing the Plan.

Figure 4.2 County Organization



Many of the programs and plans of these departments, with applicability and links to loss reduction efforts are detailed below.

4.2.1.1 Santa Barbara County Office of Emergency Management

The Santa Barbara County Office of Emergency Management (OEM), a division of the Santa Barbara County Chief Executive Office is responsible for emergency planning and coordination for the Santa Barbara Operational Area; which includes:

Cities:	Buellton, Carpinteria, Goleta, Guadalupe, Lompoc, Santa Barbara, Santa Maria, Solvang
Communities/Special Districts:	Gaviota, Hope Ranch, Painted Cave, Surf, Ventucopa, Cachuma Operations and Maintenance Board, Cachuma Resource Conservation District, Carpinteria Sanitary District, Carpinteria Valley Water District, Carpinteria-Summerland Fire Protection District, Embarcadero Municipal Improvement District, Goleta Cemetary District, Goleta Sanitary District, Goleta Water District, Goleta West Sanitary District, Isla Vista Recreation and Park District, Lompoc Healthcare District, Los Alamos Community Services District, Mission Hills Community Services District, Montecito Fire Protection District, Montecito Sanitary District, Montecito Water District, Mosquito and Vector Management District of Santa Barbara County, Santa Barbara County Air Pollution Control District, Santa Barbara County Fire Protection District, Santa Maria Public Airport District, Santa Maria Valley Water Conservation District, Santa Ynez Community Services District, Vandenberg Village Community Services District.
Volunteer Organizations:	American Red Cross, Amateur Radio Emergency Services (ARES), Equine Evacuation, Montecito Emergency Response & Recovery Action Group (MERRAG), Voluntary Organizations Active in Disasters (VOAD).
Industry Groups:	CAER-Community Awareness and Emergency Response, Petroleum industry mutual aid group, SBIA-Santa Barbara Industrial Association.
Tri-County Coordination:	Santa Barbara County OEM also coordinates with adjoining offices of emergency services in Ventura and San Luis Obispo Counties.

OEM is responsible for the following activities:

- Maintain the Santa Barbara County Emergency Management Plan.
- Maintain the Operational Area Emergency Operations Center (EOC) in a state of operational readiness.
- Maintain a trained cadre of EOC team members for EOC activations.
- Provide ongoing leadership and coordinate disaster plans and exercises with the eight cities throughout the County.
- Assist County departments with emergency plans to address how they will perform during disasters.
- Assist County Departments' facility emergency plans for occupied County facilities.

- Provide ongoing training for County department emergency coordinators.
- Participate in public information campaigns for all hazards through the Aware and Prepare Campaign, public venues and various media presentations.

The Santa Barbara County Office of Emergency Management, within its duties noted above, will use this Multi-Jurisdictional Hazard Mitigation Plan in conjunction with the EMP to implement strategies, projects, and policies which lead to a more resilient and safe County.

4.2.1.2 Santa Barbara County Fire Department

Mission Statement	The Santa Barbara County Fire Department serves and safeguards the community from the impacts of fires, medical emergencies, environmental emergencies, and natural disasters through leadership, planning, education, prevention, code enforcement, and all-hazard emergency response.
Vision Statement	The Santa Barbara County Fire Department will be a model public safety agency, widely recognized for our effectiveness, regional strength, and community attentiveness.
Core Values	Commitment – Courage - Integrity - Innovation - Teamwork - Service

The Fire Department is responsible for the following activities:

- Fire Suppression
- Defensible Space Program
    - Enforcing Public Resource Code 4291 defensible space
- Enforcing Development Standards
- Updating and implementing the Santa Barbara County Fire Unit Strategic Fire Plan (meeting the California Strategic Fire Plan and National Fire Plan Standards)
    - Santa Barbara County is one of six "contact counties" (Santa Barbara, Ventura, Los Angeles, Orange, Kern, and Marin), which has executed a contract with the State of California to provide wildland fire protection on state responsibility areas (SRA). Santa Barbara County has the responsibility as a contract county to implement the 2010 State Strategic Fire Plan for California in Santa Barbara County. As such the Santa Barbara County Fire Department functionally operates as a Unit of the California Department of Forestry and Fire Protection (CAL FIRE) and is responsible for all Strategic Fire Plan activities within the County.
- Assisting Planning and Development (and other Departments) with Development Standards for High Fire Hazard Areas
- Conducting Community Outreach and Public Education Programs
- Providing assistance and oversight of Community Wildfire Protection Plans (CWPP) throughout Santa Barbara County.
- Conducting prescribed burns and vegetation management projects
- Monitoring "fire weather" and maintaining and utilizing "Red Flag Alert" signs as part of the "Red Flag Warning Plan" to alert citizens of dangerous fire weather conditions
- Burn Permit Program (agriculture and hazard reduction burning to reduce hazardous accumulations of fuels)
- Support the Community Emergency Response Teams (CERT) program

Many of these policies and development standards are designed to reduce the risk to wildfire damage. They provide a foundation for implementing the identified wildfire mitigation strategies within this Multi-Jurisdictional Hazard Mitigation Plan. Through participation in the Mitigation Advisory Committee, the

County Fire Department will use this foundation to help implement the identified wildfire mitigation strategies as resources are available.

4.2.1.3 Santa Barbara County General Services Department

The mission of the General Services Department is to provide a full range of services, guidance, and expertise that enables County government to deliver public services effectively.

Administrative & Financial Support	Financial Services, Risk Management, Purchasing, Back to Work Program
Support Services	Real Property, Facilities Management, Capital Projects, Vehicle Operations
Information Technology Services	Computer Services, Communications, Imaging and Copying Services and Government Access TV

General Services delivers an array of support services to County departments and prides itself on excellent customer service. Services provided by General Services include:

- **Capital Improvements** provides full service planning, design, and construction of new County facilities, including remodels and related projects for County departments. The Office of the County Architect provides services related to space planning and utilization in addition to management of historical projects.

- **Facility Management** (including Energy Management) promotes a safe and healthy environment for County employees and visitors. It provides a full range of maintenance services and coordinates contracts for custodial and landscaping services for County-owned structures. Facilities also include county-wide Energy Management efforts to improve the efficiency of the County's facilities and reduce our utilities.

- **Finance and Administration** supports the department mission by delivering successful Budgeting and Finances, Human Resources, county-wide utility processing and Information Technology support.

- **Information Technology** enables County departments to provide effective services to citizens through innovative technology solutions. The Division delivers reliable information technology, telephone, and public safety radio network systems. Services include: Windows infrastructure and email services, web hosting and network security systems. These services are used by Santa Barbara County employees and partners.

- **Public Safety Radio Communications** provides portable and mobile microwave radio communications across the County's diverse terrain supporting Fire, Sheriff, Probation, EMS and General Government communications in conjunction with our partner agencies.

- **Purchasing, Mail Service & Surplus Property** provides procurement services for County departments and encourages partnerships with local vendors on services and consumable

commodities. This team also provides inter-office and US mail delivery, and movement of equipment, furniture and disposition of surplus property.

- **Real Estate Services Real Property** provides professional real estate services to meet the needs of the County by preparing and negotiating real property transactions including leases, sales, and acquisitions.

- **Vehicle Operations** meets all of the transportation needs of the County by procuring, maintaining and disposing of all light, medium and heavy duty vehicles and equipment, administration of the motor pool, and the fuel station operations.

The Department of General Services plays a key role in hazard mitigation, county-wide emergency preparedness and support of an emergency response or threat. Each functional area represented above is an active member of the County Logistics Team, playing a key role in support of an incident, as well as continuing to deliver a continuity of mission critical County Services during an event. Facilities, Procurement, Transportation, Communication, Information Technology and Resources are core functions in the mitigation of natural and man-caused hazards. As we procure, design, remodel, operate and maintain County facilities and infrastructure, physical or virtual, we attempt to reduce potential hazards and strive for a high level of preparedness and resilience.

4.2.1.4 Santa Barbara County Planning and Development Department

Planning & Development plans for and promotes reasonable, productive and safe, and sustainable use of the land to foster economic, social, cultural and environmental prosperity across Santa Barbara County. It provides quality planning, permitting and inspection services through thoughtful, collaborative and professional process under the policy direction of the Board of Supervisors and the Planning Commission.

It is responsible for the creation, update and implementation of the County Comprehensive Plan, including the Seismic Safety and Safety Element. The divisions of the Planning and Development Department that have a role in mitigation include:

4.2.1.4.1 Development Review

This division reviews development projects for permit decisions by staff, the Zoning Administrator, the Planning Commission, or the Board of Supervisors based on policies in the Comprehensive Plan, state law and local ordinances. It also ensures compliance with environmental impact mitigation measures and conditions of approval.

4.2.1.4.2 Long Range Planning

The mission of the Long Range Planning Division is to research, analyze, develop, and communicate land use policies that meet Federal and State mandates in a manner that fosters economic, social, cultural, and environmental prosperity across the county. The work of this division is organized according to the following subject areas: Required Services and Operations, Comprehensive Plan Amendments, Community Plan Amendments, and Special Projects.

4.2.1.4.3 Building and Safety

The primary function of this division is to provide property and permitting information to the public. The Division processes ministerial permits, reviews and approves ministerial zoning permits, enforces the County's ordinances, performs plan reviews and inspects construction projects for compliance with building codes. It is also responsible for reviewing plans and inspecting grading for code compliance. Additionally, the Division conducts housing inspections; issues film permits and provides safety reviews on oil operations for the Energy Division.

4.2.1.4.4 Energy and Minerals

This division develops the policy recommendation, administers mitigation programs, processes permit applications and assures permit compliance for oil and gas and other energy development and transportation projects within the County. The Energy Division focuses on offshore projects and their related onshore facilities. It is also responsible for enforcing the Petroleum Ordinance for onshore oil operations.

4.2.1.4.5 Agricultural Planning

The Agricultural Planning Division supports the review of development projects and long range planning projects by providing input and technical expertise related to agricultural resources to mitigate the effects of natural, technological and human-caused hazards.

The Planning and Development Department plays an instrumental role in the Mitigation Advisory Committee ensuring this Multi-Jurisdictional Hazard Mitigation Plan is consistent with other long term and comprehensive planning efforts throughout the County. The Planning and Development Department identifies development policies already in place which help reduce future damage to structures from natural hazards and would play a crucial role in creating new development policies as necessary to implement the identified mitigation strategies.

4.2.1.5 Santa Barbara County Community Services Department

The divisions of the Community Services Department that have a role in mitigation include:

4.2.1.5.1 Parks Division

The Parks Department maintains more than 900 acres of parks and open spaces, 84 miles of trails and coastal access easements, and the grounds surrounding county buildings. Park rangers or hosts reside in every major park to provide public assistance and supervise the grounds, enjoyed by over 6 million people annually. As pertains to natural hazard mitigation, the Park Department's role includes facility and infrastructure protection, hazard prevention, and public safety on Park lands.

4.2.1.5.2 Santa Barbara County Housing & Community Development Division

The mission of the Housing and Community Development Department (HCD), working in cooperation with county citizens, cities, governmental entities, commercial interest and other valuable county stakeholders, is to:

- Coordinate the development and implementation of regional strategic housing and community development processes that respect local needs, priorities and our natural environment, that lead to the development of healthy and viable neighborhoods and an improved quality of life for all in our region.
- Lead this community building effort by developing partnerships to create a full spectrum of housing; building creative strategies for economic vitality; promoting advocacy & educational activities on healthy growth and well-designed development initiatives.

These two mission areas for the Housing & Community Development Division are closely linked to mitigation in that the department wants to ensure the development it promotes is safely constructed and well sited with regard to risk of the identified natural hazards.

4.2.1.6 Santa Barbara County Agricultural Commissioner's Office

Regulates pesticide use by commercial agriculture and regulates the movement of plant material to ensure compliance with local, state, federal, and foreign regulations. During disasters, this office gathers and compiles crop loss data to determine eligibility for Disaster Declarations and associated aid.

Since agricultural pests and diseases was identified as a hazard of concern during the 2011 update of this Local Hazard Mitigation Plan, the Agricultural Commissioner's Office within the County Park Department will continue to play a critical role with the Mitigation Advisory Committee to reduce risk to agricultural production from future pests and diseases.

4.2.1.7 Santa Barbara County Department of Public Works

The County of Santa Barbara, Public Works Department is comprised of five (5) divisions and each division performs functions that are directly related to hazard mitigation.

4.2.1.7.1 Administration

Within the administration division is housed the Office of the Disaster Recovery Manager (DRM). This position is responsible for coordinating the Public Works response in a post-disaster environment to ensure that federal and state disaster relief programs are handled efficiently and to the maximum benefit of the residents of Santa Barbara County. Additionally, Public Works has an on-going Mutual Aid Plan that has been adopted by the Board of Supervisors which is managed by the DRM in which all the cities in the operational area may request disaster assistance in the form of labor, equipment and/or materials for their Public Works Department. This has been accomplished by the Cities joining the County Mutual Aid Plan by City Council Adoption which is linked into the State Wide Public Works Mutual Aid Plan which assures reimbursement eligibility from Cal OES and FEMA.

The Public Works (PW) DRM, in addition to the responsibility of managing all disasters for the Public Works Department under the Federal and State PA Program, also manages, alongside chosen representatives from PW division, the Public Works 5-Year *Capital Improvement Program*. For Public Works, this is a $584,968,000 funded and non-funded list of capital projects (<$100,000>) report that is in creation (design) to completion (construction) from all the divisions in Public Works on behalf of the Director. As these are all new or upgraded projects, the opportunity to include hazard

mitigation safety measures for each project is reviewed and discussed. In some cases, a CIP project may identify HMP funding from FEMA as the main source of revenue for that project, such as seismic upgrades for facilities, or steal pile retaining wall to replace the outdated wooden solider pile walls, tire revetment retaining wall and or drainage increases at major locations that elevates flooding and/or water retention.

4.2.1.7.2 County Surveyor's Office

The mission of the office is to provide quality surveying services through the creation, maintenance and protection of land based records for public and private resources. The County Surveyor is designated in responsible charge for Land Surveying services provided by the Public Works Department. The Division has been allocated nineteen full time positions and has five general areas of responsibility. They are: 1) Checking and recording subdivision maps and documents; 2) Providing survey related data to the general public; 3) Providing record map and document research and professional land surveying advise to Public Works; 4) Conducting field surveys for County projects; 5) Administration of various State and local programs, and; 6) Providing real property services for the Department of Public Works.

4.2.1.7.3 Resource Recovery and Waste Management Division

The Resource Recovery and Waste Management Division is responsible for the cost-effective management of solid waste and utilities in the County. The Division's comprehensive program for the management of solid waste includes the collection, recycling, and disposal of solid waste, and also the abatement of illegal dumping of waste. The County maintains only one active landfill (Tajiguas).

There are four sections within the Division, each responsible for performing a unique series of functions:

1) **Collection and Materials Management Section** manages the County's resource recovery and waste diversion programs (community programs), reviews and manages long-range solid waste management plans, and oversees the County's solid waste collection franchises for regularly generated solid waste.

2) **Operations Section** manages waste processing and disposal operations at the County's transfer stations and active landfills.

3) **Engineering Section** prepares all engineering and geologic plans and documents for the County's solid waste facilities, and monitors all active and closed landfills currently or previously owned by the County to ensure ongoing compliance with the many State and Federal regulations governing the environmental safety of each facility.

4) **Utilities Section** manages and operates the Laguna Wastewater Treatment Facility serving the unincorporated area of Orcutt in North County, and provides engineering and administrative support (i.e., billing) to the County's underground utilities program and the County-administered wastewater, water and street lighting districts located throughout the unincorporated areas of the County.

In coordination with the Transportation and Water Resource Divisions of Public Works, the principal natural disaster mitigation related function of this division is debris management planning in a pre-disaster environment and debris disposal post disaster, of debris generated from Public Works infrastructure.

4.2.1.7.4 Transportation Division

The Transportation Division supports this mission through inspecting, maintaining, repairing, replacing and improving all infrastructure within the County's Road Right-of-Way. This includes roadways, bridges, culverts and drainage structures. The Transportation Division is responsible for the maintenance of approximately 900 center lane miles of roads throughout the County, or approximately 1,800 lane miles, approximately 110 bridge structures, 4200 drainage structures (including culverts and drop inlets), 65 traffic signals (including flashing beacons), thousands of signs, and striping along the majority of the County's 900 roads.

The Transportation Division ensures that these facilities are maintained through our preventative maintenance programs, capital improvement projects to replace structurally deficient structures, and constructing vital links in the County's roadway infrastructure. In addition, the Transportation Division continually inspects all infrastructures and identifies hazards likely to impact County-owned facilities.

During a hazardous or disaster event, the Transportation Division maintenance staff immediately transforms into an emergency response organization that includes the design, traffic and construction sections. A local base of operations (called a Department Operations Center (DOC) located in North and South County) is established in order to effectively coordinate personnel and resources in order to immediately respond to hot spots as they are identified by Public Works staff, local agencies and the public. The DOC becomes a base of operations and collection center for information, inspection/damage reports, and response strategies as they are developed. In addition, monitoring with County Flood Control is coordinated with Roads for public information, dispatch to the CHP and Sheriff, dispatch to their construction and maintenance staff for road warnings and closures as needed. Staff are deployed to mitigate potential Public Health and Safety hazards on the roadway system, and inspect critical structures, as well as oversee any contracted clean-up or construction crews. Transportation staff is well-rehearsed in disaster response training, having experienced declared disasters in 1993 (FEMA-979) 1995 (1044-1045), 1998 (FEMA-1203), 2001 (State Proclamation 2001-01), 2005 (FEMA-1577), 2007 (Zaca), 2008 (Gap), 2009 (Tea-Jesusita), 2010 (FEMA-1952) and 2011 (State Proclamation). During past declared disasters and other lesser events, staff performed exceptionally in quickly and thoroughly reacting to the changing conditions and requirements of emergency response. The Public Works Department and the Transportation and Flood Control Division in particular have a pre-planned routine for emergency response, to assure FEMA reimbursement by using the correct documenting and reporting techniques with pre-assigned teams responsible for inspecting critical facilities and to perform as flexible response units. All of the disaster locations are identified and numbered and called into the DOC and the EOC (if activated).

Developing proper mitigation strategies and designs to these hazards is part of the mission of this division. To accomplish our mission statement all four of the Transportation Division's sections work together. The four (4) sections are Engineering, Traffic, Construction/ Permits, and Road Maintenance. Their roles are described in further detail below:

1) **Engineering Section -** Provides engineering needs related to new construction and rehabilitation of roads in the unincorporated area of the county, as well as develops design engineering for all major and routine road maintenance projects and capital improvement projects within the road right of way, oversees preparation of construction grant applications for federal and state funding, manages bidding for major road maintenance and construction projects, coordinates permit and environmental review, and plays a major role in administering and overseeing construction work performed by private contractors, including bridge management system and storm repair and restoration.

   In response to a disaster, the Engineering Section:
   - Performs immediate inspections of critical facilities in order to determine response strategies. This includes inspections of bridge structures, rock fall protection measures, drainage facilities, and roadways.
   - Working together with the Construction and Maintenance Sections, properly trained staff survey the entirety of the County road system in an expeditious and thorough manner, and rapidly response to ensure public safety and protection of property.
   - Develops and implements mitigation strategies to avoid further damage to critical facilities, or to reduce/avoid damage during future hazard events.
   - Develops permanent designs to mitigate hazards, through construction/rehabilitation/retrofit strategies.
   - Develops short and long-term inspection programs to monitor degradation of facilities due to natural hazards, and to develop mitigation strategies to avoid severe slides or other dangerous situations before disasters occur.
   - Periodically works with County Fire and other emergency response agenciesto keep key roadways and facilities critical for fire suppression and/or resident evacuation open and accessible to emergency vehicles and resident traffic

2) **Traffic Section -** Provides transportation planning and traffic engineering for the County's unincorporated areas; prepares and reviews transportation improvement plans (TIPs), community plans, traffic impact studies, general plans and specific plans for proposed development projects; and performs operation and design functions including traffic signal repair and maintenance, striping and signage of roads, design and construction of bikeways and pedestrian facilities, traffic and turning movement counts, design of minor safety and operational improvements, computerized traffic modeling, and evaluation of requests for stop signs, parking restrictions, speed limit changes and traffic signals.

   In response to a disaster, the Traffic Section:
   - Performs inspections of critical traffic control facilities in order to determine response strategies to ensure the safety of the traveling public. This includes inspections of traffic control signals, signs, and potential electrical hazards.
   - During major natural or man-made disasters, the Traffic Section would assist emergency services agencies to determine viable alternate routes and detours in order to avoid hazardous disaster areas, emergency repair sites, and staging areas.
   - Works to quickly restore transportation access/infrastructure to avoid economic disruption and ensure public safety.

3) **Construction/Permits Section -** Inspects the construction for all projects that are constructed within the road right of way. These projects include: road rehabilitation, preventative road maintenance, and capital improvement projects. In addition, they verify all County road rights-of-way prior to the start

of any road encroachment operations or activity by individuals, corporations, utilities, cites and other governmental agencies; issues permits for construction activity within, under or over the County right-of-way; and performs final review and inspections to ensure that construction activity meets federal, state and county standards.

In response to a disaster, the Construction Section:

- Performs inspections of infrastructure and facilities in order to determine response strategies. This includes inspections of bridge structures, rock fall protection measures, drainage facilities, and roadways. Working together with the Engineering and Maintenance Sections, this allows for properly trained staff to survey the entirety of the County in an expeditious and thorough manner.
- Develops and implements mitigation strategies to avoid further damage to critical facilities, or to reduce/avoid damage during future hazard events.
- Perform inspections of emergency repairs, direct construction crews during emergency construction and cleanup operations.

4) **Road Maintenance Section -** Provides major and routine maintenance of the County's road system and management of 13 different County road maintenance programs, including surface treatment, roadway and bike path surface maintenance, street tree maintenance and sidewalk surface grinding, roadway slope repair, weed and brush removal, traffic control maintenance/safety assessment, and culvert maintenance; cooperates with other public agencies and with private parties to promote the safe use of the county's roadways; and oversees private contractors which may be involved in major road maintenance projects.

In response to a disaster, the Maintenance Section:

- Performs inspections of infrastructure and facilities in order to determine response strategies. This includes inspections of bridge structures, rock fall protection measures, drainage facilities, and roadways. Working together with the Engineering and Maintenance Sections, this allows for properly trained staff to survey the entirety of the County in an expeditious and thorough manner
- Maintenance crews perform emergency repairs to critical facilities, and clear roadways of debris and water, in order to restore access to the public and County staff.
- Oversee contractors performing emergency repairs and clean-up operations.

On an annual basis, the Maintenance Section:

- Performs annual culvert inspection program
    - This has been instrumental in the creation of the Culvert Inventory Project, which has worked to determine the condition of all culverts within the maintenance system and prioritize which culverts are in need of repairs or replacement.
- Performs annual roadway inspection program to monitor slipping, cracking, etc. to formulate maintenance projects to prevent slides, and washouts of roadway and accompanying infrastructure.
- Periodically works with County Fire and other emergency response agencies to keep key roadways and facilities critical for fire suppression open and accessible to emergency vehicles and resident traffic.
- Implements fire abatement program along roadways, involving vegetation control to avoid fires and to provide a wider break in the event of a wildfire.

4.2.1.7.5 Water Resources Division

The Water Resources Division is comprised of office and technical staff and the Flood Control District includes field maintenance shops in Santa Barbara, Lompoc, and Santa Maria. It maintains hundreds of miles of creeks, channels and rivers, including 26 miles of levees in Santa Maria Valley. Office staff includes engineering, environmental, hydrology and administrative services.

The Flood Control and Water Conservation District, within the Water Resources Division implements programs and projects designed to provide protection for the public and to private property against flood risks and hazards. The most significant programs are the National Flood Insurance Program (NFIP) and the County's Floodplain Management Program. Capital improvement and ongoing maintenance projects are designed to reduce flood risks and enhance the environment by providing protection for property and minimizing flood hazards.

Construction of flood control and drainage system facilities has been taking place throughout the county since the District was formed in 1955. The District maintains an extensive amount of storm drains, channels, dams and debris basins and sediment basins.

Urban Drainage
The Flood Control District has constructed numerous underground storm drain pipe systems in urbanized areas that service a regional benefit. These systems carry the water safely to a major channel or the Pacific Ocean. Maintaining the underground storm drain pipe system in operation and repairing or replacing worn or damaged facilities is a major ongoing obligation.

Major Channels
Over two hundred miles of major channels carry peak flood runoff from the hills and upland areas safely through the developed communities in the valley and coastal plain. They also provide an outlet for the extensive urban drainage system extending throughout urbanized areas. Wherever possible, the District encourages the preservation of natural creek channels as open space green belts. These generally require more maintenance than modified channels. Maintenance and repair of the channels is a major ongoing obligation.

Flood Control
The District's dams and retarding basins are used for flood control, debris control, and water conservation. These dams require continual maintenance to assure the structural stability of the dams and the operational readiness of its mechanical equipment.

The Public Works Department and its various divisions within are responsible for the construction/physical aspects of implementing structural mitigation projects throughout the County. Mitigation measures minimize the damage to the infrastructure in the event of a natural or man-made disaster. Some examples of where mitigation measures could be implemented is retrofitting bridge structures, placing cable mesh netting on slopes that are prone to rock falls, constructing retaining walls on slopes that are prone to slides, lengthening and raising bridges to reduce the flooding impacts, and installing scour mitigation at bridges that have been identified as scour critical by Caltrans.

4.2.2 Relevant Governance

There are many plans, programs, codes, and policies that help govern the County of Santa Barbara. The purpose of this section is to present pertinent plans, programs, codes, and policies which support risk education and reduction and/or help to implement mitigation measures. It is important to note that during the LHMP update planning process these plans, programs, codes, and policies were evaluated to determine their effectiveness in risk education and reduction efforts, as well as, its usefulness to implement mitigation measures. Any shortfalls or areas where the plans, programs, codes, and policies could be improved or expanded were identified and captured under annual review, the annual planning process and Mitigation Actions chapter of this plan.. If no mitigation actions were identified, then it can be assumed that the planning team determined that no shortfalls or areas for improvement are needed. Additionally, information gleaned through the Santa Barbara County *Multi-Jurisdictional Hazard Mitigation Plan* update process will be used in the plans, programs, codes, and policies update process. Below is a summary of the more significant relevant plans, programs, codes, and policies:

4.2.2.1 Plans

Comprehensive Plan
The Plan is a "comprehensive, long-term general plan" for the development of Santa Barbara County. The Comprehensive Plan focuses on the elements, land use, circulation, and environmental resource management. The Comprehensive Plan also includes a Hazardous Waste Element and a Hazardous Facilities/Materials Supplement. The Comprehensive Plan has several components specific to hazards and mitigation. The Comprehensive Plan identifies procedures for protecting watersheds such as installing debris basins and silt traps at development sites to remove sediment from runoff, planting temporary vegetation to thwart erosion, and providing adequate storm water conveyance.

SEMS Emergency Management Plan
The Santa Barbara County Office of Emergency Management (OEM) developed the Emergency Management Plan (EMP) in June 2003, and updated it in 2013, in order to ensure life and property safety, security, and protection of, as well as assuring the overall well-being of the population during a disaster. The EMP was developed for the Santa Barbara Operational Area as part of the California Standardized Emergency Management System (SEMS). The EMP addresses emergency responses associated with natural disasters, technological incidents, and national-security emergencies- including both peacetime and wartime nuclear defense operations. The EMP assigns tasks and specifies policies and standard operating procedures for coordination of emergency staff, resources, and service elements within the County. The Plan states that hazard mitigation is a year round effort and encourages all communities to prepare hazard mitigation plans. The following activities were identified by the Plan as potential mitigation activities: improving structures and facilities at risk, identifying hazard-prone areas and developing standards for prohibited or restricted use, recovery and relief from loss (i.e., insurance), and providing hazard warning and protecting the population.

Tsunami Plan
Santa Barbara County has a countywide Tsunami Plan that covers emergency response actions associated with tsunami events. Santa Barbara County OEM receives advisory messages and warnings through an emergency services microwave/computer communications network from Coast and Geodetic Survey Stations. If a seismic wave or tidal disturbance has been observed, the main system at the Honolulu Observatory will transmit warnings to satellite stations including the time of occurrence of the disturbance, the location, verification of tsunami generation, and expected arrival times at various points along the Pacific coast.

Dam Plan
The Dam Plan for Santa Barbara County contains general information, maps of potential inundation area, and proposed evacuation routes for dams.

Capital Improvement Plan
The CIP is a compilation of projects intended to implement various plans including community plans, facilities plans, and the County Comprehensive (General) Plan. Projects in the CIP quantify current and future capital needs. Accordingly, it includes projects for new and improved roads and bridges, County buildings and clinics, parks and other facilities. Because the CIP includes estimates of all capital needs, it provides the basis for setting priorities, reviewing schedules, developing funding policy for proposed improvements, monitoring and evaluating the progress of capital projects, and informing the public of projected capital improvements and unfunded needs.

4.2.2.2 Programs

National Flood Insurance Program
Santa Barbara County is an active member of the National Flood Insurance Program (NFIP). The program is administered by the County Public Works-Flood Control District. As stated by FEMA, "The NFIP aims to reduce the impact of flooding on private and public structures. It does so by providing affordable insurance to property owners and by encouraging communities to adopt and enforce floodplain management regulations. These efforts help mitigate the effects of flooding on new and improved structures. Overall, the program reduces the socio-economic impact of disasters by promoting the purchase and retention of general risk insurance, but also of flood insurance, specifically.

As part of the NFIP are the FEMA Flood Insurance Rates Maps (FIRMs) which identify areas in the County which are vulnerable to flooding. The flood zones identified on the FIRMs are areas susceptible to 100-year and 500-year flood events. A 100-year and 500-year storm event is when storms have a 1% or 0.2% annual chance of occurrence. Another measure of the probability of occurrence of a 100-year storm is there is at least a 26% chance of a 100-year storm during the life of a 30-year mortgage. An estimated 2,194 structures are located within these 100-year floodplain areas.

The information in the Flood Insurance Study and resultant FIRMs is based on historic, meteorological, hydrologic, hydraulic and topographic data, as well as open-space conditions, flood control works, and development within the study area. Other information included on the maps includes Special Flood Hazard Areas (SFHA), Base Flood Elevations, and insurance risk zones. FIRMs are used to determine the BFE at specific sites or if a specific property is located in a floodplain or SFHA in order to administer floodplain management regulations, determine potential locations for new development, and make flood insurance determinations. The FIRMs were last updated in December 2012 and made available in GIS format as Digital Flood Insurance Rate Maps.

Another aspect if the NFIP is the Repetitive Loss (RL) Properties program. Repetitive loss properties are defined as property that is insured under the NFIP that has filed two or more claims in excess of $1,000 each within any consecutive 10-year period since 1978.

The County also participates in the Community Rating System (CRS). The CRS is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements. As a result, flood insurance premium rates are discounted to reflect the reduced flood risk resulting from the community actions meeting the three goals of the CRS:

1. Reduce flood damage to insurable property;
2. Strengthen and support the insurance aspects of the NFIP, and
3. Encourage a comprehensive approach to floodplain management.

Floodplain Management Program

The objective of the Floodplain Management Program is to minimize future flood hazards, created in developing areas subject to flooding, and to reduce the necessity of constructing expensive flood control facilities in the future. Benefits derived from this program include the prevention of losses in flood-prone areas and reduced need for public emergency response during storm activity. Activities associated with the Floodplain Management Program include reviewing new development permit applications for elevation above the 100-year flood level, proper setback from watercourses, and adequate drainage plans. The County's Floodplain Management Ordinance exceeds the minimum requirements for participation in the National Flood Insurance Program (NFIP).

This program also reviews development permit applications for structure elevation above the base flood elevation (BFE). The intent is to certify that the lowest floor of any building in a special flood hazard area (SFHA) is elevated above the BFE before final approval for floodplain construction can be obtained. FEMA Elevation Certificates are required.

Defensible Space Program

Establishing defensible space around structures is one of the most powerful tools for preventing fire hazards and is therefore required by both County regulations and State law. The California Fire Code Chapter 49 as amended by the County of Santa Barbara through Chapter 15 of the County Code defines defensible space as:

> *"The area surrounding a structure or building where basic wildfire protection practices are implemented, providing the key point of defense from an approaching wildfire or escaping structure fire. The area is characterized by the establishment and maintenance of fuel modification measures."*

Routine Maintenance Program

As part of the District's Floodplain Management Program, it conducts routine creek maintenance. It has been doing so since 1992. The Routine Maintenance Program occurs annually and each year the District prepares an Annual Routine Maintenance Plan, conducting public workshops and California Environmental Quality Act (CEQA) reviews of planned maintenance projects. The Annual Routine Maintenance Plan includes a description of the need for maintenance work, the work to be performed, the presence of sensitive biological resources, impacts of the activities on biological resources, standard maintenance practices to reduce impacts, and restoration measures. The Routine Maintenance Program focuses on urbanized areas or developed agricultural areas. The main objective of the program is to reduce flood hazard and damage to life, public property, and infrastructure by maintaining the conveyance capacity of key channels in the County. All routine maintenance activities are conducted in a manner that minimizes environmental impacts. Maintenance activities are completed prior to the winter. The Routine Maintenance Program includes selective brushing, de-silting, channel shaping, bank stabilization, bank protection, herbicide spraying, and

channel clearing activities in most creeks and streams throughout the County. These activities can be applied individually or in combination to address the specific requirements of the affected drainage. The Routine Maintenance Program also addresses the maintenance and repair of concrete lined channels. The individual flood zones fund the Routine Maintenance Program and the extent and frequency of channel maintenance is dependent upon the availability of funds.

Operation and Maintenance Program

The Operation and Maintenance Program is one of the District's highest priority programs, and includes normal operation of the District's dams, channels and other flood protection facilities, and the routine and emergency maintenance and repair of these facilities. The District maintains channels, debris basins, dams, and storm drain facilities to prevent flooding.

Dam Safety Program

The District is responsible for being compliant with the State's Dam Safety Program. The District is exposed to a substantial potential liability because of the catastrophic losses that could occur in the event of a dam failure. The objective of the program is to assure the continuing safety of dams in their flood control and water conservation functions.

Debris Control Program

The District operates and maintains 39 debris basins, which constitute the primary debris control system within the District. Flood runoff from the hillsides, particularly from those hillsides recently denuded by fires, slides or developments, is heavily laden with rock, sand, silt, mud, and debris. The dams and debris basins restrain the rock, sand, silt, mud and debris that would otherwise clog and damage channels, which could result in flooding of adjacent property and downstream floodplains.

The objectives of the Debris Control Program include the prevention of debris flow; the planning and construction of adequate debris control facilities; the routine, scheduled clearance and disposal of debris from basins and dams; and the overall management of debris flow through channels.

There are 16 debris basins on the South Coast and the operation and maintenance procedures for these are described in the Debris Maintenance Plan, which is considered an element of the overall Maintenance Program.

Basin maintenance is conducted on an as-needed basis to ensure the proper functioning of the basin prior to each winter. Basins are inspected during the winter after significant rain events. Routine maintenance includes keeping the outlet works clear of vegetation, and maintenance of a 15-foot wide pilot channel through the center of the basin. Long-term maintenance of the basins involves the removal of sediment once the design capacity has been reduced by 25 percent (or when there is a significant wildfire in the basin's watershed.).

Storm Rehabilitation Program

The Storm Rehabilitation Program provides for post-storm rehabilitation of flood control facilities damaged in any storm disaster. The objective of the program is to prevent future hazard to life and property by returning the flood control system back to its intended function. Activities included in the Storm Rehabilitation Program include removing debris from access roads, reservoirs, debris basins, and reconstruction and repair as necessary.

The objectives of the District through the Storm Rehabilitation Program are to:

1. Assess condition of facilities quickly and completely in regards to public safety;
2. Allocate District resources on a priority basis to emergency work and permanent work;
3. Maximize efforts to receive State and Federal funding, when possible;
4. Complete emergency work quickly to provide for the public safety and to prevent further damage and complete permanent work in a timely manner to return damaged infrastructure to its intended function; and Contact and request assistance from other agencies, when necessary.

Current Santa Ynez River Programs
The following subsections describe current activities performed by the District along the Santa Ynez River.

Santa Ynez Maintenance Program
As part of the Lower Santa Ynez River Maintenance Project, the District has periodically cleared portions of the lower Santa Ynez River that is prone to flooding. The maintenance project defined in 2001 was a 4.5-mile reach extending from the Lompoc Wastewater Treatment Plant to the 13th Street Bridge on Vandenberg Air Force Base; however the project no longer includes Vandenberg Air Force property.

The objective of the Lower Santa Ynez River Maintenance Project is to maintain a 100-foot wide swath along the project reach with non-obstructive vegetation in order to allow sufficient channel capacity for certain flood flows. Maintenance is performed on the Lower Santa Ynez River as needed. The Santa Ynez Maintenance Program evaluated annually.

Santa Ynez River Flood Warning System
The Santa Ynez Rive Flood Flow Model (SYRFFM) was developed by the SBCFCD, and predicts flood-flows in the Santa Ynez River in Santa Barbara and Ventura Counties. The model encompasses approximately 1253 square miles of drainage area from the Santa Ynez headwaters above Gibraltar Reservoir to Vandenberg Village, just upstream from the river's outlet to the Pacific Ocean.

The program input is both for forecast and actual precipitation, plus various parameters for estimating losses, runoff, and reservoir operation. The output is hourly flow in cubic-feet-per-second (cfs) at 20 locations along the Santa Ynez River, and hourly operational data for Gibraltar and Cachuma Reservoirs.

Typical model results show the predicted water flow behavior of the Santa Ynez River, water level and inflow predictions for Cachuma dam operations, and downstream dam water release predictions within the river system.

Closely coordinated communications with USBR (and other) during Cachuma Dam modeling operations typically results in hourly SYRFF Models being generated by County FCD personnel-and disseminated by email to individuals involved with Cachuma Reservoir and Santa Ynez River operations.

4.2.2.3 Codes

County Building Codes
Under the County's Planning and Development Department, the Building & Safety Division's primary function is to provide reasonable controls and regulations that protect the citizenry and establish effective safeguards for the life, health, and property equally throughout the unincorporated areas of Santa Barbara County. This is achieved through the application of uniform codes and standards that involve design, materials, construction, use, and occupancy of all buildings constructed within our

jurisdiction. Building & Safety staff strive to implement these standards in a fair and consistent manner while encouraging an open communication process with the public they serve.

Fire Hazard Severity Zoning
Hazard severity zone maps are available through Cal Fire FRAP website, Santa Barbara County Fire, and County Planning and Development: http://frap.fire.ca.gov/projects/hazard/fhz.html

4.2.2.4 Policies

Emergency Storm Response
During flood events, the District staff transforms into an emergency response organization. District staff work around-the-clock and are deployed to flood-fighting and support activities. Staff from the District office performs a variety of emergency tasks such as answering phone calls, storm monitoring, radio dispatching, field patrolling, and computer modeling for flood flow forecasting. Emergency operations also include pre-planned routines such as the monitoring of all flood facilities and equipment; the operation of dams and channel gates; and the provision of logistics support, field operations headquarters and responses to emergency situations.

ALERT Flood warning system
The District maintains and operates a comprehensive automated ALERT (Automated Local Evaluation in Real Time) storm monitoring system consisting of rain gauges, weather sensors, stream flow gauges, and reservoir level and gate opening gauges.

The automated storm monitoring system consists of 91 County-wide real-time transmitting gauge installations (60 ALERT rain gauges, 15 ALERT stream-flow gauges, 10 ALERT Weather stations, and 6 ALERT Reservoir gauge sites).

Once a predefined significant change in any of the parameters has occurred a transmission is sent from the sensor to the base station located at the District Office. The data is used in conjunction with computer models to determine the location and timing of potential flooding. District staff coordinates with the National Weather Service (NWS) and other emergency services to advise the public and reduce the damages to life and property from flooding. In addition, the ALERT network has been instrumental in guiding reservoir operations to maximize both flood control and water supply benefits.

The Flood warning system also has the capability to issue automated (cell phone and email) text messages in the even that established (rain/stream/reservoir) thresholds have been exceeded. This valuable warning system enables District personnel to be immediately informed of potential flood risk information-that may result in more timely and detailed field observations, coordinated agency action plans, and filed remediation action.

Flood Zone Development
The Comprehensive Plan establishes flood hazard area policies that regulate development within the 100-year floodplain. The plan also establishes location specific measures for flood control facilities, such as for the Lompoc area in which flood control measures include provisions to recharge water basins with water runoff. According to the Environmental Resource Management Element of the Comprehensive Plan, policies on development of lands subject to environmental constraints are identified by four categories; Categories A, B, C, and D. The categories and their application to floodplain management are described in **Error!**

Reference source not found. It should also be noted that the Seismic Safety and Safety Element in the Comprehensive Plan also minimizes impacts from geologic and fire hazards.

Table 4.1 Flood Policies in Comprehensive Plan

Category	Floodplain Development Policy
A	Urbanization should be prohibited in these areas; • Stream channels with flood hazard or recharging groundwater. • Floodway areas.
B	Urbanization should be prohibited in these areas, except in a relatively few special instances; • 100-year floodplains (except west of the City of Lompoc).
C	Urbanization could be permitted in these areas only in appropriate instances, subject to plan review and imposition of specific conditions to protect against hazards and to preserve the integrity of the land and environment: • Areas subject to inundation by tsunamis. • Areas of unknown flood hazard.
D	Urbanization should be permitted these areas. There are no concerns regarding floodplains with lands in this category.

Defensible Space

In 2005, the State Board of Forestry adopted provisions now identified in Public Resource Code 4291 that requires all structures on State Responsibility Area (SRA) lands to maintain 100 feet of defensible space clearance from all structures. Within the County of Santa Barbara, 100 feet defensible space is also enforced on unincorporated Local Responsibility Area (LRA) in the Santa Barbara County Fire Protection District. The 100-foot defensible space clearance is a minimum, and in some instances this distance may need to be increased due to the location of a structure on a slope or because of the vegetative fuel loading surrounding a structure. Beyond Defensible Space, the Fire Department has developed seven standards for residential and commercial development. These standards are identified in **Table 4.2.**

Table 4.2 Santa Barbara County Fire Development Standards 1-7

Santa Barbara County Fire Department Development Standards	
Development Standard #1 Private Roadway and Driveway Standards	Establishes minimum standards for driveways and private roads. These standards outline minimum road widths and vegetation clearance designed to provide fire vehicles access to residences and associated structures.
Development Standard #2 Fire Hydrant Spacing and Water Flow Rates	Establishes fire hydrant spacing, discharge outlet configuration and flow rate requirements. Flow rate standards are used when calculating peak load water supply requirements for one-and-two family dwelling units.

Development Standard #3 Stored Water Fire Protection Systems Serving One and Two-Family Dwellings	Establishes standards for stored water fire protection systems serving one and two-family dwellings.
Development Standard #4 Automatic Fire Sprinkler System Standards	Establishes standards for automatic fire sprinkler systems.
Development Standard #5 Automatic Alarm System Standards	Establishes standards for automatic alarm systems.
Development Standard #6 Vegetation Management Plan	Establishes standards for vegetation management plans.
Development Standard #7 Access Gates	Establishes standards for gates on private roads and private driveway access points.

4.2.3 Summary of Capabilities

The departments, plans, programs, and policies addressed above provide an overview of the County's activities related to natural disaster mitigation. **Table 4.** provides a general analysis of administrative and technical capabilities within the County's departments.

Table 4.3 County of Santa Barbara: Administrative and Technical Capacity

Staff/Personnel Resources	Y/N	Department/Agency and Position
A. Planner(s) or engineer(s) with knowledge of land development and land management practices	Y	Planning and Development; Public Works
B. Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Y	Planning and Development; Public Works; County Fire
C. Planners or Engineer(s) with an understanding of natural and/or manmade hazards	Y	Planning and Development; Public Works;
D. Floodplain Manager	Y	Public Works, Flood Control District
E. Surveyors	Y	Public Works, County Surveyor's Office (GIS also)
F. Staff with education or expertise to assess the community's vulnerability to hazards	Y	Public Works, County Fire; OEM
G. Personnel skilled in GIS and/or HAZUS	Y	Assessors Office, Public Works - County Surveyor's Office, Planning & Development; OEM
H. Scientists familiar with the hazards of the County	Y	DPW, P&D
I. Emergency Manager	Y	OEM
J. Grant writers	Y	Departments determine their own level of service. (Disaster Recovery Manager with Public Works is lead for most disaster related grants.)

*The legal and regulatory capabilities of the County are shown in the Santa Barbara County Code of Ordinances

Table 4.4 Presents the existing ordinances and codes that affect the physical or built environment of the County. Examples of legal and/or regulatory capabilities can include: the County's building codes, zoning ordinances, subdivision ordinances, special purpose ordinances, growth management ordinances, site plan

review, general plans, capital improvement plans, economic development plans, emergency response plans, and real estate disclosure plans.

Table 4.4 County of Santa Barbara: Legal and Regulatory Capability

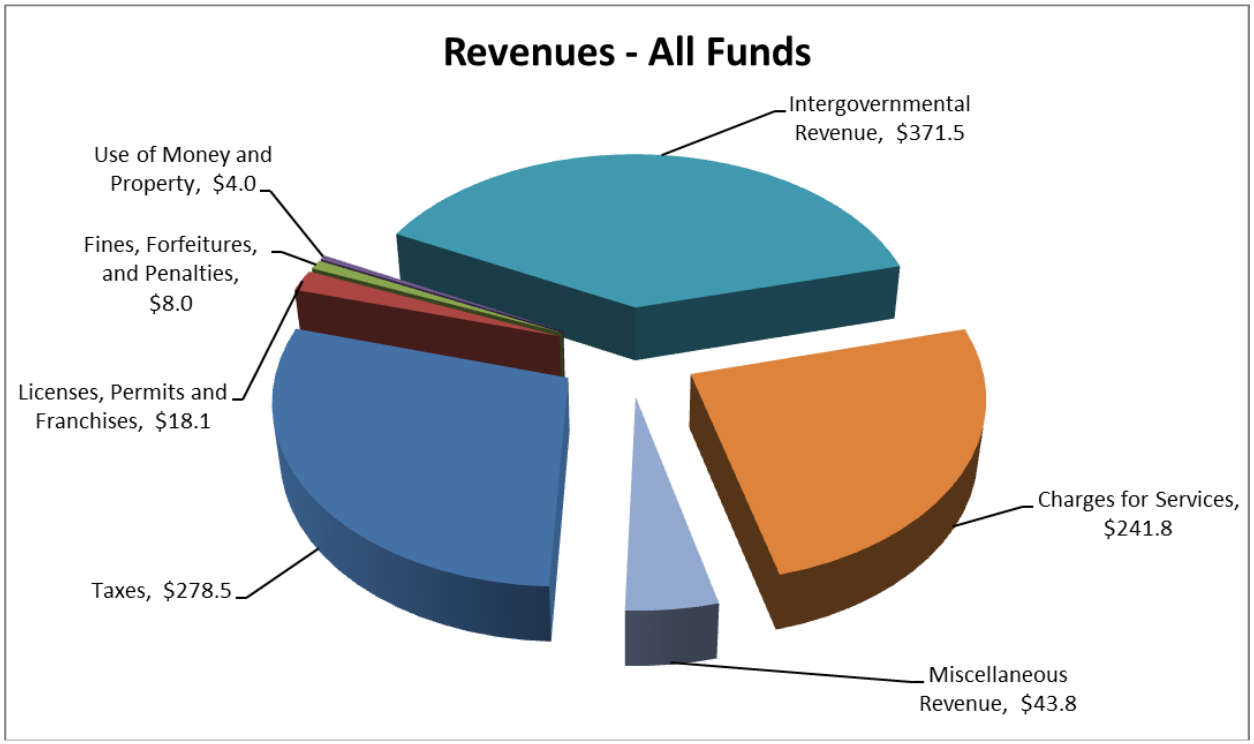
Regulatory Tools (ordinances, codes, plans)	Local Authority (Y/N)	State Prohibition (Y/N)
A. Building code	Y	N
B. Zoning ordinance	Y	N
C. Subdivision ordinance or regulations	Y	N
D. Special purpose ordinances (floodplain management, storm water management, hillside or steep slope ordinances, wildfire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

4.3 FISCAL RESOURCES

This section presents a review of the County's fiscal capabilities that may be applicable to providing financial resources to implement identified mitigation action items.

The County budget for Fiscal Years 2015-16 and 2016-17 presents a balanced budget, with FY 2015-16 Operating Revenues of $965.6 million (see **Table 4.5** below) and Operating Expenditures of $965.1 million resulting in an operating surplus of $0.5 million. The Recommended Operating Revenues exceed Recommended Operating Expenditures and is demonstrating a solid foundation for the future. Improving revenues, up $49.2 million (5.3%), and measured expenditure growth, $44.2 million (4.7%), have helped to develop a balanced Recommended Budget.

Table 4.5 Operating Revenue - All Funds $965.6 million (Dollars in millions)



SECTION 5 HAZARDS ASSESSMENT

5.1 OVERVIEW

The purpose of this section is to review, update, and/or validate the identified and profiled hazards in 2016 Santa Barbara County Multi-Jurisdictional Hazard Mitigation Plan (HMP). The intent is to confirm the list of hazards facing the county and determine if the current information and material is accurate. The importance of this is to ensure that all hazards are being considered and decisions are based on the most up-to-date information. Another purpose of this section is to screen the hazards. It will provide an understanding of the significance by ranking hazards by their priority in the community.

To assist with this effort two groups were utilized: the Mitigation Advisory Committee (MAC) and the Santa Barbara County Local Planning Team. The MAC group assessed information as it related to their jurisdiction, while the Local Planning Team assessed information at the county-level.

As part of process both groups leveraged other planning efforts and documents, including the State of California Multi-Hazard Mitigation Plan, the Santa Barbara County Comprehensive Plan Seismic Safety and Safety Element, and the Santa Barbara County 2016 HMP.

5.2 MITIGATION ADVISORY COMMITTEE HAZARD ASSESSMENT

Utilizing the information and material from the State of California Multi-Hazard Mitigation Plan, the Santa Barbara County Comprehensive Plan Seismic Safety and Safety Element, and the Santa Barbara County 2011 HMP; the MAC reviewed and revised 1) the list of hazards in the geographic area; 2) the information and material presented for each hazard; and 3) the prioritization of the hazards. The following sections provide a summary of the work.

5.2.1 Hazard Identification

Based on the review of the Santa Barbara County 2016 HMP, incorporating information from other documents (i.e., the California State Multi-Hazard Mitigation Plan), and utilizing local experience and knowledge. Table 5.1 lists the hazards the MAC has identified as being relevant to Santa Barbara County.

Table 5.1 Relevant Hazards in Santa Barbara County

County Hazards
Earthquake
Liquefaction
Landslides and Other Earth Movements
Expansive Soils/Land Subsidence
Wildfire
Flood
Coastal Storm Surge
Climate-Related
Sea Level Rise/Coastal Flooding and Erosion
Droughts and Water Shortage

Severe Weather and Storms
Extreme Heat
Freeze
Hailstorm
Hurricane
Tornado
Windstorm
Energy Shortage and Energy Resilience
Oil Spill
Dam Failure
Agricultural Pests and Disease
Epidemic/Pandemic/Vector Borne Disease
Hazardous Material Release
Radiological Incident
Terrorism
Cyber Threat
Aircraft Crash
Train Accident; Explosion and/or Chemical Release
Natural Gas Pipeline/Storage
Levee Failure
Tsunami
Civil Disturbance
Well Stimulation/Hydraulic Fracking

5.2.2 Hazard Screening/Prioritization

The intent of screening hazards is to help prioritize which hazard creates the greatest concern in the community. Because the original process used to rank hazards in the Santa Barbara County 2011 HMP is not being utilized, an alternative approach is being recommended. A summary of the process and the results of the revised hazard ranking for the 2016 HMP Update are discussed below:

Ranking Tool Design
The ranking tool prioritizes hazards on two (2) separate factors:

- Probability of the hazard affecting the community
- Potential impacts of the hazard on the community

To further assist with the process; the following definition of “High”, “Medium”, and “Low” probability and impacts were utilized. To futher assist, a numeric value was applied to the ranking scale allowing for a clear definition between priority hazards and hazards of interest.

Probability
High- Highly Likely/Likely (100 % chance will happen every year) (3 points)
Medium- Possible (75 % chance will happen every 5 years)(2 points)
Low- Unlikely (50 % chance will happen every 10 years)(1 point)
Impact
High- Catastrophic/Critical: Major loss of function, downtime, and/or evacuations (3 points)

Medium- Limited: Some loss of function, downtime, and/or evacuations (2 points)
Low- Negligible: Minimal loss of function, downtime, and/or evacuations (1 point)

Based on the revised list of hazards and utilizing the Hazard Screening/Prioritization approach, the MAC screened the hazards. The results of the assessment are in **Table 5.2**. The shading of the matrix boxes indicate the priority level: Red = tier 1 or 5-6 points; Green = tier 2 or 4 points; and Gray = tier 3 or 2-3 points.

Table 5.2 Hazard Screening and Ranking

Rank	High Impact	Medium Impact	Low Impact
High Probability		• Drought/Water Shortage • Energy Shortage • Flooding • Landslide/Other Earth Movements • Oil Spill • Sea Level Rise/Coastal Flooding • Wildfire	• Agricultural Pests/Disease • Train Accident
Medium Probability	• Earthquake	• HazMat Release • Terrorism • Severe Weather	• Commercial/Military Aircraft Crash • Cyber Threat
Low Probability	• Dam Failure • Radiological Accident	• Civil Disturbance • Levee Failure • Marine Invasive Species • Natural Gas Pipeline/Shortage • Well Stimulation/Hydraulic Fracking • Tsunami	

5.3 Local Planning Team Hazard Assessment

The Santa Barbara County Local Planning Team leveraged the work completed by the MAC since the unincorporated county makes up a large portion of the county. As part of the Local Planning Team's efforts it reviewed the information and material from the State of California Multi-Hazard Mitigation Plan; the Santa Barbara County Comprehensive Plan Seismic Safety and Safety Element; and the Santa Barbara County 2016 HMP; in addition to other documents, plans, and material provided by the Local Planning Team members. The following sections provide a summary of the work.

5.3.1 Hazard Identification

By considering information and material from the State of California Multi-Hazard Mitigation Plan; the Santa Barbara County Comprehensive Plan Seismic Safety and Safety Element; the Santa Barbara County 2016 HMP; and other documents, plans, and material provided by the local planning team members, the local planning team adopted the MAC list of hazards (*see* Table 5.1). This is further supported by the fact that the unincorporated county makes up a large portion of the county.

5.3.2 Hazard Screening/Prioritization

Because of the similarities between of the list of hazards, the local planning team determine the most prudent course of action was to review and validate the hazard screening effort completed by the MAC. After internal discussions the local planning team adopted the MAC hazard screening and rankings (*see* Table 5.2).

5.4 HAZARDS

Based on HMP update requirements and discussions with Cal OES and FEMA, it was suggested that the list of hazards be divided into Profiled Hazards and Hazards of Interest. As reflected in Table 5.2, the "*higher priority*" profiled hazards are indicated in the Red boxes and the "*lower priority*" Hazards of Interest are reflective in the Green and Grey boxes. It should be noted that mitigation actions and projects will focus on the "*higher priority*" hazards. The following sections represents work done by the MAC and confirmed by the local planning team. The information provided below is relevant to the jurisdiction. In other words, if a particular hazard is not a threat to a community it is not included in the HMP. The following material is intended to be an overview of the hazards; more information can be found in the State of California Multi-Hazard Mitigation Plan, the Santa Barbara County Comprehensive Plan Seismic Safety and Safety Element, and other documents.

5.4.1 Higher Priority Profiled Hazards

5.4.1.1 Earthquake

5.4.1.1.1 Description of Hazard

An earthquake is caused by a release of strain within or along the edge of the Earth's tectonic plates producing ground motion and shaking, surface fault rupture, and secondary hazards, such as ground failure. The severity of the motion increases with the amount of energy released, decreases with distance from the causative fault or epicenter, and is amplified by soft soils. After just a few seconds, earthquakes can cause massive damage and extensive casualties.

The effect of an earthquake on the Earth's surface is called the intensity. The intensity scale consists of a series of certain key responses such as people awakening, movement of furniture, damage to chimneys, and total destruction. The scale currently used in the United States is the Modified Mercalli Intensity (MMI) Scale. It was developed in 1931 by the American seismologists Harry Wood and Frank Neumann. This scale is composed of 12 increasing levels of intensity designated by Roman numerals that range from imperceptible shaking to catastrophic destruction. It does not have a mathematical basis; instead it is an arbitrary ranking based on observed effects.

Most people are familiar with the Richter scale, a method of rating earthquakes based on strength using an indirect measure of released energy (**Table 5.3**). The Richter scale is logarithmic. Each one-point increase corresponds to a 10-fold increase in the amplitude of the seismic shock waves and a 32-fold increase in energy released. For an example, an earthquake registering 7.0 on the Richter scale releases over 1,000 times more energy than an earthquake registering 5.0.

Table 5.3 Richter Scale

Richter Magnitudes	Earthquake Effects
Less than 3.5	Generally not felt, but recorded.
3.5-5.4	Often felt, but rarely causes damage.
Under 6.0	Slight damage to well-designed buildings. Can cause major damage to poorly constructed buildings over small regions.
6.1-6.9	Can be destructive in areas up to about 100 kilometers across residential areas.
7.0-7.9	Can cause serious damage over larger areas.
8 or greater	Can cause serious damage in areas several hundred kilometers across.

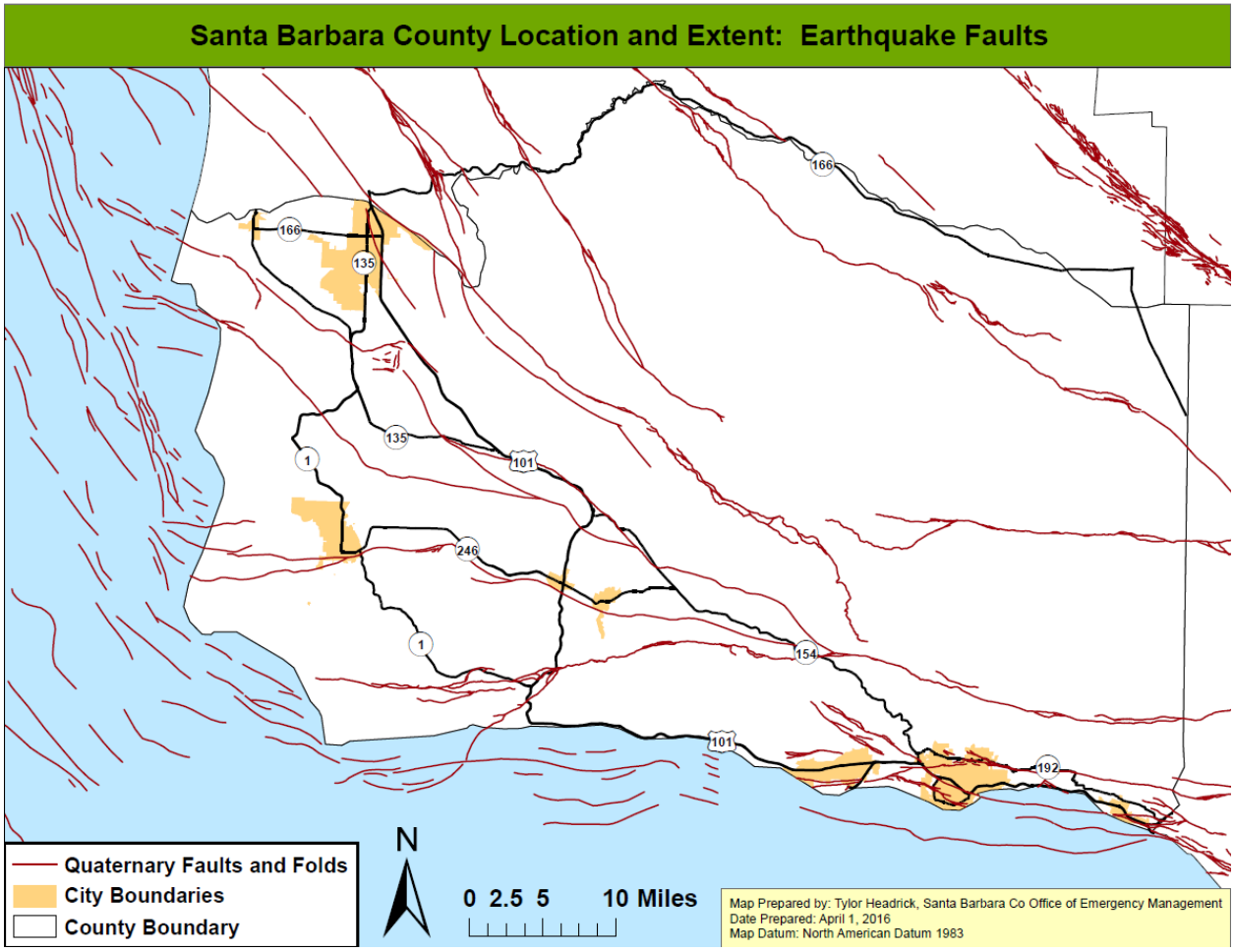
Peak ground acceleration (PGA) is a measure of the strength of ground shaking. Larger peak ground accelerations result in greater damage to structures. PGA is used to depict the risk of damage from future earthquakes by showing earthquake ground motions that have a specified probability (10%, 5%, or 2%) of being exceeded in 50 years return period. These values are often used for reference in construction design, and in assessing relative hazards when making economic and safety decisions.

Liquefaction is the phenomenon that occurs when ground shaking causes loose, saturated soils to lose strength and act like viscous fluid. Liquefaction causes two types of ground failure: lateral spread and loss of bearing strength. Lateral spreads develop on gentle slopes and entail the sidelong movement of large masses of soil as an underlying layer liquefies. Loss of bearing strength occurs when the soil supporting structures liquefy, causing the structures to settle; resulting in damage and, in some cases, collapse.

5.4.1.1.2 Location and Extent of Hazard in Santa Barbara County

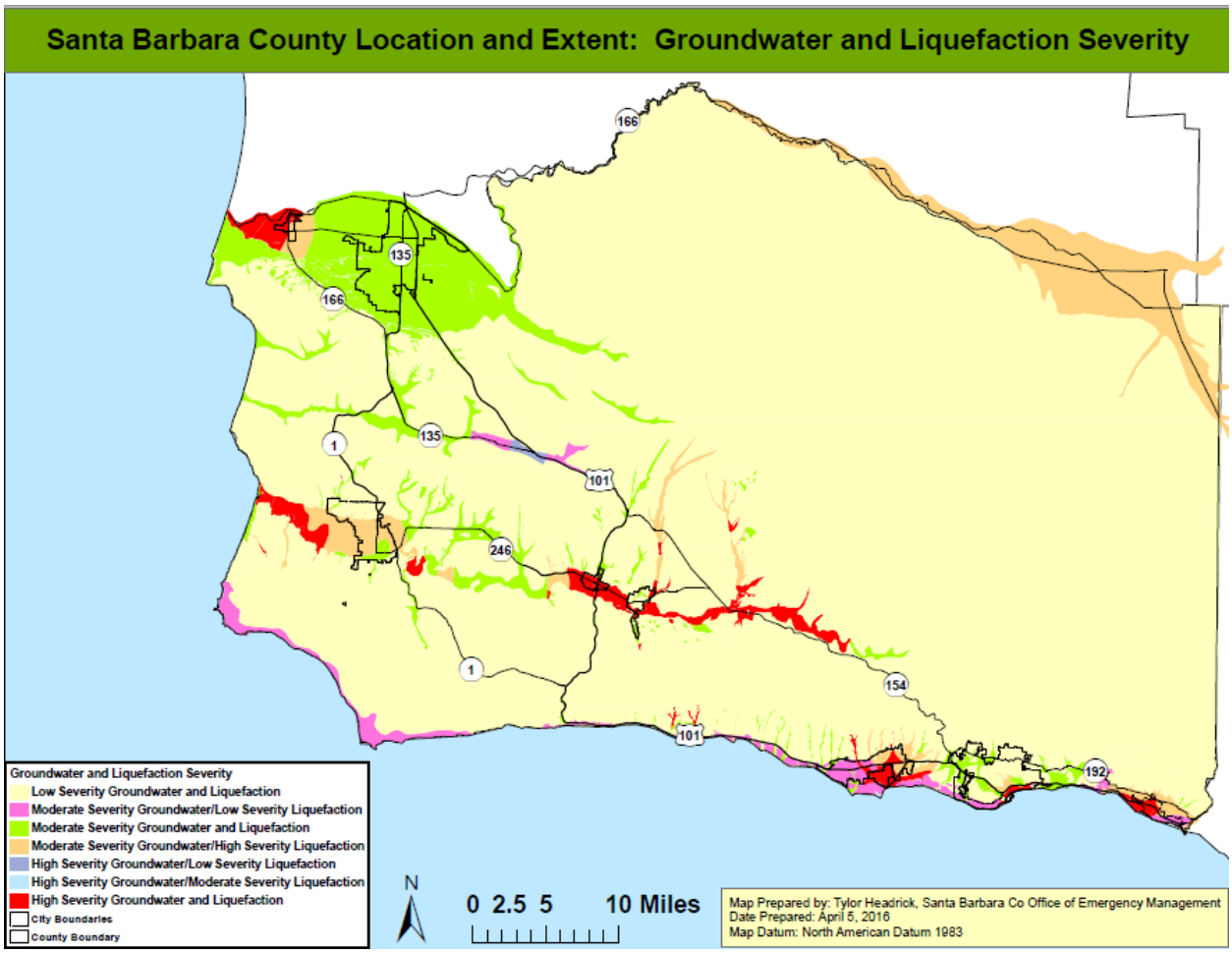
As previously mentioned, Santa Barbara County is located in a high seismic activity zone in the Transverse Range geologic province. Movement of continental plates manifest primarily along the San Andreas Fault system. The San Andreas Fault is situated seven miles northeast of Santa Barbara County; active faults in the San Andreas Fault system that fall within Santa Barbara County include the Nacimiento, Ozena, Suey, and Little Pine faults. Other active faults in the region include the Big Pine, Mesa, Santa Ynez, Graveyard-Turkey Trap, More Ranch, Pacifico, Santa Ynez, and Santa Rose Island faults. The Santa Barbara County Comprehensive Plan Seismic Safety and Safety Element provides descriptions of all faults in Santa Barbara County. This list includes historically active, active, potentially active, and inactive faults, as well as their location and fault length. A map of faults in the Santa Barbara County region is located below (**Figure 5.1**).

Figure 5.1 Earthquake Faults in Santa Barbara County



After earthquakes, some regions may be prone to liquefaction. On level ground, liquefaction results in water rising to the ground surface. On sloping ground, liquefaction will usually result in slope failure such as the event at the Sheffield Dam in the aftermath of the 1925 Santa Barbara earthquake. Liquefaction risk is considered high if there are soft soils (Types D or E) present. The National Earthquake Hazards Reduction Program (NEHRP) rates soils from hard to soft, and gives the soils ratings from Type A through Type E. The hardest soils are rated Type A, and the softest soils are rated Type E. The majority of the soils in Santa Barbara County are types A-C, with some areas having type D. There have been no Type E soils identified. (NOTE: A further discussion of soils can be found in the Santa Barbara County Comprehensive Plan Seismic Safety and Safety Element, along with maps of the expansive soils and collapsible soils problems ranking.) Liquefaction risk is also determined by depth to groundwater. Most of the low coastal plan and valley bottoms are underlain by alluvium and given a moderate rating with respect to liquefaction potential. Based on this information and work conducted as part of the Santa Barbara County Comprehensive Plan a map was generated indicating groundwater and liquefaction severity (**Figure 5.2**).

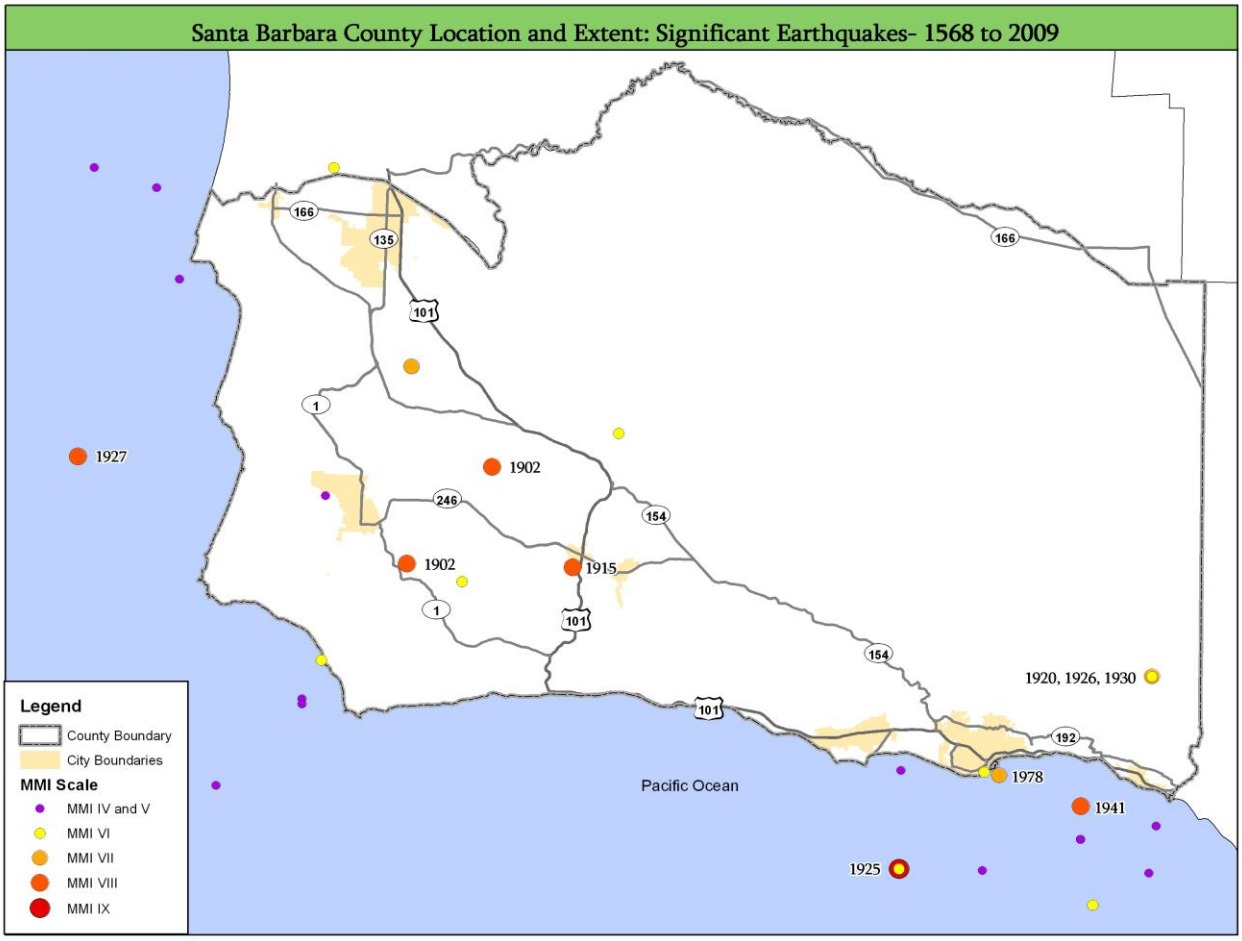
Figure 5.2 Groundwater and Liquefaction Severity



5.4.1.1.3 History of Hazard in Santa Barbara County

Santa Barbara is located in a high seismic activity zone and as such has a long history of earthquakes. Although most seismic activity in California occurs along the San Andreas Fault system, most historic seismic events in the Santa Barbara region have been centered offshore on an east-west trending fault between Santa Barbara and the Channel Islands. The below map (**Figure 5.3**) displays historical epicenters of earthquakes located in the Santa Barbara County since 1568. There have not been any significant earthquakes in Santa Barbara County since 2009. The dates of the more significant earthquake events are provided adjacent to the epicenters.

Figure 5.3 Significant Earthquakes Since 1568



While more extensive discussion of previous earthquakes in Santa Barbara County is available in the Seismic and Safety Element of the Santa Barbara County Comprehensive Plan, the following information provides an overview of the more recent, significant events:

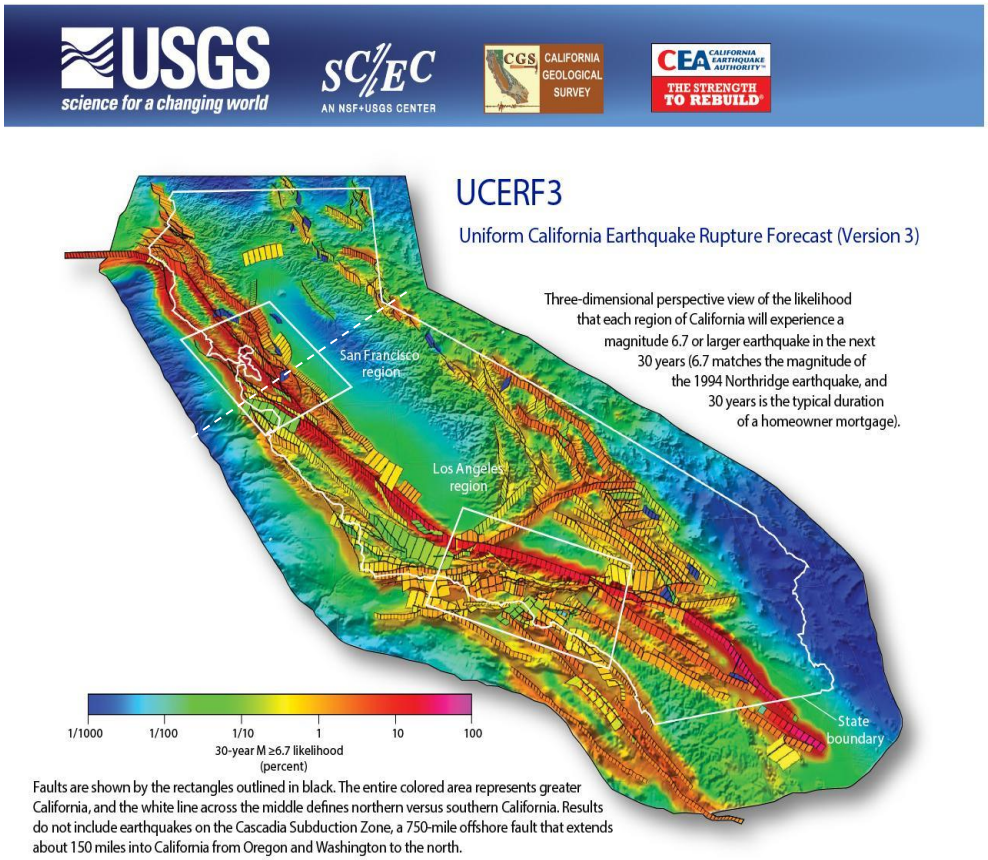
> In March of 1978, and continuing sporadically through July of 1978, a swarm of small earthquakes, called micro-earthquakes occurred underneath the northeastern end of the Santa Barbara Channel. Toward the end of the micro-earthquake swarm, in July and early August of 1978, an unusually large amount of oil and tar was reported on local beaches in Santa Barbara. A common occurrence for the Santa Barbara area, the oil from these natural seeps was considered only a minor nuisance. On August 13, 1978, an earthquake occurred just to the southwest of the City of Santa Barbara, about 5 miles beneath the Santa Barbara Channel. The earthquake ruptured to the northwest, focusing its energy toward Goleta, the most intense ground motion occurring between Turnpike Road and Winchester Canyon Road, an area that includes the University of California, Santa Barbara. A strong-motion seismograph on the University of California campus recorded an acceleration of 0.45 times that of gravity. Another seismograph, located at the top of North Hall, recorded an acceleration of 0.94 times that of gravity. Sixty-five people were treated for injuries at local hospitals. No deaths were reported.

On December 22, 2003 at 11:15 in the morning a magnitude 6.5 earthquake struck the central California coast. The event, known as the San Simeon Earthquake, was located 11 kilometers northeast of San Simeon, and 39 kilometers west/northwest of Paso Robles. Although the San Simeon Earthquake had a more significant impact on San Luis Obispo County, the event was reportedly felt as a MMI VI in Guadalupe and Santa Maria and as a MMI V in Lompoc, Santa Ynez and Solvang. According to reports on the San Simeon earthquake by the U.S. Geological Survey and U.C. Berkeley Seismological Laboratory, two (2) people were killed, 40 people were injured, over 40 buildings collapsed or were severely damaged and more than 10,000 homes and businesses were without power. The most severe damage was to un-reinforced masonry (URM) structures that had not yet been retrofitted to better withstand earthquakes. In Santa Barbara County, there was minor damage to more than 30 URM buildings in the City of Guadalupe.

5.4.1.1.4 Probability of Occurrence

The United States Geological Survey (USGS) and their partners, as part of the latest Uniform California Earthquake Rupture Forecast Version 3 (UCERF3; 2015), have estimated the chances of having large earthquakes throughout California over the next 30 years (**Figure 5.4**).

Figure 5.4 Rates for Earthquake of Magnitude 6.7 or Larger in the Next 30 years (USGS, 2015)



Statewide, the rate of earthquakes around Magnitude 6.7 (the size of the 1994 Northridge earthquake) has been estimated to be one per 6.3 years (more than 99% likelihood in the next 30 years); in southern California, the rate is one per 12 years (93% likelihood in the next 30 years). Southern California's rates are given in **Table 5.4**.

Table 5.4 Southern California Region Earthquake Likelihoods (UCERF3, 2015)

Magnitude (greater than or equal to)	Average Repeat Time (years)	30-year likelihood of one or more events
5	0.24	100%
6	2.3	100%
6.7	12	93%
7	25	75%
7.5	87	36%
8	522	7%

5.4.1.1.5 Climate Change Considerations

To date, no credible evidence has been provided that links climate to earthquakes; however, climate and weather does play a significant role in the response and recovery from earthquakes. Effects from climate change could create cascading complications and impacts.

5.4.1.2 Wildfire

5.4.1.2.1 Description of Hazard

Wildfires can be classified as either a wildland fire or a wildland-urban interface (WUI) fire. The former involves situations where wildfire occurs in an area that is relatively undeveloped except for the possible existence of basic infrastructure such as roads and power lines. A WUI fire includes situations in which a wildfire enters an area that is developed with structures and other human developments. In WUI fires, the fire is fueled by both naturally occurring vegetation and the urban structural elements themselves. According to the National Fire Plan issued by the U.S. Departments of Agriculture and Interior, the wildland-urban interface is defined as "*…the line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels.*"

The WUI fire can be subdivided into three categories (NWUIFPP, 1998): The *classic wildland-urban interface* exists where well-defined urban and suburban development presses up against open expanses of wildland areas. The *mixed wildland-urban interface* is characterized by isolated homes, subdivisions, and small communities situated predominantly in wildland settings. The *occluded wildland-urban interface* exists where islands of wildland vegetation occur inside a largely urbanized area. Generally, many of the areas at risk within the Santa Barbara County fall into the classic wildland-urban interface category.

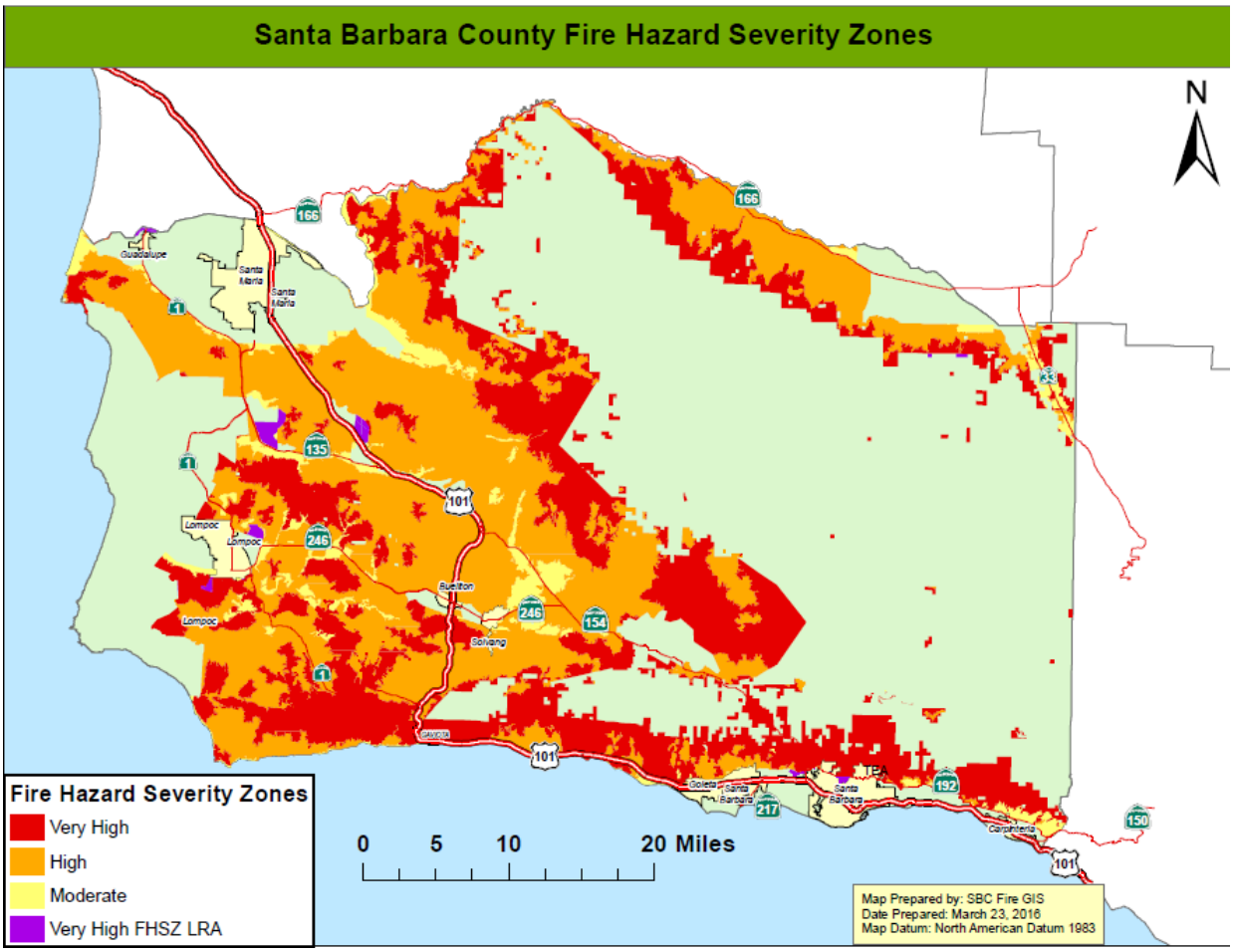
Certain conditions must be present for a wildfire hazard to occur; a large source of fuel must be present, the weather must be conducive (generally hot, dry, and windy), and fire suppression sources must not be able to easily suppress and control the fire. The cause of a majority of wildfires is human-induced or lightning; however, once burning, wildfire behavior is based on three primary factors: fuel, topography, and weather.

Fuel will affect the potential size and behavior of a wildfire depending on the amount present, its burning qualities (e.g. level of moisture), and its horizontal and vertical continuity. Topography affects the movement of air, and thus the fire, over the ground surface. The terrain can also change the speed at which the fire travels, and the ability of firefighters to reach and extinguish the fire. Weather as manifested in temperature, humidity and wind (both short and long term) affect the probability, severity, and duration of wildfires.

5.4.1.2.2 Location and Extent of Hazard in Santa Barbara County

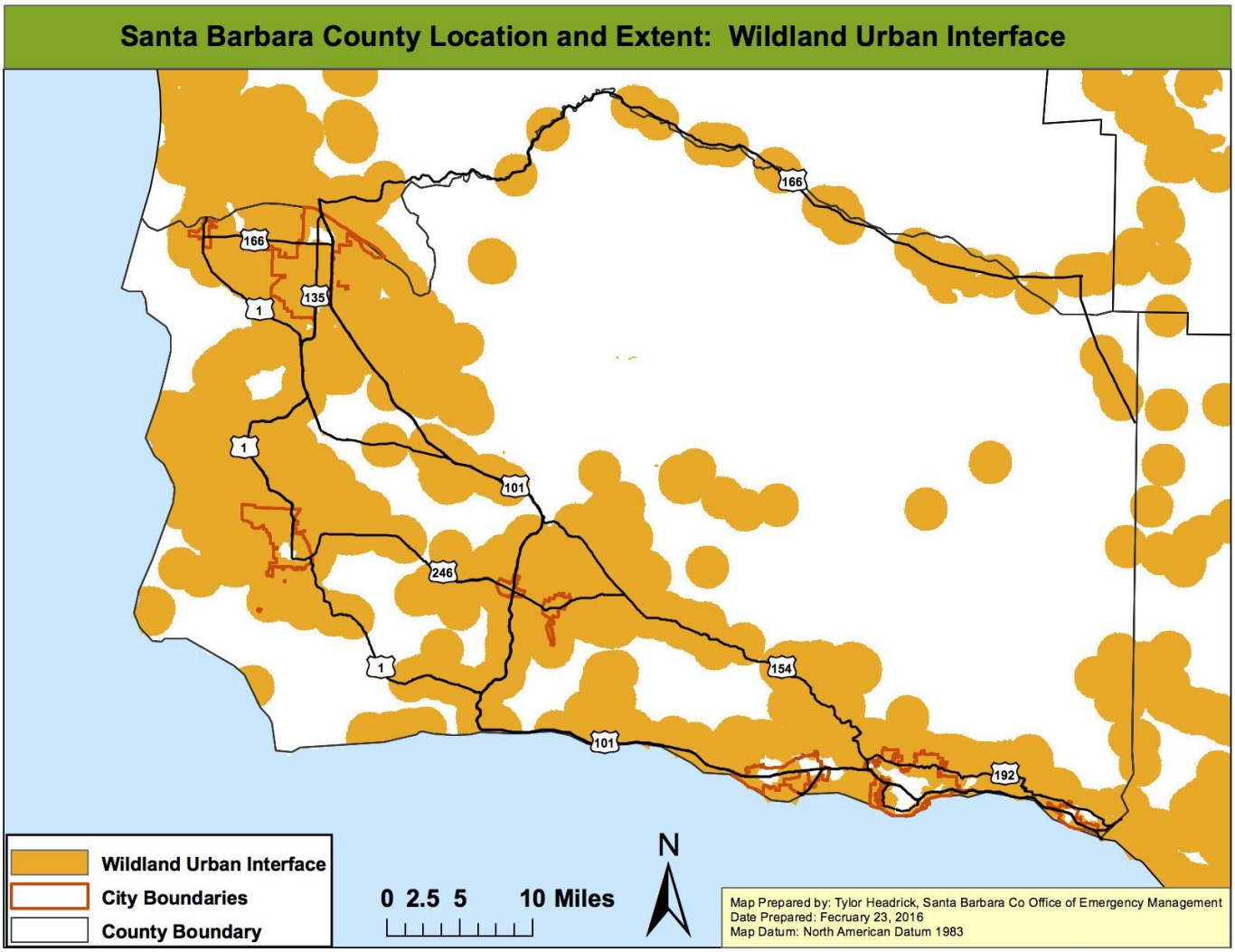
The climate, topography, and vegetation in Santa Barbara County is conducive to wildfires. California Department of Forestry and Fire Protection, Fire and Resource Assessment Program (CDF-FRAP) were mandated to map areas of significant fire hazards based on fuels (vegetation), terrain, weather, and other relevant factors. These zones, referred to as Fire Hazard Severity Zones, define the application of various mitigation strategies to reduce risk associated with wildland fires. The most current mapping efforts by CDF-FRAP were conducted in 2007. The map below shows the Fire Hazard Severity Zones located in Santa Barbara County (**Figure 5.5**).

Figure 5.5 Fire Hazard Severity Zones



CDF-FRAP developed data that displays the relative risk to areas of significant population density from wildfire. This data is created by intersecting residential housing unit density with proximate fire threat, to give a relative measure of potential loss of structures and threats to public safety from wildfire. The map (**Figure 5.6**) was generated using this data but shows only the wildland-urban interface (WUI) in Santa Barbara County. The WUI map depicts areas where potential fuels treatments will be prioritized to reduce wildland fire threats.

Figure 5.6 Wildland-Urban Interface (WUI)



Fire representatives on the Mitigation Advisory Committee (MAC) acknowledge that the WUI data shown in Figure 5.6 was developed on a statewide basis and does not consider the placement of local neighborhoods within the geography. Santa Barbara County Fire has synthesized the data at a more local level to convey communities at risk. To help protect people and their property from potential catastrophic wildfire, the National Fire Plan directs funding to be provided for projects designed to reduce the fire risks to communities. A fundamental step in achieving this goal was the identification of communities that are at

high risk of damage from wildfire. These high risk communities identified within the WUI, were published in the Federal Register in 2001. At the request of Congress, the Federal Register notice only listed those communities neighboring federal lands. The list represents the collaborative work of the 50 states and five federal agencies using a standardized process, whereby states were asked to submit all communities within their borders that met the criteria of a structure at high risk from wildfire. The following list contains the federally regulated (communities which adjoin federal lands) communities at risk within Santa Barbara County:

- Carpinteria
- Gaviota
- Mission Hills
- Tajiguas
- Casmalia
- Goleta
- Orcutt
- Vandenberg Air Force Base
- Cuyama
- Lompoc
- Santa Barbara
- Vandenberg Village

With California's extensive WUI situation, the list of communities extends beyond just those adjacent to Federal lands. After the 2000 fire season the California Department of Forestry and Fire Protection (CAL FIRE), working with the California Fire Alliance, developed a list of communities at risk from wildfire using 1990 Census and USGS Geographic Names Information System data to identify populated places, and CAL FIRE's Fire and Resource Assessment Program (FRAP) fuel hazard data. In addition to the already-mentioned communities, they designated the following as WUI Communities at Risk:

- Buellton
- Isla Vista
- Montecito
- Sisquoc
- Ventucopa
- Garey
- Los Alamos
- Santa Maria
- Solvang
- Guadalupe
- Los Olivos
- Santa Ynez
- Summerland

Combining both lists, there are currently 25 communities on the Communities at Risk List in Santa Barbara County. The California State Forester (CAL FIRE Director) has assigned the role of managing the list to the California Fire Alliance (Alliance). In addition to the 25 State and Federal recognized communities, there are other communities within the county that are also at risk of wildfire and need to be identified. Communities that were not captured in any state or federally recognized list, but have been identified by County Fire and other jurisdictions to be at risk include:

- Cebada Canyon
- Woodstock
- Miguelito Canyon
- Painted Cave
- Jalama
- Gobernador
- Toro Canyon
- Jonata Ranch/Bobcat Springs
- Mission Canyon
- Rosario Park
- Tepusquet Canyon
- El Capitan
- Hope Ranch
- Trout Club
- Refugio Canyon
- Paradise

Many of the communities at risk listed above contain relatively old homes that reflect the building materials and/or codes in effect at the time of construction. As such, large numbers of homes are at increased risk of ignition due to structure vulnerabilities (e.g., wood shake roofs and siding, open eaves, unscreened crawlspace and attic vents), which research has shown to be important in most home losses during wildfires. In addition to hazard reduction through fuel reduction, education of homeowners and mitigation of structure ignition vulnerabilities is therefore recognized as an important priority in these communities at risk. Programs that support retrofits to existing structures, combined with building codes that make future structures more fire resistant, are needed in many fire-prone areas.

The figure (**Figure 5.7**) below provides an overview of the location of the Communities at Risk.

Figure 5.7 Communities at Risk

5.4.1.2.3 History of Hazard in Santa Barbara County

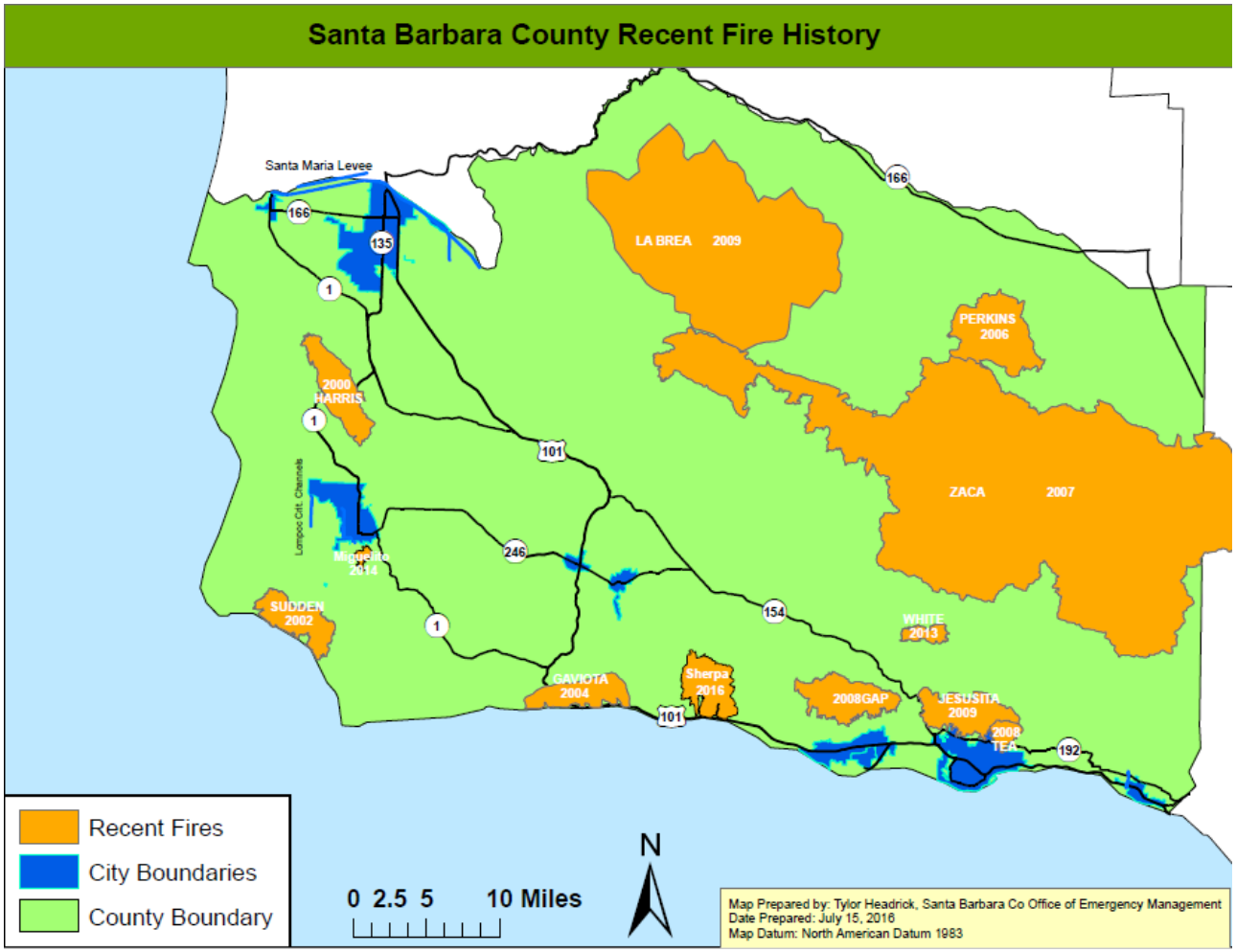
Because Santa Barbara County is prone to wildfires, there is a long history of wildfires in the County. **Table 5.5** lists the major wildfires in Santa Barbara County from 1922-2016.

Table 5.5 Major Wildfires in Santa Barbara County

Year	Fire Name	Acres Burned
1922	Kellye Ranch	59,600
1923	Oso Canyon	70,000
1928	Aliso Canyon	42,880
1933	Indian Canyon	30,800
1950	San Marcos	9,500
1953	Big Dalton	73,450
1955	Refugio	84,770
1964	Coyote	67,000
1966	Wellman	93,600
1971	Romero	14,538
1977	Sycamore Canyon	805
1977	Hondo Canyon	8,087
1979	Spanish Ranch	1,190
1979	Eagle Canyon	3,765
1990	Paint	4,424
1993	Marre	43,864
1994	Oak Hill	2,130
1997	Santa Rosa	3,074
1999	Spanish Ranch	22,296
1999	Camuesa	180
2000	Harris	8,684
2002	Sudden	7,500
2004	Gaviota	7,197
2006	Perkins	14,923
2007	Zaca	240,807
2008	Gap	9,443
2008	Tea	1,940
2009	Jesusita	8,733
2009	La Brea	89,489
2010	Bear Creek	1,252
2011	Figueroa	698
2013	White	1,984
2015	Miguelito	632
2016	Sherpa	7,474

The CDF-FRAP compiles fire perimeters of wildfires and has established an on-going fire perimeter data capture process. The map below (**Figure 5.8**) shows historic, significant wildfire perimeters in Santa Barbara County. Fire perimeters provide a reasonable view of the spatial distribution of past large fires.

Figure 5.8 Santa Barbara County Fire History

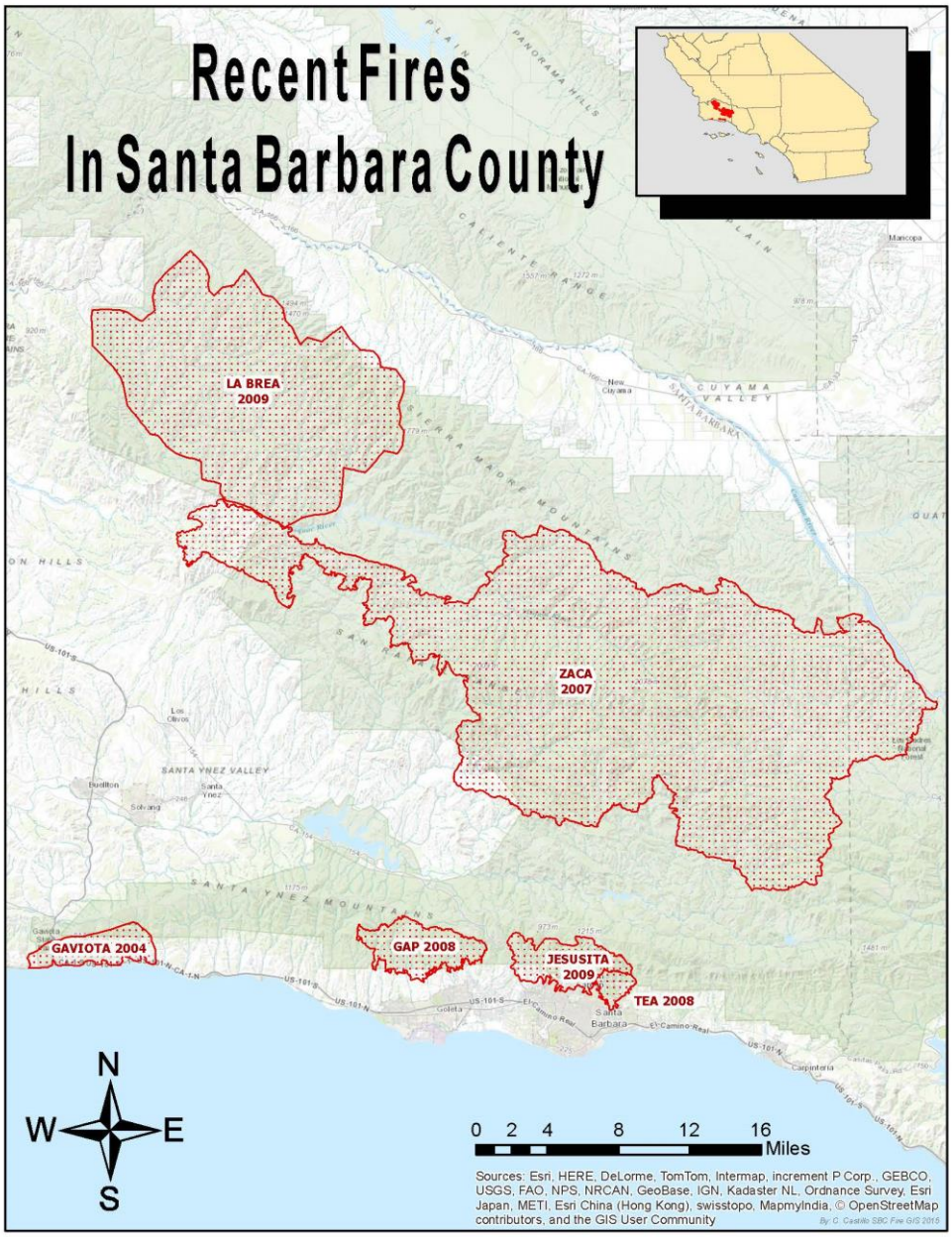


Over the last ten years, Santa Barbara County has experienced seven (7) major fires. Three of these fires; Gap, Tea, and Jesusita; directly threatened the heavily populated Santa Barbara Front Country. Two of these fires, Tea and Jesusita, destroyed close to three hundred structures and burned a total 16 ½ square miles. Combined, the La Brea Fire and the Zaca Fire burned a total of 518 square miles, predominately in backcountry areas of the County. Although these two fires did not directly threaten urban areas, the smoke and ash produced created air quality issues for hundreds of miles. Recently the Miguelito and the Mesa fires threatened the Lompoc area (2015). While more extensive discussion of previous wildfires in Santa Barbara County is available, the following information provides an overview and the location (**Figure 5.9**) of the more recent, significant events:

- The Zaca Wildfire burned 240,207 acres, making the Zaca Fire one of the largest wildfires in California history. The total cost of suppression was over $119 million.
- The Gap Wildfire charred 9,443 acres of forest in the Los Padres National Forest. The fire was located in the Santa Ynez Mountains north of the community of Goleta.

- The Jesusita Fire burned over 8,700 acres in the hills above the City of Santa Barbara. This wildfire was driven by a combination of a large dead fuel bed and sundowner winds gusting over 60 miles per hour. The damage, as a result of this fire, was significant, with 80 homes destroyed and another 15 homes badly damaged. No deaths were reported, but at least 30 firefighters were injured battling the fire.
- The La Brea Wildfire burned over 89,000 acres in the Los Padres National Forest in the County of Santa Barbara. The fire was fueled by very hot temperatures, low relative humidity and significant heavy fuels.

Figure 5.9 Recent, Significant Fire Events

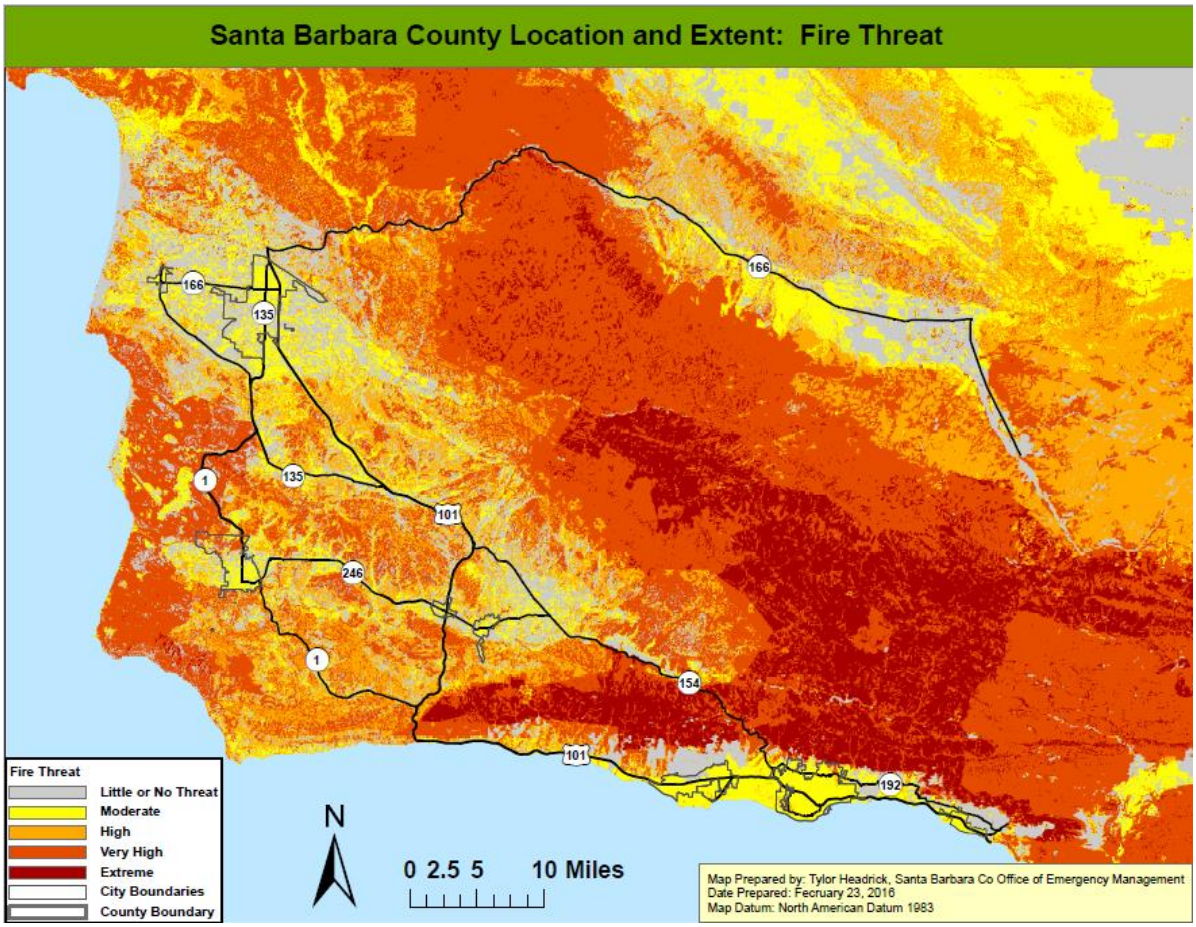


5.4.1.2.4 Probability of Occurrence

Vegetation and topography were the significant elements in the identification of the fire threat zones. A substantial amount of the vegetation in Santa Barbara is commonly called chaparral, it is a dense and scrubby bush that has evolved to persist in a fire-prone habitat. Chaparral plants will eventually age and die; however, they will not be replaced by new growth until a fire rejuvenates the area. Chamise, manzanita and ceanothus are all examples of chaparral which are quite common in Santa Barbara County.

Santa Barbara County was subject to 29 major wildfires over 88 years, resulting in a 33% chance of occurrence in any given year. In addition, the map below (**Figure 5.10**) shows the threat of fire to Santa Barbara County. Fire threat is a combination of two (2) factors: 1) fire frequency or the likelihood of a given area burning, and 2) potential fire behavior. These two factors are combined to create four (4) threat classes ranging from moderate to extreme.

Figure 5.10 Fire Threat



5.4.1.2.5 Climate Change Considerations

Climate change plays a significant role in wildfire hazards. The changing conditions from wet to dry can create more fuel; the increased possibility of high winds increase risk and present a challenge, and drought conditions could hinder ability to contain fires. Large wildfires also have several indirect effects beyond

those of a smaller, local fire. These may include air quality and health issues, road closures, business closures, and other forms of losses. Furthermore, large wildfires increase the threat of other disasters such as landslide and flooding.

5.4.1.3 Landslide and other Earth Movements

5.4.1.3.1 Description of Hazard

Landslides can be defined as the movement of a mass of rock, debris, or earth down an incline. Types of landslides include: rock falls, rock slides, deep slope failures, shallow debris flows, and mud flows.

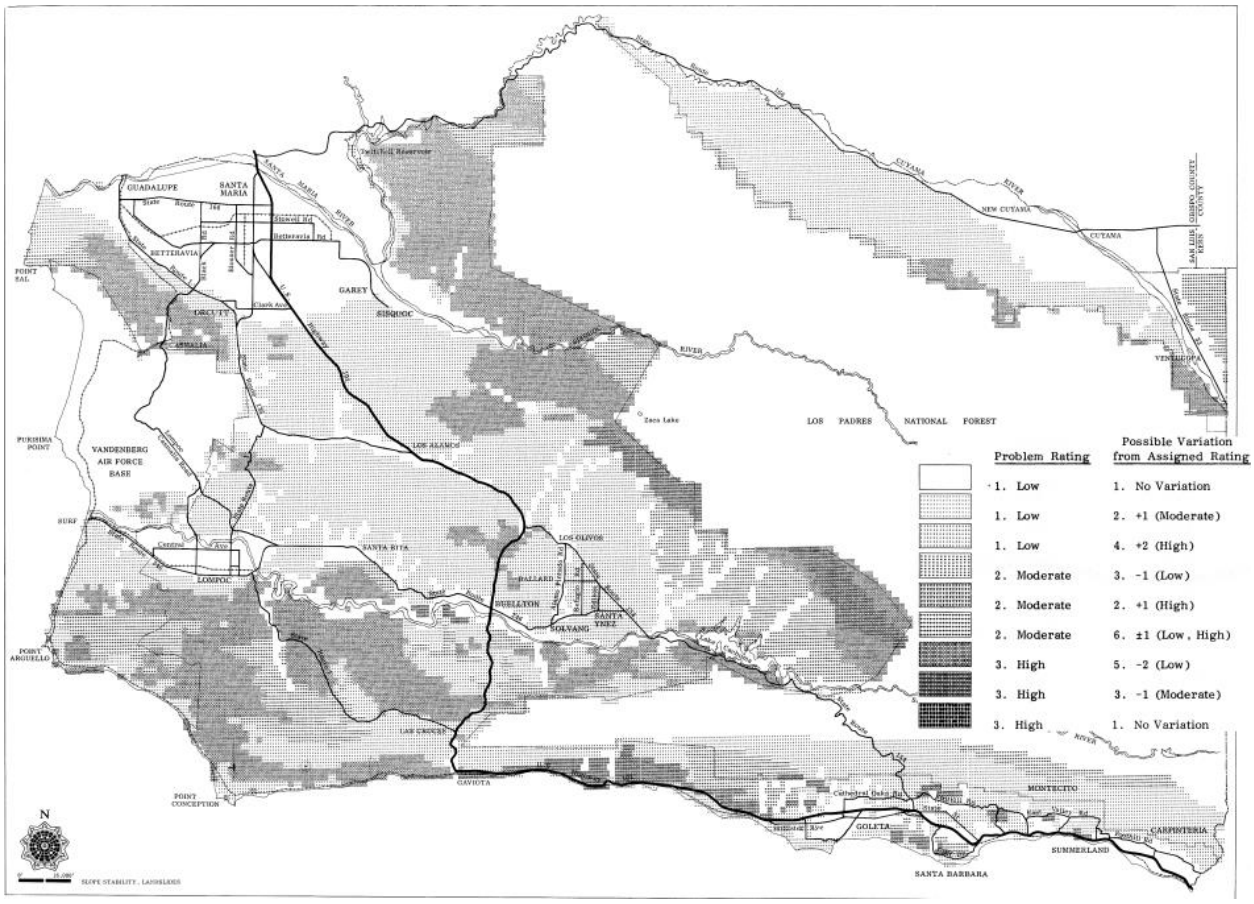
- Slope failure occurs when there is erosion of slopes by surface-water runoff. The intensity of slope wash is dependent on the discharge and velocity of surface runoff and on the resistance of surface materials to erosion.
- Mudflows are defined as flows or rivers of liquid mud down a hillside on the surface of normally dry land. They occur when water saturates the ground, usually following long and heavy rain falls, or rapid snow melt. Mud forms and flows down slope if there is no ground cover such as brush or trees to hold the soil in place.
- Debris Flow is defined when water begins to wash material from a slope or when water sheets off of a newly burned stretch of land. Chapparel land is especially susceptible to debris flows after a fire. The flow will pick up speed and debris as it descends the slope. As the system gradually picks up speed it takes on the characteristics of a basic river system, carrying everything in its path along with it.

The most common cause of a landslide is an increase in the down slope gravitational stress applied to slope materials, also known as over-steepening. Over-steepening can be caused by natural processes or by man-made activities. Undercutting of a valley wall by stream erosion or of a sea cliff by wave erosion are ways in which over-steeping may occur naturally.

5.4.1.3.2 Location and Extent of Hazard in Santa Barbara County

The location and extent of landslides are extremely difficult to predict consistently for a planning area the size of Santa Barbara County. Landslides and landslide prone sedimentary formations are present throughout the coastal plain of western Santa Barbara County (**Figure 5.11**). Landslides also occur in the granitic mountains of East Santa Barbara County, although they are less prevalent. Many of these landslides are thought to have occurred under much wetter climatic conditions than at present. Recent landslides are those with fresh or sharp geomorphic expressions suggestive of active (ongoing) movement or movement within the past several decades. Reactivations of existing landslides can be triggered by disturbances such as heavy rainfall, seismic shaking and/or grading. Many recent landslides are thought to be reactivations of ancient landslides.

Figure 5.11 Slope Stability, Landslides



The Santa Barbara County Comprehensive Plan Seismic Safety and Safety Element lists the areas in Santa Barbara County where there is fairly severe land sliding and associated geologic formations. The areas are as follows:

- Foothills in the Summerland area
- Foothills of the South Coast – from Santa Barbara west to Gaviota Pass
- Hope Ranch area – west of Lavigia Hill to Goleta
- Sea cliffs along the coast from Santa Barbara to Gaviota, particularly those with out-of-slope dips
- Solvang area south of the Santa Ynez River in the vicinity of, and east of Alisal Ranch
- Areas east and northeast of Los Olivos near the Los Padres National Forest boundary
- Lompoc area south of Santa Ynez River
- Mountains south of Guadalupe and east of Point Sal

Several areas in the County are prone to more frequent rain induced landslides, resulting in disruption to transportation and damage to roadways. The most common areas of recent historic slides are listed below.

South County

Road	**Year**
Palimino Road	1995, 1998
Gibraltar Road	1995, 1998, 2001, 2003
Glen Annie Road	1995, 1998, 2001, 2004
Refugio Road	1995, 1998, 2001
Ortega Hill Road	1195, 1998
Stagecoach Road	2003, 2004, Constant
Painted Cave	1995, 1998
Old San Marcus Road	1995, 1998, Currently Moving
Gobernador Canyon	1995, 1998, Currently Moving
East Mountain Drive	1995, 1998, 2001
All Road underlain by the Rincon Shale Formation	

North County

Road	**Year**
Miguelito Canyon	1995, 1998, ongoing threat
Sweeney Road	1995, 1998, ongoing threat
Jalama Road	1995, 1998, ongoing threat
Point Sal Road	1995, 1998, ongoing threat
Drum Canyon Road	1995, 1998, ongoing threat
Mail Road	1995, 1998, ongoing threat
Santa Rosa Road	1995, 1998, ongoing threat
Figueroa Mountain Road	1995, 1998, ongoing threat

5.4.1.3.3 History of Hazard in Santa Barbara County

As previously mention, Santa Barbara County is prone to landslides; however many are smaller in nature and are not well documented. Three (3) of the more significant recent landslides are discussed below:

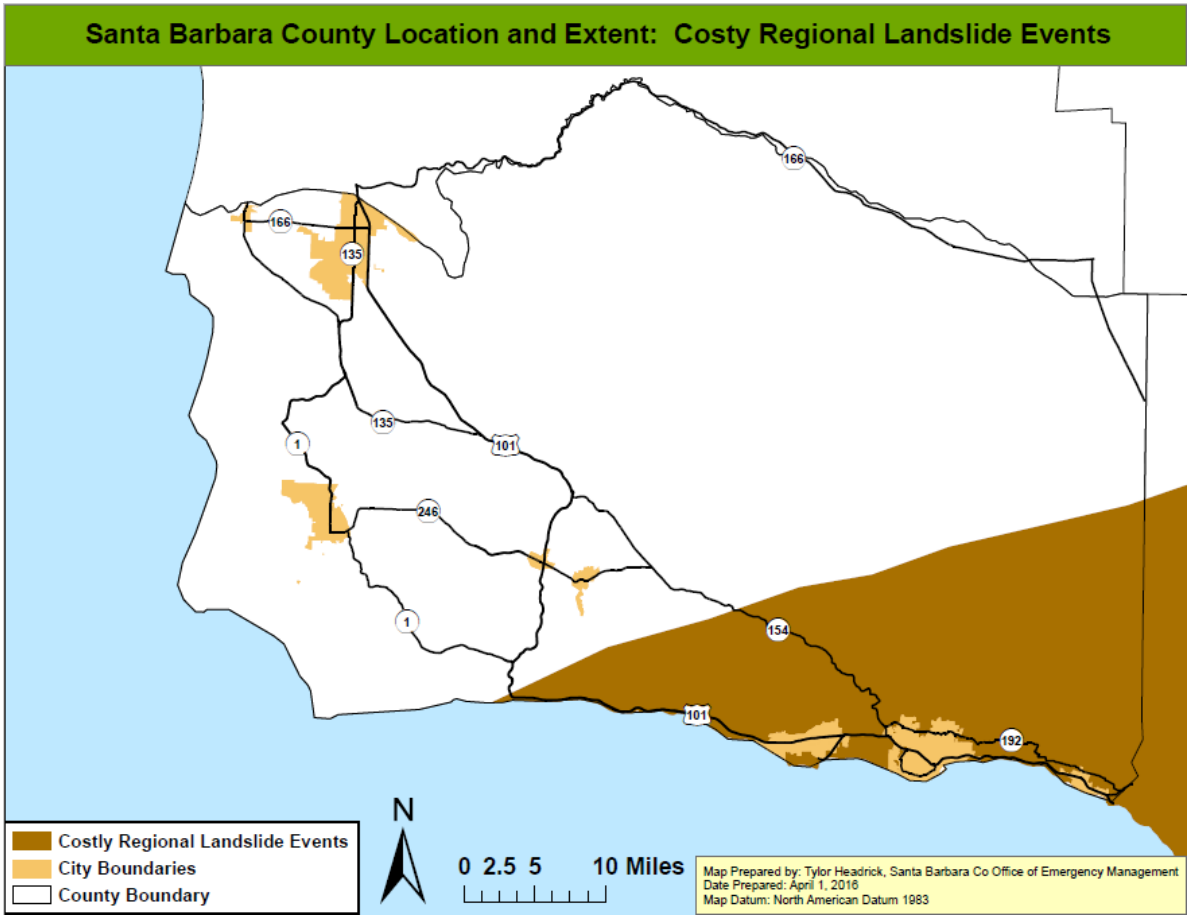
In January 2005, a powerful Pacific storm brought heavy rain, snow, flash flooding, high winds and landslides to Central and Southern California. During the 5 day event, rainfall totals ranged from 3 to 10 inches over coastal areas with up to 32 inches in the mountains. With such copious rainfall, flash flooding was a serious problem across Santa Barbara, Ventura and Los Angeles counties. In Santa Barbara County, flash flooding and mudslides closed Gibraltar Road at Mt. Calvary Road, stranding several vehicles, while mudslides inundated 3 homes in Lake Casitas. Across Ventura county, flash flooding and mudslides closed down Creek Road at Hermosa Road. In addition, the Ventura Beach RV Resort was flooded and Highways 1 and 126 were closed due to flooding. Across Los Angeles county, flash flooding killed a homeless man in Elysian Park, flooded a mobile home park in Santa Clarita, closed Highway 1 and caused numerous problems in Palmdale. In the mountains, 4 to 12 feet of snowfall was recorded along with southeast winds between 30 and 50 MPH with higher gusts. Across the Central Coast and in the Salinas River Valley, high winds gusting to 65 MPH knocked down numerous trees and power lines. In La Conchita, a devastating mudslide killed 10 people, destroyed 15 homes and damaged 12 other homes. Overall, damage estimates for the entire series of storms that started December 27th,

2004 and ended on January 11th, 2005 were easily over $200 million with the most damage incurred by agricultural interests in Ventura County.

During the late 1990's in Sycamore Canyon, which resides near the border of Santa Barbara County and the City of Santa Barbara, a mud flow displaced a home from its foundation and moved it several feet downhill. This is only a minor example of the destruction that landslides can cause. In the spring of 1995, La Conchita, located at the western border of Ventura County and adjacent to Santa Barbara County, experienced a landslide that completely destroyed several houses in its path. A portion of the bank of the Cuyama River collapsed east of Santa Maria in 1998, affecting half a dozen cars and a tractor trailer rig on Highway 166, which were caught in the slide. Two people were killed.

In 1980 the most costly landslide events in the US occurred. The event depicted in this Santa Barbara County-specific map (**Figure 5.12**) affected six southern California counties, including Santa Barbara County. The type of landslide was mostly debris flow from heavy rainfall. Over $800 million dollars' worth of damage resulted from this event.

Figure 5.12 Costly Regional Landslide Events

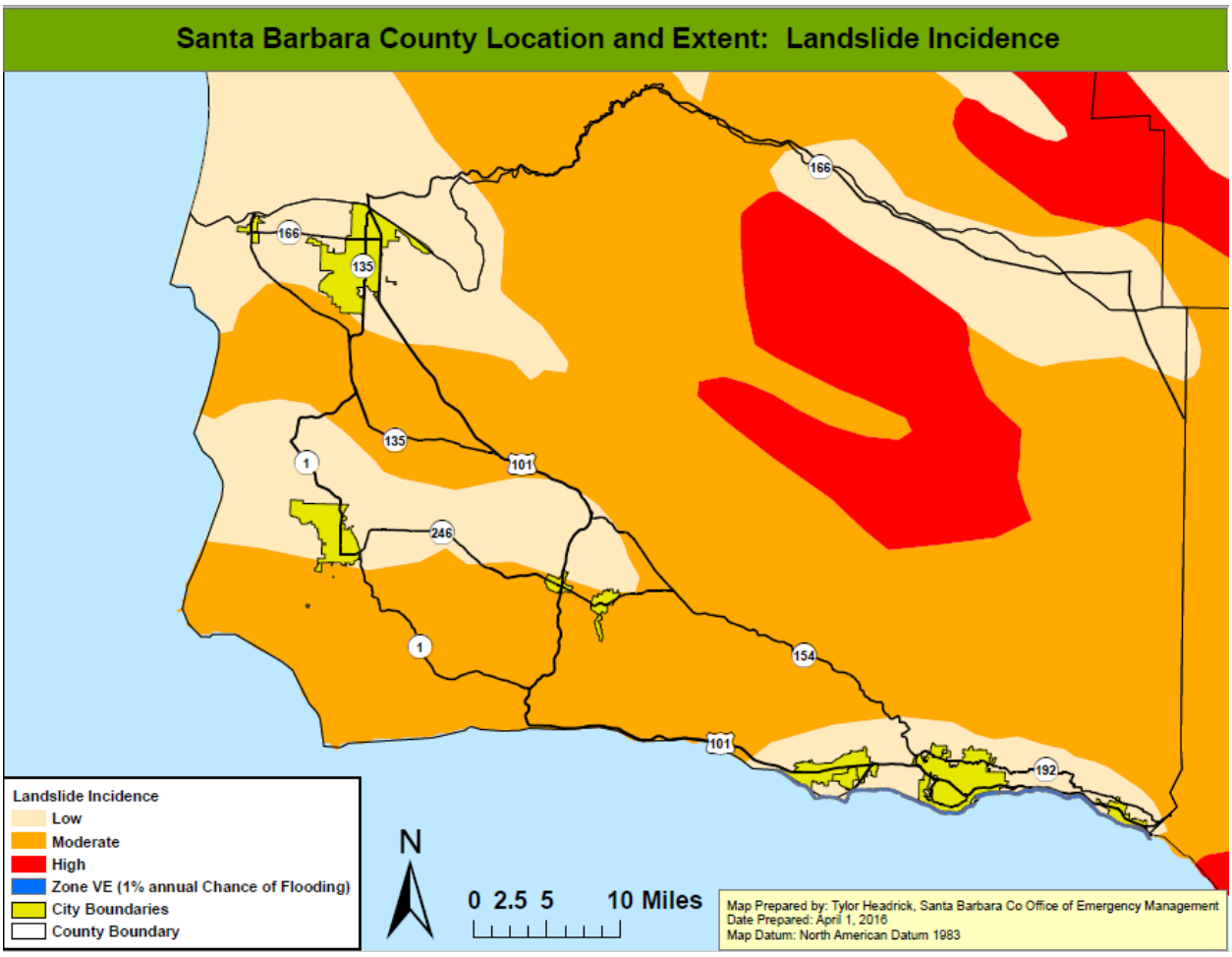


5.4.1.3.4 Probability of Occurrence

Figure 5.13 shows the general locations of high and moderate landslide risk in Santa Barbara County These areas are considered to have a higher probability of landslide occurrence than the low landslide risk areas in Santa Barbara County.

In order for landslides to occur, the correct geological conditions, which include unstable or weak soil or rock, and topographical conditions, such as steep slopes, are necessary. Heavy rain often triggers these hazards, as the water adds extra weight that the soil cannot bear. Over irrigating has the same affect. Earthquakes can also affect soil stability, causing enough weakening to favor gravitational forces.

Figure 5.13 Landslide Incidence



5.4.1.3.5 Climate Change Consideration

Climate change can increase the frequency and/or intensity of landslides. Changes in precipitation, specifically the increased frequency of intense precipitation, can result in a water content the ground cannot tolerate, and may cause landslides. These landslides may happen more frequently due to the increased number of heavy rainfall events. Also, the increased heavy precipitation events may cause instability in areas where landslides we not as likely before. Therefore, resulting landslides may be larger or more widespread.

5.4.1.4 Flood

5.4.1.4.1 Description of Hazard

A flood is a general and temporary condition of partial or complete inundation on land that is normally dry. Several factors determine the severity of floods, including rainfall intensity and duration, antecedent moisture conditions, surface permeability, and geographic characteristics of the watershed such as shape and slope. Other causes can include a ruptured dam or levee, rapid ice or snow melting in the mountains, under-engineered infrastructure, or even a poorly placed beaver dam can overwhelm a river or channel and send water spreading over adjacent land or floodplains.

A large amount of rainfall in a short time can result in flash flood conditions, as can a dam failure or other sudden spill. The National Weather Service's definition of a flash flood is a flood occurring in a watershed where the time of travel of the peak of flow from one end of the watershed to the other is less than six hours.

Another form of flooding occurs when coastal storms produce large ocean waves that sweep across coastlines making landfall. Storm surges inundate coastal areas, destroy dunes, and cause flooding. If a storm surge occurs at the same time as high tide, the water height will be even greater. The County historically has been vulnerable to storm surge inundation associated with tropical storms and El Nino.

5.4.1.4.2 Location and Extent of Hazard in Santa Barbara County

The geographical location, climate, and topography of Santa Barbara County make the county prone to flooding. In regions such as Santa Barbara, without extended periods of below-freezing temperatures, floods usually occur during the season of highest precipitations or during heavy rainfalls after long dry spells. Additionally, due to the Mediterranean climate and the variability of rainfall, stream flow throughout the County is highly variable and directly impacted from rainfall with little snowmelt or base flow from headwaters. Watercourses can experience a high amount of sedimentation during wet years and high amounts of vegetative growth during dry and moderate years.

The drainages in the southern part of the County are characterized by high intensity, short duration runoff events, due to the relatively short distance from the top of the Santa Ynez Mountains to the Pacific Ocean. Runoff from high intensity, short duration storm events can cause inundation of over bank areas, debris including sediment, rock, downed trees in the water that can plug culverts and bridges, erosion and sloughing of banks, and loss of channel capacity due to sedimentation. The drainages in the northern part of the County are contained in the upper mountain areas, but broaden out into level valley floors. The drainages in the northern part of the County are generally characterized by longer duration and less intense storms than the southern coastal areas.

Another contributing factor to flooding is the County's location along the Pacific Ocean. With its 110 miles of coastline, the County is susceptible to storm surge events following storms off the coast. Additionally, portions of the County are subject to flooding due to flash flooding, urban flooding, river channel overflow, and downstream flooding.

5.4.1.4.3 History of Hazard in Santa Barbara County

Flooding has been a major problem throughout Santa Barbara County's history. Santa Barbara County has several hydrologic basins that have different types of flooding problems, including over bank riverine flooding, flash floods, tidal flooding/tsunamis, and dam failure. The most common flooding in Santa Barbara is due to riverine flooding and flash flood events.

Between 1862 and the 2014, Santa Barbara experienced 19 significant floods. Eight of these floods received Presidential Disaster Declarations. **Table 5.6** lists these floods, as well as information concerning the nature of the flooding and the extent of the damages.

Table 5.6 Historical Records of Large Floods in Santa Barbara County

Date	Damages	Source of Estimate	Comments
1862	Not available	1993 Precipitation Report	Largest discharges ever in California
1907	Significant damage to structures, crops	1993 Precipitation Report	4 straight days of rain, entire Lompoc Valley engulfed
1914	Twelve houses and six bridges lost	County of Santa Barbara Sanitation and Flood Control	Destroyed 2 dams, 22 deaths
1952	50+ homes inundated, large-scale evacuations	EIR, 1993 Precipitation Report	Propagated the formation of the Flood Control District
1964	Millions of dollars	Floodplain Information Montecito Streams Vicinity of Montecito, SB County	Relatively light rain fell on recently burned areas. 20' walls of water, mud, boulders, and trees
1969	$4.5 million	Floodplain Information Montecito Streams Vicinity of Montecito, SB County	Highest flows in 2900 years on Santa Ynez River, 16" of rain in 24 hours at Juncal Dam
1971	Federal Disaster Declaration	Floodplain Information Montecito Streams Vicinity of Montecito, SB County	High flows and flooding along Romero Canyon Creek, Garrapata Creek, and Toro Canyon Creek
1978	Millions of dollars, Presidential Disaster Declaration	1993 Precipitation Report and Hydrology Methods	Inundation of agricultural areas and mudslides.
1980	Presidential Disaster Declaration	n/a	Severe flooding, mudslides, and high tides throughout County
1982-1983	2 Presidential Disaster Declarations	n/a	Parts of southern California received over 200% of normal rainfall

Date	Damages	Source of Estimate	Comments
1993	$1.4 million in disaster recovery funds received from FEMA	1993 Precipitation Report and Hydrology Methods	180%-209% or normal rainfall, with highest-ever intensity for the County recorded at Buellton Fire Station: $1^1/_4$ inches in 15 minutes.
January 1995	$50 million, Presidential Disaster Declaration	1995 Floods	Flooding on most major channels in Goleta, Santa Barbara, Montecito, and Carpinteria
March 1995	$30 million, Presidential Disaster Declaration	1995 Floods	Major flooding in Goleta, Santa Barbara, and Montecito, many of the same structures flooded in January were flooded again
1998	$15 million, Presidential Disaster Declaration	1998 Flood Report	21.36" of rainfall that month in Santa Barbara, many areas at 600% of normal February rainfall
February 2005	$2 million	NCDC	In Santa Barbara county, flash flooding and mudslides closed down Highway 101 at Bates Road.
January 26, 2011	Total Individual Assistance: $1,909,557 Total Public Assistance: $75,414,223 Countywide per capita impact: Santa Barbara County- $9.43, Presidential Disaster Declaration	FEMA	Severe winter storms, flooding, and debris and mudflows occurred from December 17, 2010 to January 4, 2011. The counties affected include: Inyo, Kern, Kings, Orange, Riverside, San Bernardino, San Diego, San Luis Obispo, Santa Barbara, and Tulare.
March 2011	$1.7 Million	County Insurance Claims	A severe winter storm occurred in March 2011 that included flooding, debris and mudflows flows throughout Santa Barbara County
March 1, 2014	$500k	Television Reports	A strong winter storm caused significant damage to coastal properties on the

Date	Damages	Source of Estimate	Comments
			south coast of Santa Barbara County. Coastal Damage; Goleta Pier partially closed
December 12, 2014	<$100k	County Flood Control District	A brief but intense rainfall, portions of which covered a limited area that exceeded a 200-year return period, caused damage county-wide, mostly in the form of downed trees, bank erosion and sediment and debris deposition.

While there is extensive detailed documentation of historical flood events in Santa Barbara County, the following section provides a summary of the more recent significant flood events:

1992 Flood- The 1992 – 1993 rainy season was one of the wettest recorded in Santa Barbara County, areas of the County received 180% to 209% normal rainfall. One of the County's highest short-duration rainfall intensities was recorded during 1993; 1-¼-inches fell in fifteen minutes at the Buellton Fire Station. Following a 25-year storm event that occurred in late March, Santa Barbara was declared a federal disaster area with 12 creeks substantially damaged along with several detention basins and residences. Santa Barbara County received approximately $1.4 million in disaster recovery funds from FEMA. (1993 Precipitation Report and Hydrology Methods) (Presidential Disaster Declaration)

1995 Flood- The floods of 1995 brought widespread flooding to Santa Barbara County. The most severe flooding occurred on the South Coast while the rest of the County was largely spared from serious damages. On the South Coast, the 1995 Flood was more severe and wide spread than either the 1969 or 1967 floods. Flooding occurred on most major streams from Goleta to Montecito. Estimated public and private damages were around $100 million and the area was declared a federal disaster area. (1995 Floods)

January 1995- Flooding occurred on most major channels in Goleta, Santa Barbara, Montecito, and Carpinteria. Approximately 510 structures were reported flooded and/or damaged along the South Coast, with a total cost resulting from public and private damages of approximately $50,000,000. All modes of transportation in and out of the South Coast were cut off for several hours; some modes of transportation were not restored for several days. (1995 Floods) (Presidential Disaster Declaration)

March 1995- During the March 10th 1995 storm, major flooding occurred again in the areas of Goleta, Santa Barbara, and Montecito. More than 300 structures were reported flooded and/or damaged; many of the same structures flooded or damaged during the January 1995 storm event. Approximately 30 million dollars of public and private property were damaged during the storm. Once again, all modes of transportation in and out of the South Coast were cut off for several hours. (1995 Floods) (Presidential Disaster Declaration)

1998 Flood– February 1998 brought several record-breaking rainfalls with 50-year storm event intensities. The City of Santa Barbara recorded its wettest month in history, 21.36-inches of rainfall. By

the end of the month, many areas in the County had received 600% of normal February rainfall. Flood related damages within Santa Barbara occurred during three major storm periods: February 1-4, February 6-9, and February 22-24. The cost to repair extensive flood damage to public and private property was estimated at $15 million. Just like in 1995, transportation throughout the County was disrupted through closures of roads, the Santa Barbara Airport, and train service. Flood damage was spread throughout the County and the County was declared a Federal Disaster Area on February 9. (Presidential Disaster Declaration)

Although the February storms had higher annual rainfalls, flooding in 1998 was considered less severe than other historical events due to flood control improvements, such as Cachuma Reservoir, and channel and debris dam maintenance performed by the County. (1998 Flood Report)

2005 Flood– A powerful Pacific storm tapped into a subtropical moisture source to produce heavy rain and flash flooding across Southwestern California. Overall, rainfall totals ranged from 4 to 8 inches over coastal areas to between 10 and 20 inches in the mountains. In Ventura County, State Route 150 was closed at the Dennison Grade due to flash flooding and mudslides. In Los Angeles County, numerous roadways were closed due to mudslide and flash flooding including Interstates 5 and 10, Highway 101 in Hollywood, North Topanga Canyon Road in the San Fernando Valley, Malibu Canyon Road near Malibu and East Colima Road in Walnut. *In Santa Barbara county, flash flooding and mudslides closed down Highway 101 at Bates Road. With such heavy rainfall, both the Santa Clara River and the Santa Ynez River exceeded their respective flood stages*. In the mountains of Ventura and Los Angeles counties, resort areas received between 3 and 4 feet of new snowfall. Preliminary damage estimates from this storm range between $8-10 million with agricultural interests in Ventura county accounting for most of the monetary damage.

2011 Flood- Severe winter storms, flooding, and debris and mudflows occurred from December 17, 2010 to January 4, 2011. The counties affected include: Inyo, Kern, Kings, Orange, Riverside, San Bernardino, San Diego, San Luis Obispo, Santa Barbara, and Tulare.

March 2011 Flood- A severe winter storm occurred in March 2011 that included flooding, debris and mudflows throughout Santa Barbara County.

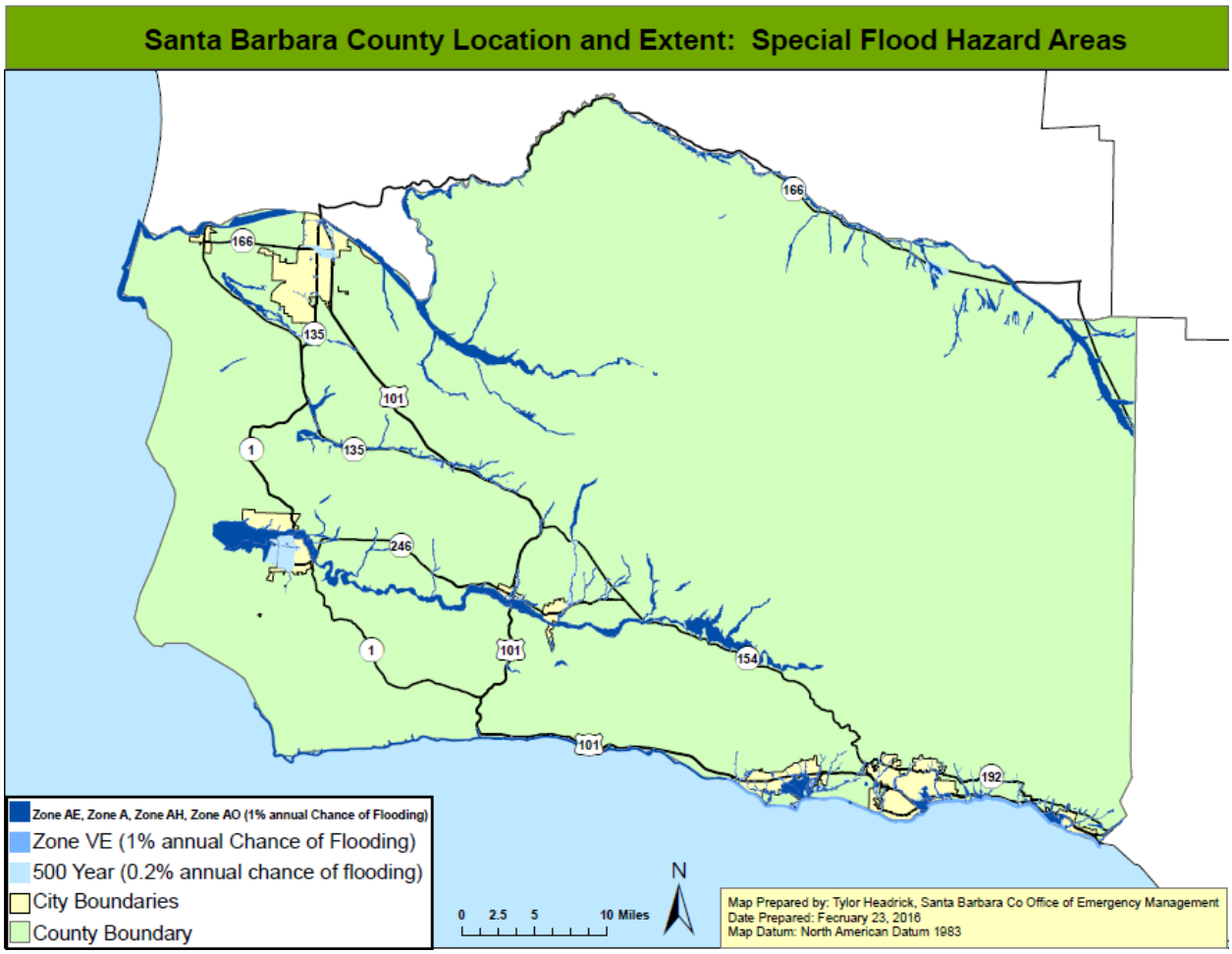
March 1st 2014- A strong winter storm caused significant damage to coastal properties on the south coast of Santa Barbara County

December 12, 2014 – A brief but intense rainfall, portions of which covered a limited area that exceeded a 200-year return period, caused damages county-wide, mostly in the form of downed trees, bank erosion and sediment and debris deposition.

5.4.1.4.4 Probability of Occurrence

The probability of flooding in Santa Barbara County is shown in **Figure 5.14**. The map shows the location of the special flood hazard zones in Santa Barbara County. The flood hazard zones depicted on the map are derived from FEMA's Flood Insurance Rate Maps (FIRM) and indicate the probability of flooding happening over a given period of time. Flood zones are geographic areas that defined varying levels of flood risk. Each zone reflects the severity or type of flooding in the area. The FIRM boundaries are developed by FEMA to convey flood risk.

Figure 5.14 Special Flood Hazard Area



Within the coastal special flood hazard area, there are two primary flood zones: Zone VE and Zone AE. Zone VE, also known as the Coastal High Hazard Area, has a wave component that is greater than three fee in height. Coastal Zone AE has a wave component of 0-3 feet in height.

This coastal study will result in floodplain mapping that is anticipated to become effective in 2018. Current indications are that the resulting base flood elevations will be several feet higher than the current flood mapping.

The following below describes the different flood hazard zones and their associated probabilities.

Zone A

Zone A is the flood insurance rate zone that corresponds to the 100-year floodplains that are determined in the Flood Insurance Study (FIS) by approximate methods. Because detailed hydraulic analyses are not performed for such areas, no BFEs or depths are shown within this zone. Mandatory flood insurance purchase requirements apply.

Zone AE and A1-A30

Zones AE and A1-A30 are the flood insurance rate zones that correspond to the 100-year floodplains that are determined in the FIS by detailed methods. In most instances, BFEs derived from the detailed hydraulic analyses are shown at selected intervals within this zone. Mandatory flood insurance purchase requirements apply.

Zone AH

Zone AH is the flood insurance rate zone that corresponds to the areas of 100-year shallow flooding with a constant water-surface elevation (usually areas of ponding) where average depths are between 1 and 3 feet. The BFEs derived from the detailed hydraulic analyses are shown at selected intervals within this zone. Mandatory flood insurance purchase requirements apply.

Zone AO

Zone AO is the flood insurance rate zone that corresponds to the areas of 100-year shallow flooding (usually sheet flow on sloping terrain) where average depths are between 1 and 3 feet. The depth should be averaged along the cross section and then along the direction of flow to determine the extent of the zone. Average flood depths derived from the detailed hydraulic analyses are shown within this zone. In addition, alluvial fan flood hazards are shown as Zone AO on the FIRM. Mandatory flood insurance purchase requirements apply.

Zone AR

Zone AR is the flood insurance rate zone used to depict areas protected from flood hazards by flood control structures, such as a levee, that are being restored. FEMA will consider using the Zone AR designation for a community if the flood protection system has been deemed restorable by a Federal agency in consultation with a local project sponsor; a minimum level of flood protection is still provided to the community by the system; and restoration of the flood protection system is scheduled to begin within a designated time period and in accordance with a progress plan negotiated between the community and FEMA. Mandatory purchase requirements for flood insurance will apply in Zone AR, but the rate will not exceed the rate for unnumbered A zones if the structure is built in compliance with Zone AR floodplain management regulations.

For floodplain management in Zone AR areas, elevation is not required for improvements to existing structures. However, for new construction, the structure must be elevated (or floodproofed for non-residential structures) such that the lowest floor, including basement, is a maximum of 3 feet above the highest adjacent existing grade if the depth of the base flood elevation (BFE) does not exceed 5 feet at the proposed development site. For infill sites, rehabilitation of existing structures, or redevelopment of previously developed areas, there is a 3 foot elevation requirement regardless of the depth of the BFE at the project site.

The Zone AR designation will be removed and the restored flood control system shown as providing protection from the 1% annual chance flood on the NFIP map upon completion of the restoration project and submittal of all the necessary data to FEMA.

Zone A99

Zone A99 is the flood insurance rate zone that corresponds to areas of the 100-year floodplains that will be protected by a Federal flood protection system where construction has reached specified statutory milestones. No BFEs or depths are shown within this zone. Mandatory flood insurance purchase requirements apply.

Zone D

The Zone D designation on NFIP maps is used for areas where there are possible but undetermined flood hazards. In areas designated as Zone D, no analysis of flood hazards has been conducted. Mandatory flood insurance purchase requirements do not apply, but coverage is available. The flood insurance rates for properties in Zone D are commensurate with the uncertainty of the flood risk

Zone V

Zone V is the flood insurance rate zone that corresponds to the 100-year coastal floodplains that have additional hazards associated with storm waves. Because approximate hydraulic analyses are performed for such areas, no BFEs are shown within this zone. Mandatory flood insurance purchase requirements apply.

Zone VE

Zone VE is the flood insurance rate zone that corresponds to the 100-year coastal floodplains that have additional hazards associated with storm waves. BFEs derived from the detailed hydraulic analyses are shown at selected intervals within this zone. Mandatory flood insurance purchase requirements apply.

Zones B, C, and X

Zones B, C, and X are the flood insurance rate zones that correspond to areas outside the 100-year floodplains, areas of 100-year sheet flow flooding where average depths are less than 1 foot, areas of 100-year stream flooding where the contributing drainage area is less than 1 square mile, or areas protected from the 100-year flood by levees. No BFEs or depths are shown within this zone.

5.4.1.4.5 Climate Change Consideration

Climate change is both a present threat and a slow-onset disaster. It acts as an amplifier of existing hazards. Extreme weather events have become more frequent over the past 40 to 50 years and this trend is projected

to continue. Rising sea levels, changes in rainfall distribution and intensity are expected to have a significant impact on coastal communities, including portions of Santa Barbara County. This section presents a discussion of how climate change might impact the frequency, intensity and distribution of flood hazards.

5.4.1.5 Drought and Water Shortages

5.4.1.5.1 Description of Hazard

Drought and water shortages are a gradual phenomenon and generally are not signified by one or two dry years. California's and Santa Barbara's extensive system of water supply infrastructure (reservoirs, groundwater basins, and interregional conveyance facilities) generally mitigates the effects of short-term dry periods for most water users. However, drought conditions are present when a region receives below-average precipitation, resulting in prolonged shortages in its water supply, whether atmospheric, surface, or ground water. A drought can last for months or years, or may be declared after as few as 15 days. Because of its unique geographical terrain and mediteranian climate, Santa Barbara County has not been in drought when there have been previous federal and state declarations. Conversly, Santa Barbara County is currently still in a drought emergency while the state of California is not. This recent drought emergency is the first local emergency declaration of drought in Santa Barbara County's history.

5.4.1.5.2 Location and Extent of Hazard in Santa Barbara County

The entire county is subject to drought conditions and water shortages. This is largly due to Lake Cachuma being the primary source of water for the whole county. Lake Cachuma primarily receives it water supply through precipitation run-off and has very limited access to state water resources. The extent of hazard is further articulated in the next passage.

5.4.1.5.3 History of Hazard in Santa Barbara County

The state of California and Santa Barbara have been in a drought since 2014. Recently, on April 7, 2017, Santa Barbara and the state, with a few exceptions declared the drought over. The average rainfall in Santa Barbara County is 17.6 inches; however, since 2016, Santa Barbara has experienced significantly less than normal rainfall. The effects of the drought are most visible when looking at the current capacity and maximum storage of the two main water reservoirs in the county, Lake Cachuma and Twitchell. On February 16, 2016, Cachuma was reported to be at 14.9% capacity, and Twitchell was at 0.2% capacity.

5.4.1.5.4 Probability of Occurrence

In any given year, Santa Barbara County can be subject to drought conditions and water shortages.

5.4.1.5.5 Climate Change Considerations

This entire section is dedicated to climate change hazards, and as such, is focused on climate change's effects on the community. However, it is important to highlight climate change's potential direct impact.

Climate change has the potential to make drought events more common in the West, including California. Extreme heat creates conditions more conducive for evaporation of moisture from the ground, thereby increasing the possibility of drought. A warming planet could lead to earlier melting of winter snow packs,

leaving lower stream flows and drier conditions in the late spring and summer. Snow packs are important in terms of providing water storage and ensuring adequate supply in the summer, when water is most needed. Changing precipitation distribution and intensity have the potential to cause more of the precipitation that does fall to run-off rather than be stored. The result of these processes is an increased potential for more frequent and more severe periods of drought.

5.4.1.6 Sea Level Rise and Erosion

5.4.1.6.1 Description of Hazard

Sea level rise (SLR) is defined as the rising of the level of the sea as a result of the so-called greenhouse effect or global warming. SLR can occur through one or more of three (3) processes that include eustasy, isostasy, or thermal expansion. Erosion is a natural process which alters existing geomorphic features. Erosion can occur due to a number of factors, including winter storms, tidal action, wind-generated high surf, wave action, and rising sea levels.

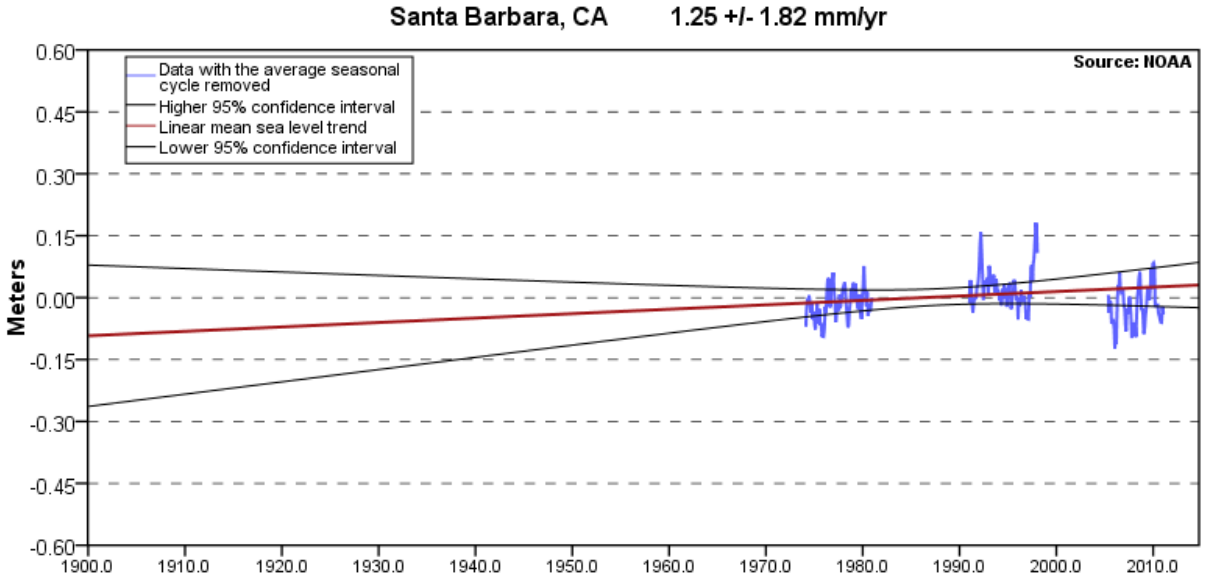
5.4.1.6.2 Location and Extent of Hazard in Santa Barbara County

The impacts from SLR and erosion in Santa Barbara County will be felt along its 110 mile long coastline. SLR coupled with increased frequency, severity, and duration of high tide and storm events related to climate change will result in more frequent and severe extreme events along the coast. These events could expose the coast to severe flooding and erosion, damage to coastal structures and real estate, and salinity intrusion into delta areas and coastal aquifers (Projecting Future Sea Level, A Report from the California Climate Change Center, 2006).

5.4.1.6.3 History of Hazard in Santa Barbara County

Typically, the highest sea level readings along California's coastline occur during periods of heavy rain that coincide with high tides, causing coastal flooding, coastal bluff erosion, and landslides such as were experienced during the 1998 El Nino storms. Sea levels are already rising along the Santa Barbara County coastline as is evident in long term tidal gauge records from Station 9411340 since 1973 (**Figure 5.15**).

Figure 5.15 Mean Sea Level Trend in Santa Barbara



In addition to SLR occurrence, below are several bridges throughout the County that are known to experience scour during flooding erosion events:

North County

- Foothill (Cuyama)
- Jalama Road at Ramajal Creek (Bridge No 51C-0016) is listed as Scour Critical, with Unstable Foundation

South County

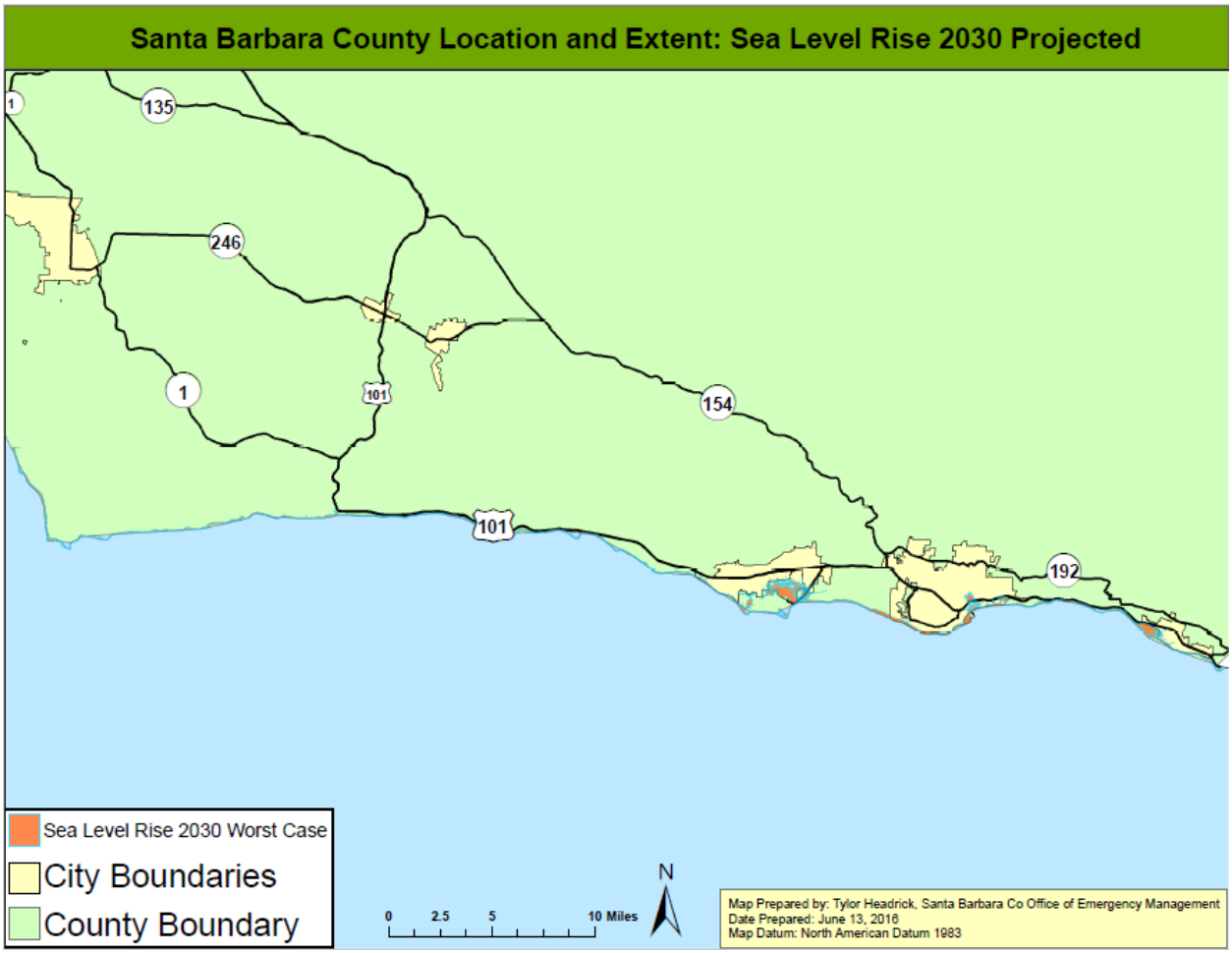
- East Mountain Drive at San Ysidro Creek (Bridge No 51C-0202) is listed as Scour Critical, with Extensive Foundation Scour
- Ashley Road at Montecito Creek (Bridge No 51C-0043) is listed as Scour Critical, with Extensive Foundation Scour

5.4.1.6.4 Probability of Occurrence

As discussed above, the potential impacts of global warming and climate change include increased opportunities for severe weather that may result in sea level rise and erosion. Santa Barbara County's land mass includes more than 110 miles of coastline with varying geologic features including steep coastal bluffs, beaches, wetlands, bays, and deltas. It also supports varying levels of development and land use, including recreational, agricultural, industrial, commercial, and residential.

A growing consensus of scientists believes that sea level rise will continue and the rate of rise will increase. The Intergovernmental Panel on Climate Change (IPCC) suggests that global SLR on the order of 0.2 m (0.66 ft.) and 0.6 m (1.97 ft.) is possible by 2100 with other scientists indicating this rise could be over 1 meter (3.28 ft.). **Figure 5.16** depicts areas (dark blue along and near the Santa Barbara County coastline that may be vulnerable to sea level rise.

Figure 5.16 Sea Level Rise Santa Barbara Quadrangle



5.4.1.6.5 Climate Change Considerations

This entire section is dedicated to climate change hazards, and as such, is focused on climate change's effects on the community. However, it is important to highlight climate change's potential direct impact.

As mentioned above, SLR can be caused by three (3) different processes. Two (2) of which, melting of ice sheets and/or thermal expansion of water, are a result of climate change and/or global warming

Erosion can be increased by climate change in two (2) ways. First, sea level rise, over time, will cause more rapid erosion of more inland areas than in previous years. This will be chronic erosion, however it will reach new, more inland areas, in the future due to higher average sea levels. Secondly, while the topic of increased frequency of storms is up in debate, if more severe or frequent storms do occur, it will increase coastal erosion events. More frequent storms will impact how frequently acute coastal erosion events occur, while more intense events will cause the erosion to extend further inland than before.

5.4.1.7 Energy Shortage and Resiliency

5.4.1.7.1 Description of Hazard

Energy shortages (or disruptions) are considered a form of lifeline system failure. Disruptions can be the consequence of another hazard, or can be a primary hazard, absent of an outside trigger. A failure could involve one, or a combination of the potable water system, power system, natural gas system, wastewater system, communication system, or transportation system. Most power blackouts are not human caused. They are the result of situations involving unintended events, such as an overwhelming need for power due to weather conditions, equipment failure, or accidents. They may also fail due to natural hazards such as earthquakes, floods, and landslides. These outages can last anywhere from a few minutes to several weeks.

Santa Barbara County has two service providers. Pacific Gas and Electric (PG&E) provides electricity in the northern part of the County, with termination of services north of the Gaviota area. Southern California Edison (SCE) provides power to the Southern parts of the County, with termination of services in Gaviota. The two systems are not connected. Thus, is there is a major interruption of service in the Santa Barbara area, then all serviced could be denied in either direction.

Both power companies are well aware of the restrictions on their systems and are making planned systematic changes to address the shortcomings. SCE has temporarily deployed several portable generators in the Goleta Valley to mitigate any problems that may occur during the El Nino rain season.

5.4.1.7.2 Location and Extent of Hazard in Santa Barbara County

The entire county is subject to energy shortages.

5.4.1.7.3 History of Hazard in Santa Barbara County

Energy disruptions on a small scale have occurred on a regular basis in Santa Barbara County.

5.4.1.7.4 Probability of Occurrence

In any given year, Santa Barbara County can be subject to energy shortages. A large disruption due to a power failure or rotating brown out highly likely.

5.4.1.7.5 Climate Change Considerations

With increased changes in weather and climate, the demands on energy will shift too. This shift in demand could have significant impacts on energy supply and demand.

5.4.1.8 Oil Spills

5.4.1.8.1 Description of Hazard

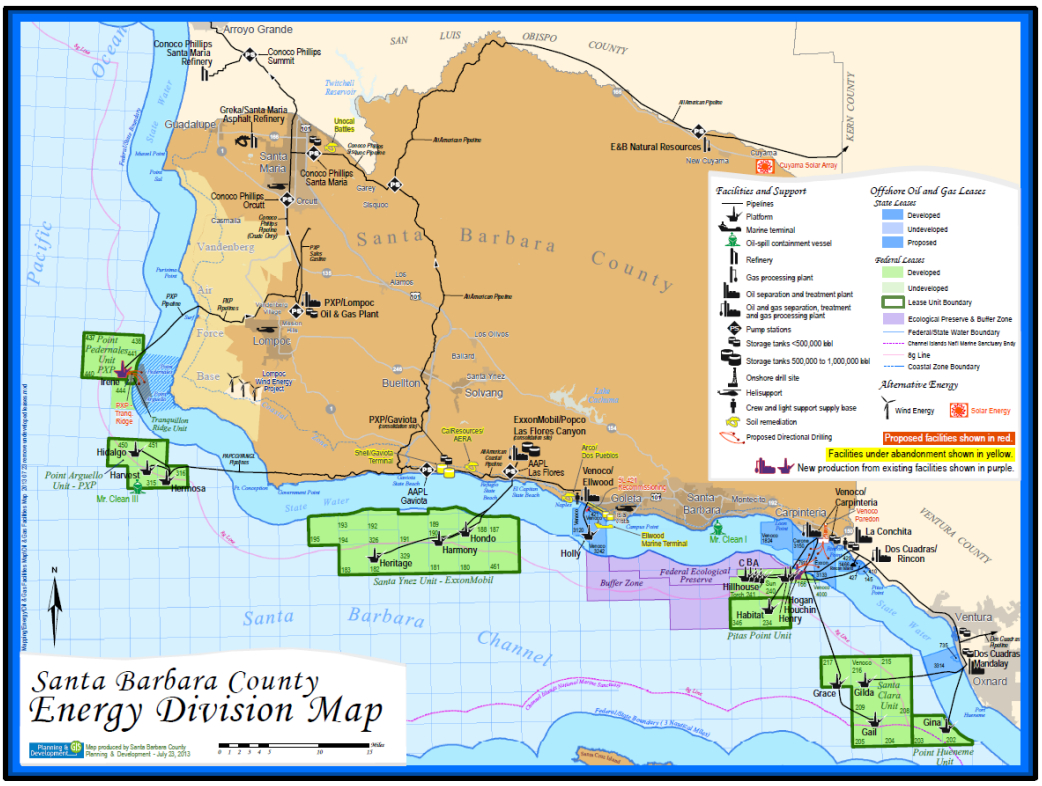
An oil spill is a release of liquid petroleum hydrocarbon into the environment due to human activity or technological error that results in pollution of land, water, and air. Oil releases also occur naturally through

oil seeps either on land or under water. Marine oil spills, whether accidental or intentional, can result from the release of crude oil from offshore oil platforms, drilling rigs, wells, underwater pipelines, tank trucks, and marine tank vessels (tankers) and even supply pipelines on land. Refined petroleum products such as gasoline, diesel, and heavier fuels such as bunker fuel used by cargo ships are also sources of potential oil spill releases. Depending on the origin, size, and duration of the release, an oil spill can have serious impacts on air and water quality, public health, plant and animal habitat, and biological resources. Clean up and recovery is time and cost consuming, and dependent on weather conditions such as wind and rain. Tidal and Current conditions may also make the spill more dynamic.

5.4.1.8.2 Location and Extent of Hazard in Santa Barbara County

This hazard can occur in any part of Santa Barbara County where existing oil & gas operations are located, either on-shore through supply pipelines and well facilities or off-shore where there are several platforms and undersea pipelines. Currently, there are 11 Oil Platforms off of the Santa Barbara County Coast and approximately 2457 oil and gas wells in Santa Barbara County. **Figure 6.12** show the Oil Platforms and their proximity to Santa Barbara.

Figure 6.18 Oil Platform Map of Santa Barbara Coast



5.4.1.8.3 History of Hazard in Santa Barbara County

Santa Barbara County has experienced the following large oil spills:

- January 28, 1969 Platform A - 80,000 to 100,000 barrels
- September 28, 1997 Platform Irene - 163 barrels

- May 19, 2015 Pipeline 901 at Refugio - 3,400 barrels

5.4.1.8.4 Probability of Occurrence

In any given year, Santa Barbara County could be subject to oil spills onshore or offshore.

5.4.1.8.5 Climate Change Considerations

With increased changes in weather, climate, and economics, the demands for oil & gas production may shift. This shift in demand could increase production, distribution, and transportation of oil products; thus increasing the potential oil spill occurrences.

5.4.2 Lower Priority Hazards of Interest

5.4.2.1 Severe Weather and Storms

This section assesses hazards that are related to climate and weather. NASA defines weather as the way the atmosphere is behaving, mainly with respect to its effects upon life and human activities. The difference between weather and climate is that weather consists of the short-term (minutes to months) changes in the atmosphere. Most people think of weather in terms of temperature, humidity, precipitation, cloudiness, brightness, visibility, wind, and atmospheric pressure, as in high and low pressure. In most places, weather can change from minute-to-minute, hour-to-hour, day-to-day, and season-to season. Climate, however, is the average of weather over time and space. Fifty-eight long-term changes in the climate, especially those driven by the accumulation of anthropogenic greenhouse gases in the atmosphere, are expected to change short-term weather patterns and thus change weather-related impacts, both short- and long-term. Most prominently, climate change is warming the average global temperatures, which will result in more frequent and intense extreme events related to changes in temperature and precipitation, such as heat waves, flooding.

In the State Hazard Mitigation Plan, climate change is treated as a condition that will change and potentially exacerbate the impact of other hazards rather than being treated as a distinct hazard with unique impacts. For example, extreme heat and heat waves is an existing hazard that will be exacerbated by climate change. Impacts of climate change on the frequency, timing, and magnitude of flooding varies with the geography throughout the state. Areas that experience early run off from snow melt coupled with intensified rain or coastal areas experiencing sea level rise may be more greatly impacted by flooding. Hazards that have the potential to be affected by climate change are grouped in this subsection.

5.4.2.1.1 Extreme Heat

5.4.2.1.1.1 *Description of Hazard*

Extreme Heat is a function of heat and relative humidity. A Heat Index describes how hot the heat-humidity combination makes the air feel. As relative humidity increases, the air seems warmer than it actually is because the body is less able to cool itself via evaporation of perspiration. As the Heat Index rises, so do health risks such as heat exhaustion, sunstroke, and heatstroke. Some Heat Index Program Alert procedures

are implemented when the high temperature is expected to exceed 105° to 110° (depending on local climate) for at least two consecutive days.

5.4.2.1.1.2 *Location and Extent of Hazard in Santa Barbara County*

The entire county is subject to extreme heat conditions, particularly inland areas.

5.4.2.1.1.3 *History of Hazard in Santa Barbara County*

Santa Barbara County has experienced several extreme heat events in the past; however, they are not well documented. One documented event, Simoon, occurred in June 17, 1859 where a U.S. Coast Guard vessel recorded a record temperature of 133 degrees Fahrenheit in Goleta during a sundowner event on the Santa Barbara coast. This event set the world record for hottest temperature ever recorded on Earth, which held for 75 years until the record was broken by one degree in Death Valley, and then again in 1922 in Libya.

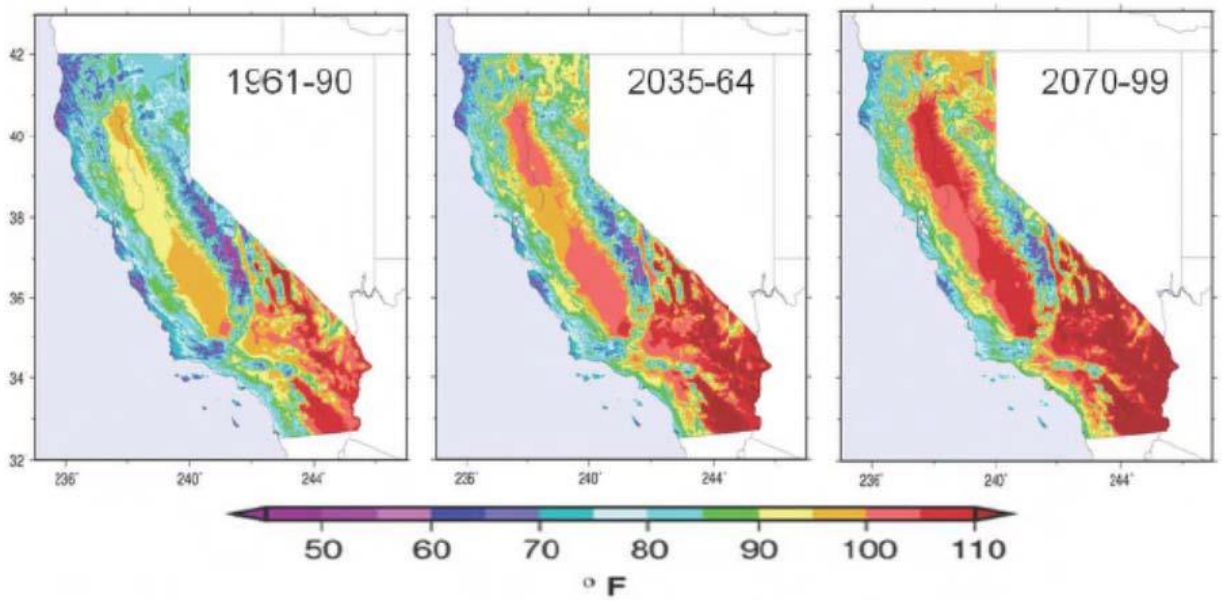
5.4.2.1.1.4 *Probability of Occurrence*

In any given year, Santa Barbara County can be subject to extreme heat conditions.

5.4.2.1.1.5 *Climate Change Considerations*

As temperatures rise due to climate change, Californians will face greater risk of death from dehydration, heat stroke/exhaustion, heart attack, stroke, and respiratory distress caused by extreme heat. By mid-century, extreme heat events in urban centers could cause two to three times more heat-related deaths than occur today. By 2100, hotter temperatures are expected throughout the state, with an increase of 3 to 5.5°F under the lower emissions scenario and 8 to 10.5°F under the higher emissions scenario (**Figure 5.17**).

Figure 5.17 Comparison between Historic and Projected Temperature



5.4.2.1.2 Freeze

5.4.2.1.2.1 *Description of Hazard*

Freeze conditions are noted when there are sustained temperatures below 32 degree farenheit or below.

5.4.2.1.2.2 *Location and Extent of Hazard in Santa Barbara County*

The entire county is subject to freeze conditions; however, they are more prevalent with inland areas.

5.4.2.1.2.3 *History of Hazard in Santa Barbara County*

There have been two federally declared freeze events in Santa Barbara County. The first occurred from December 19, 1990 through January 3, 1991 and was federally declared on February 11, 1991. The second occurred from January 11, 2007 through Janary 17, 2007 and was federally declared on March 13, 2007.

5.4.2.1.2.4 *Probability of Occurrence*

In any given year, Santa Barbara County can be subject to freeze conditions.

5.4.2.1.2.5 *Climate Change Considerations*

Freezing spells are likely to become less frequent as climate temperatures increase; if emissions follow higher pathways, freezing events could occur only once per decade in a sizable portion of the state by the second half of the 21st century.

5.4.2.1.3 Hailstorm

5.4.2.1.3.1 *Description of Hazard*

Hail is a type of precipitation in the form of pellets or balls of ice more than .19 inches in diameter. Out of all the types of Severe Weather, hail can pose the highest risk to the economy of the county with respect to crop and property damage.

5.4.2.1.3.2 *Location and Extent of Hazard in Santa Barbara County*

The entire county is subject to hailstorms; however, they are more prevelant with inland areas.

5.4.2.1.3.3 *History of Hazard in Santa Barbara County*

There is no current record of a hailstorm in the County.

5.4.2.1.3.4 *Probability of Occurrence*

In any given year, Santa Barbara County can be subject to hailstorm condition.

5.4.2.1.3.5 *Climate Change Considerations*

Hailstorms have the possibility of becoming more frequent with the climate temperatures increasing, and the atmosphere becomes more convective.

5.4.2.1.4 Hurricanes

5.4.2.1.4.1 *Description of Hazard*

A hurricane is an example of a tropical cyclone; they can be up to 600 miles across and have wind speeds between 75 to 200 miles per hour. Each hurricane usually lasts for over a week, moving 10-20 miles per hour over the open ocean. Hurricanes gather heat and energy through contact with warm ocean waters; Hurricanes only form over really warm ocean water of 80°F or warmer. Evaporation from the seawater increases their power. Hurricanes rotate in a counter-clockwise direction around an "eye" in the Northern Hemisphere and clockwise direction in the Southern Hemisphere. The center of the storm or "eye" is the calmest part.

Hurricanes also develop in stages; working their way up to hurricane status:

Tropical Wave	A low pressure trough moving generally westward with the trade winds.
Tropical Disturbance	An organized area of thunderstorms that usually forms in the tropics. Typically, they maintain their identity for 24 hours and are accompanied by heavy rains and gusty winds.
Tropical Cyclone	A generic term for any organized low pressure that develops over tropical and sometimes sub-tropical waters. Tropical depressions, tropical storms, and hurricanes are all example of tropical cyclones.
Tropical Depression	An organized area of low pressure in which sustained winds are 38 mph or less.
Tropical Storm	A tropical cyclone with maximum sustained wind speeds that range from 39 to 73 mph.
Hurricane	A tropical cyclone with sustained winds of at least 74 mph.

Hurricanes are categorized by characteristics (winds, pressure, and damage):

Category	Winds (MPH)	Pressure (Millibars)	Pressure (Inches)	Storm Surge (Feet)	Damage
1	74-95	<980	<28.94	4'-5'	Minimal
2	96-110	979-965	28.91-28.50	6'-8'	Moderate
3	111-130	964-945	28.47-27.91	9'-12'	Extensive
4	131-155	944-920	27.88-27.17	13'-18'	Extreme
5	>155	<920	<27.17	>18'	Catastrophic

5.4.2.1.4.2 *Location and Extent of Hazard in Santa Barbara County*

Although highly unlikely, the entire county is subject to be hit by a hurricane.

5.4.2.1.4.3 *History of Hazard in Santa Barbara County*

No significant hurricanes have hit Santa Barbara County. This is largely due to the fact that tropical storm winds generally blow from east to west and the waters off the coast of Santa Barbara are cooler in nature.

5.4.2.1.4.4 *Probability of Occurrence*

Although possible, Santa Barbara County is at very low risk of experiencing a significant hurricane event.

5.4.2.1.4.5 *Climate Change Considerations*

Because climate change effects are still being studied it is difficult to say if changing climate conditions will increase the chance of a significant hurricane impacting Santa Barbara County in the future.

5.4.2.1.5 Tornadoes

5.4.2.1.5.1 *Description of Hazard*

A tornado is a violent rotating column of air extending from cloud to ground. The most violent tornadoes are capable of tremendous destruction with wind speeds of up to 300 mph. They can destroy large buildings, uproot trees and throw vehicles hundreds of yards. They can also drive straw into trees. Damage paths can be in excess of one mile wide to 50 miles long.

Most tornadoes form from thunderstorms. They need warm, moist air from the Gulf of Mexico and cool, dry air from Canada. When these two air masses meet, they create instability in the atmosphere. A change in wind direction and an increase in wind speed with increasing height creates an invisible, horizontal spinning effect in the lower atmosphere. Rising air within the updraft tilts the rotating air from horizontal to vertical. An area of rotation, 2-6 miles wide, now extends through much of the storm. Most strong and violent tornadoes form within this area of strong rotation.

Tornadoes are measured by the Fujita Tornado Scale which classifies tornadoes by intensity categories, based on the maximum winds occurring within the funnel.

Category	Wind Speed	Description
F0	40-72 miles per Hour	Gale Tornado. Light Damage: Some damage to chimneys; breaks twigs and branches off trees; pushes over shallow-rooted trees; damages signboards; some windows broken; hurricane wind speed begins at 73 miles per hour.
F1	73-112 miles per hour	Moderate Tornado. Moderate Damage: Peels surfaces off roofs; mobile homes pushed off foundations or overturned; outbuildings demolished; moving autos pushed off the

		roads; trees snapped or broken.
F2	113-157 miles per hour	Significant Tornado. Considerable Damage: Roofs torn off frame houses; mobile homes demolished; frame houses with weak foundations lifted and moved; boxcars pushed over; large trees snapped or uprooted; light-object missiles generated.
F3	158-206 miles per hour	Severe Tornado. Severe Damage: Roofs and some walls torn off well constructed houses; trains overturned; most trees in forests uprooted; heavy cars lifted off the ground and thrown; weak pavement blown off roads.
F4	207-260 miles per hour	Devastating Tornado. Devastating Damage: Well-constructed homes leveled; structures with weak foundations blown off some distance; cars thrown and disintegrated; large missiles generated; trees in forest uprooted and carried some distance away.
F5	261-318 miles per hour	Incredible Tornado. Incredible Damage: Strong frame houses lifted off foundations and carried considerable distance to disintegrate; automobile-sized missiles fly through the air in excess of 300 feet (100 meters); trees debarked; incredible phenomena will occur.
F6-12	>319 miles per Hour	The maximum wind speeds of tornadoes are not expected to reach the F6 wind speeds.

5.4.2.1.5.2 *Location and Extent of Hazard in Santa Barbara County*

Although highly unlikely, the entire county is subject to be hit by a tornado.

5.4.2.1.5.3 *History of Hazard in Santa Barbara County*

Santa Barbara County has experienced waterspouts (weaker tornadoes that form over water) and microburst (sinking air) but it has not experienced any significant tornadoes. As comparison, the state of California has experienced 316 tornadoes between 1950 and 2006; however, not of them have required a state and/or federal declaration. Of the 316, 2 reach F3; 22 reach F2, 84 were F1, and 208 were F0.

5.4.2.1.5.4 *Probability of Occurrence*

Although possible, Santa Barbara County is at very low risk of experiencing a significant tornado event.

5.4.2.1.5.5 *Climate Change Considerations*

Because climate change effects are still being studied it is difficult to say if changing climate conditions will increase the chance of a significant tornado impacting Santa Barbara County in the future.

5.4.2.1.6 Windstorm

5.4.2.1.6.1 *Description of Hazard*

Santa Barbara County is predominately known to have damaging hot winds known as Sundowners. These winds can reach up to 80 mph and fuel raging wildfires on the south coast. Sundowner events are most prevelant in the Spring and Summer months, but can strike at any time of the year. Their greatest frequency is typically in the late afternoon and early evening hours. Sundowner winds occur as a strong north-south pressure gradient developing between the central coast and the Los Angeles Basin, thus causing gusty north winds to blow over the Santa Ynez Mountain range and decending to down towards the water. As the winds come up and over the mountain, they warm and dry the air (which is typically cool and moist along the coast) and gain speed coming down through the passes and coastal canyons causing a high speed of wind.

Santa Barbara County can occasionally experience Santa Ana winds, which are warm, dry, and can exceed 40 mph. Santa Ana's are most prevelant in the autumn and winter months. These winds originate from cool, dry high pressure air masses in the Great Basin. They come up, over and are pulled southward down the eastern side of the Sierra Nevadas and into the Southern California region.

5.4.2.1.6.2 *Location and Extent of Hazard in Santa Barbara County*

All of Santa Barbara County is susceptible to Sundowner windstorms and south county is minimally susceptible to Santa Anas.

5.4.2.1.6.3 *History of Hazard in Santa Barbara County*

Sundowner winds have a complex history in Santa Barbara County. They have caused Extreme Heat bringing record breaking temperatures to the area (such as the Simoon event in Goleta in 1859), as well as exacerbating fire weather and expanding already burning brush fires (such as the Painted Cave Fire in 1990, Gap and Tea Fire in 2008, Jesusita Fire in 2009, and Sherpa Fire in 2016). Beyond extreme heat and dangerous fire weather conditions, Sundowner winds can cause damage to critical infrastructure, crop and agriculture, and personal property.

5.4.2.1.6.4 *Probability of Occurrence*

Santa Barbara County is at risk of windstorms at any given time during the calender year.

5.4.2.1.6.5 *Climate Change Considerations*

Climate change effects, although still being studied, will have an affect on sundowner and santa ana windstorms in the future.

5.4.2.2 Dam Failure

5.4.2.2.1 Description of Hazard

Dams fail due to old age, poor design, structural damage, improper siting, landslides flowing into a reservoir, or terrorist actions. Structural damage is often a result of a flood, erosion, or earthquake. A catastrophic dam failure could inundate the area downstream. The force of the water is large enough to carry boulders, trees, automobiles, and even houses along a destructive path downstream. The potential for casualties,

environmental damage, and economic loss is great. Damage to electric generating facilities and transmission lines could impact life support systems in communities outside the immediate hazard area.

5.4.2.2.2 History of Hazard in Santa Barbara County

The State of California and the federal government have a rigorous Dam Safety Program. This is a proactive program that ensure proper planning in the event of failure but also sets standards for dam design and maintenance. Because of this, many potential issues have been addressed and/or resolved. Prior to the implementation of this program Santa Barbara did experience a dam related incident.

Built in 1917, the Sheffield Dam only survived for eight years, failing catastrophically during an earthquake in 1925. It was built on sandy soil which liquefied during the event. The center 300-feet of the 720-feet long dam broke off and was carried away on the liquefied soil, spilling 30 million gallons of water. Damage estimates are unavailable.

5.4.2.2.3 Location and Extent of Hazard in Santa Barbara County

There are 15 dams in the County. These dams range in purpose from water supply to flood control. Dam failure inundation zones mapped by the State of California indicate areas that would be inundated should a dam fail catastrophically. The inundation mapping is considered confidential by the State of California. **Figure 5.18 and Figure 5.19** display the dam locations and dam inundation areas.

Figure 5.19 Dam Locations

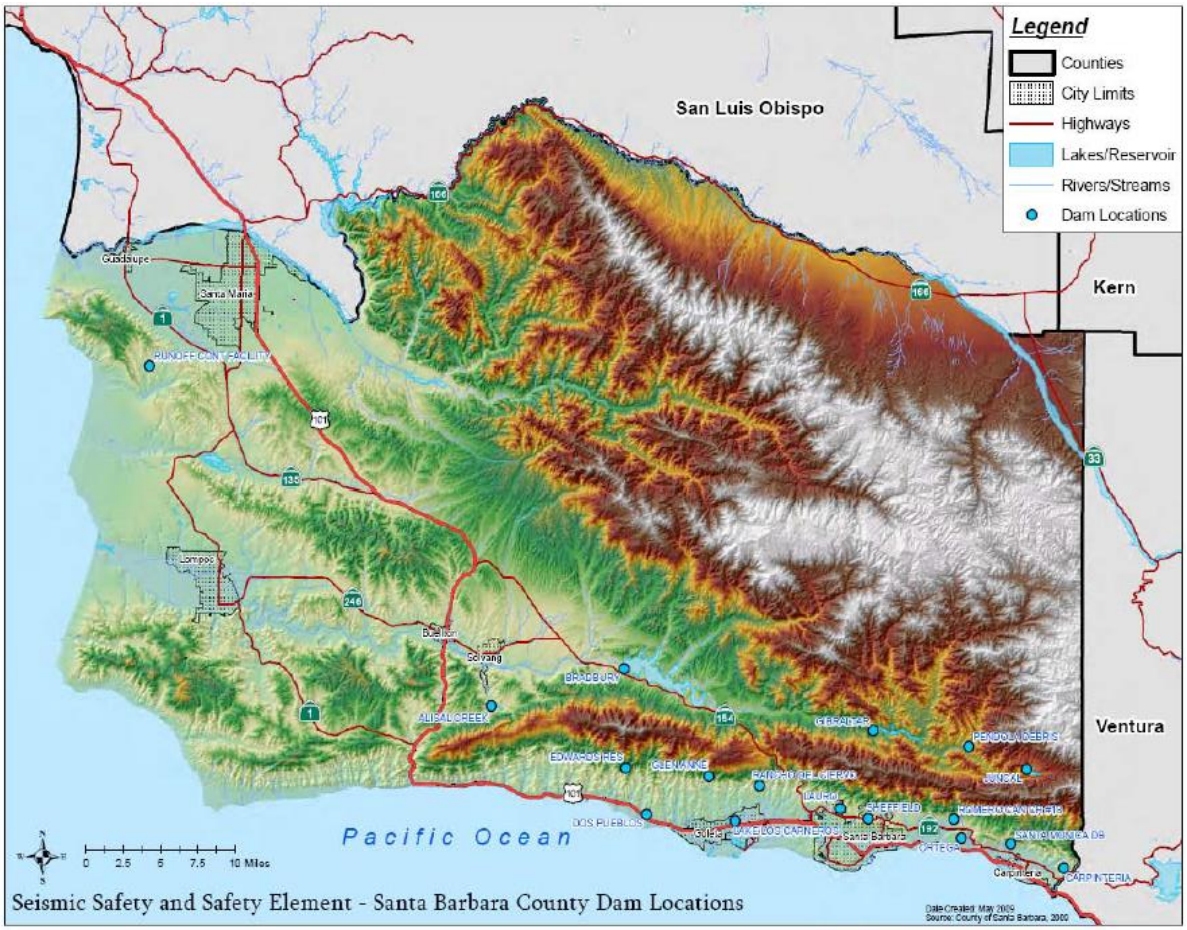
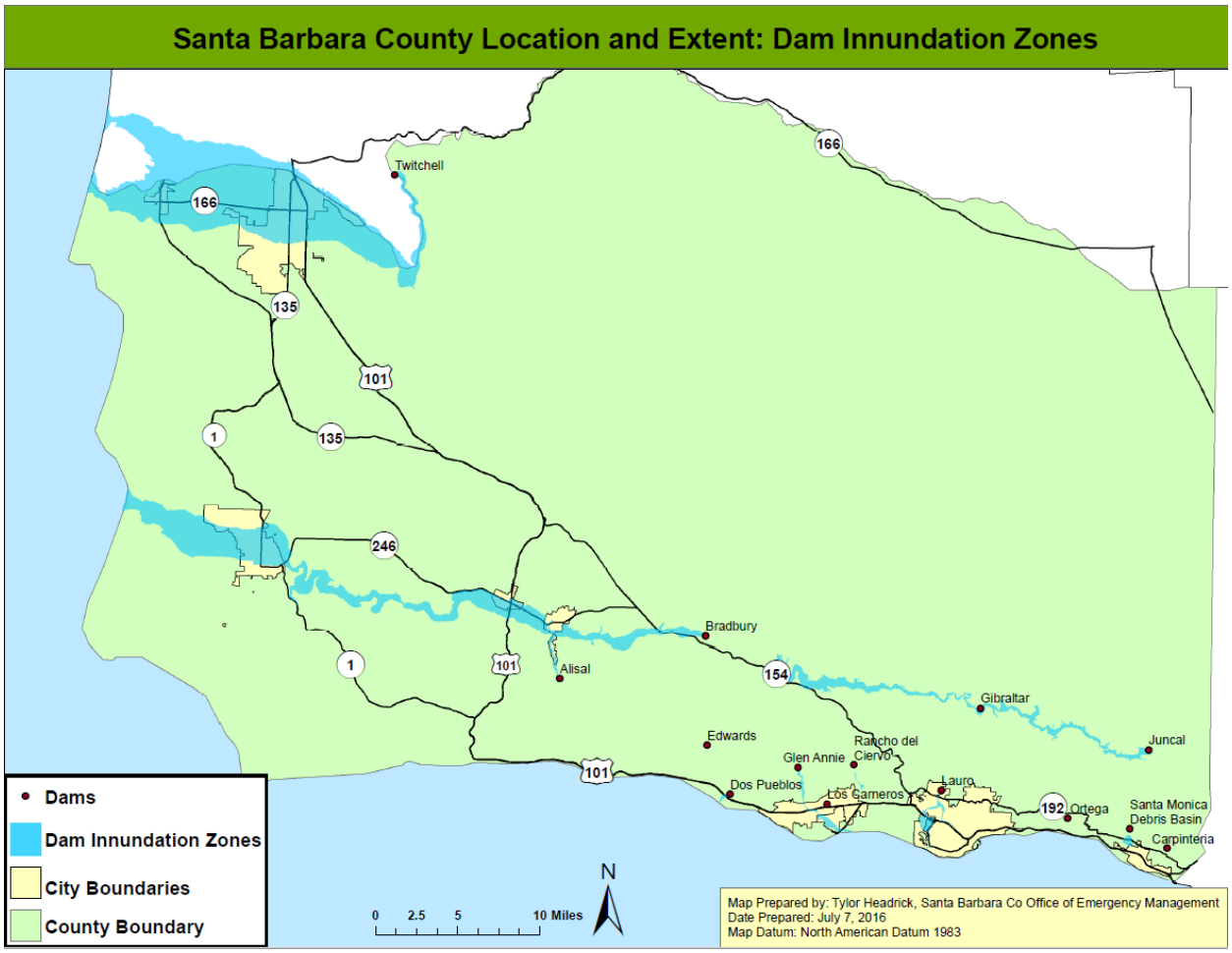


Figure 5.20 Dam Inundation Zones



5.4.2.2.4 Probability of Occurrence

Dam failure events are infrequent and usually coincide with the events that cause them, such as earthquakes, landslides and excessive rainfall and snowmelt. There is a "residual risk" associated with dams; residual risk is the risk that remains after safeguards have been implemented. For dams, the residual risk is associated with events beyond those that the facility was designed to withstand. However, the probability of occurrence of any type of dam failure event is considered to be low in today's regulatory and dam safety oversight environment.

5.4.2.2.5 Climate Change Considerations

Increased rainfall from changing climate conditions could present a risk to dams in Santa Barbara County if volume of runoff is greater than the dam's capacity. This could cause the County to release stored water into the downstream water courses in order to ensure the integrity of the dam.

5.4.2.3 Agricultural Pests

5.4.2.3.1 Description of Hazard

Agricultural pests and disease infestation occur when an undesirable organism inhabits an area in a manner that causes serious harm to agriculture crops, livestock or poultry, and wild land vegetation or animals. Countless insects and diseases live on, in, and around plants and animals in all environments. Most are harmless, while some can cause significant damage and loss. Under some conditions, insects and diseases that have been relatively harmless can become hazardous. For example, severe drought conditions can weaken trees and make them more susceptible to destruction from insect attacks than they would be under normal conditions.

5.4.2.3.2 History of Hazard in Santa Barbara County

Santa Barbara County has a demonstrated vulnerability to insect infestation. Infestations of Mediterranean Fruit Fly, Oriental Fruit Fly, Gypsy Moth, Glassy-winged Sharpshooter, Asian Citrus Psyllid, and Light-Brown Apple Moth have all occurred in the last 30 years. Diseases such as Chrysanthemum White Rust and Pierce's Disease of Grapes have caused significant losses to local growers.

5.4.2.3.3 Location and Extent of Hazard in Santa Barbara County

Figure 5.20 shows land that, under the Williamson Act, has been zoned as agricultural, open space, or recreational. These lands are susceptible to agricultural pests and diseases. **Figure 5.21** portrays crop land. These areas are also susceptible to agricultural pests and diseases.

Figure 5.21 Agricultural Fields

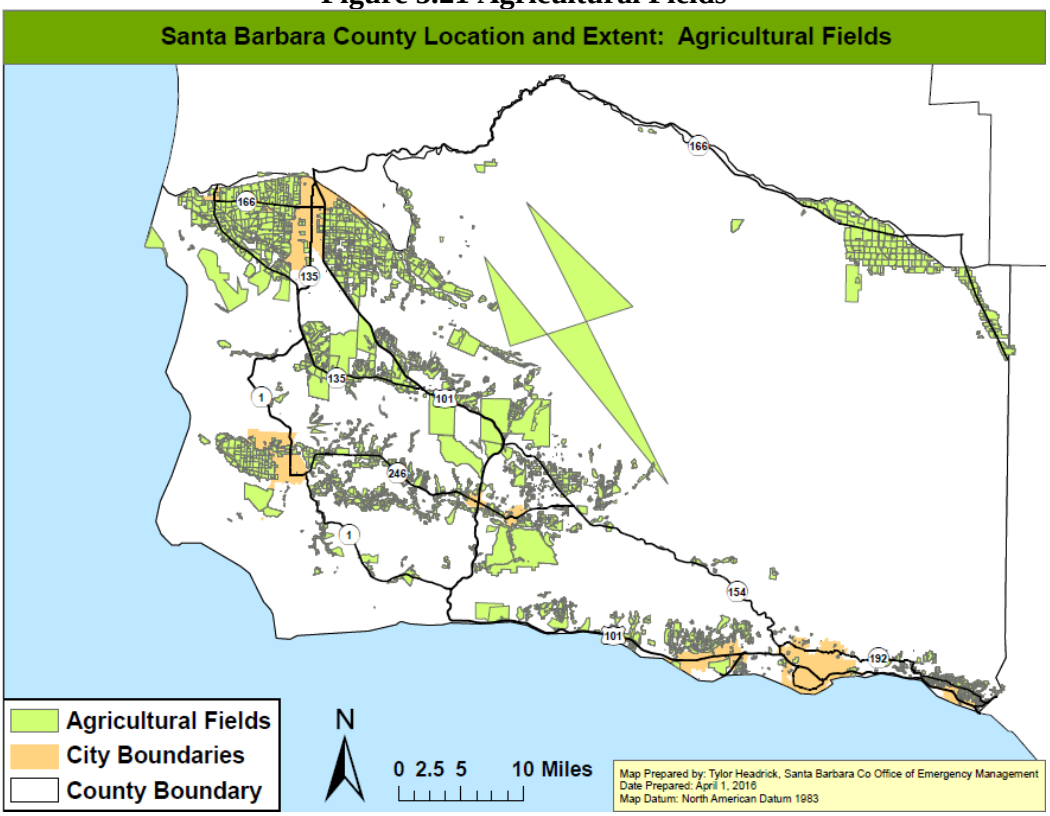
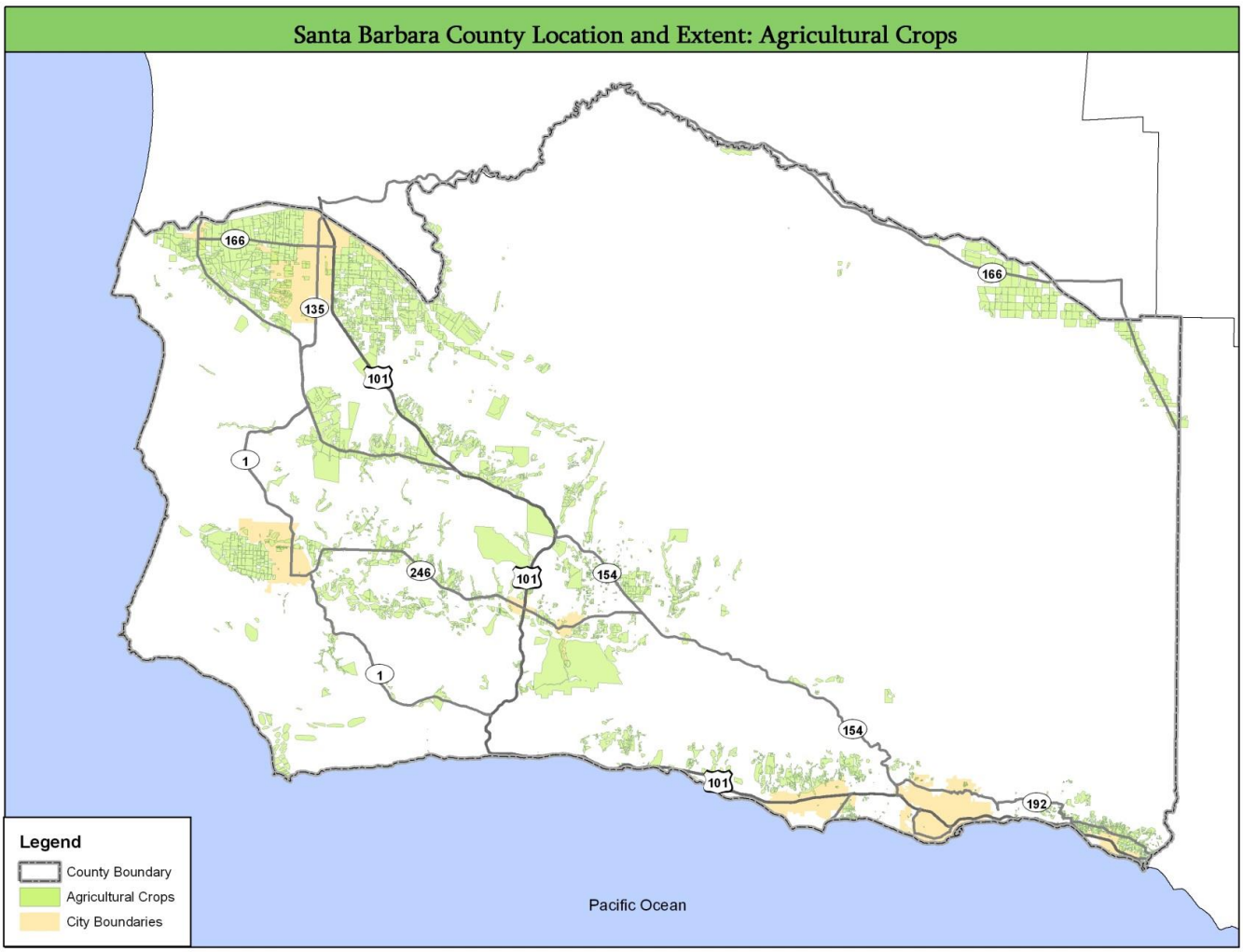


Figure 5.22 Agricultural Crops



5.4.2.3.4 Probability of Occurrence

Due to its interaction with the global economy, its mild Mediterranean climate, and its diversified agricultural and native landscape, Santa Barbara County currently experiences and will continue to experience periodic losses due to agricultural pests and diseases.

5.4.2.3.5 Climate Change Consideration

California farmers contend with a wide range of crop-damaging pests and pathogens. Continued climate change is likely to alter the abundance and types of many pests, lengthen pests' breeding season, and increase pathogen growth rates. For example, the pink bollworm, a common pest of cotton crops, is currently a problem only in southern desert valleys because it cannot survive winter frosts elsewhere in the state. However, if winter temperatures rise 3 to 4.5°F, the pink bollworm's range would likely expand northward, which could lead to substantial economic and ecological consequences for the state.

Temperature is not the only climatic influence on pests. For example, some insects are unable to cope in extreme drought, while others cannot survive in extremely wet conditions. Furthermore, while warming speeds up the lifecycles of many insects, suggesting that pest problems could increase, some insects may

grow more slowly as elevated carbon dioxide levels decrease the protein content of the leaves on which they feed (California Climate Change Center 2006).

5.4.2.4 Epidemic/Pandemic/Vector Borne Disease

5.4.2.4.1 Description of Hazard

Infectious disease emergencies are circumstances caused by biological agents, including organisms such as bacteria, viruses or toxins, with the potential for significant illness or death in the population.

Infectious disease emergencies may be caused by:

- Naturally occurring diseases spread person to person (e.g., measles, mumps, meningococcal disease, tuberculosis)
- Foodborne (e.g.: salmonella, Ecoli, botulinum toxin, etc.)
- Vectors such as a mosquito that spread disease (e.g.: West Nile virus, dengue, Zika, malaria).
- Newly emerging infectious diseases (e.g.: Ebola, Zika, SARS, MERS, avian influenza).
- Intentionally caused spread of disease or toxins known as bioterrorism. Past bioterrorism events include the contamination of restaurant food with Ecoli in Oregon (1984) and the release of Sarin gas in the Tokyo subway (1995).

The impact of infectious disease emergencies on the local community and its critical infrastructure will depends on:

- The type of biological agent and availability of treatment for victims
- The availability of prophylaxis for responders and the public
- The scale of exposure and ongoing exposure
- The mode of transmission and whether transmission can be interrupted
- Whether the event is affecting staffing for critical infrastructure within and outside of the county such as transportation, law enforcement, health care, and the medical and food supply chains.

Outbreaks, Epidemics, and Pandemics

An **outbreak** is when there are more cases than would be normally expected, often suddenly, of an infectious disease in a community or facility.
An **epidemic** is when there are more cases than would be normally expected of an infectious disease, often suddenly, in a population of a large geographic area.
A **pandemic** refers to an epidemic that has spread over several countries or continents, usually affecting a large number of people. Examples include pandemic influenza and Severe Acute Respiratory Syndrome or "SARS".

Outbreaks, epidemics, or pandemics can occur when a new virus emerges to which the population has little immunity. The 20th century saw three such pandemics, the most notable of which was the 1918 Spanish influenza pandemic that was responsible for 20 million deaths throughout the world. Secondary impacts include significant economic disruption to a community's infrastructure due to loss of employee work time, essential services and products, and costs of treating or preventing spread of the disease.

Public health measures are used to control outbreaks, epidemics, or pandemics of infectious diseases, and are especially important for diseases with high morbidity or mortality and limited medical prophylaxis and/or rapid treatment.

Measures to control disease include:

- Legal measure such as isolation and quarantine of persons or products, and legal closure of food establishments.
- Control of contaminated food or water through recall of product or, for water, "Do Not Use", "Do Not Drink" or "Boil Water" orders issued by state or local health departments.

Vector control to eliminate vectors such as mosquitos that carry the disease from person to person. The Vector Borne Disease Section of the California Department of Public Health reports risk or potential risk of exposure to the following vector borne disease in California:

Typhus	Tulermia	Hantavirus Cardiopulmonary Syndrome
Plague	Lyme Disease	Scabies
Murine Typhus	Plague	Zika Virus
West Nile Virus	Dengue	
Swimmer's Itch	Chikungunya	

5.4.2.4.2 Location and Extent of Hazard in Santa Barbara County

An infectious disease hazard can occur throughout the entire County.

5.4.2.4.3 History of Hazard in Santa Barbara County

1. Foodborne outbreaks occur every year in Santa Barbara County, commonly the result of Norovirus, and have sickened up to 100 individuals at a single facility.
2. 2009 H1N1 "Swine Flu" pandemic required rationing and prioritization of influenza vaccine. Public was given 27,000 vaccinations at large and small scale clinics. One hundred thirty-two thousand (132,000) doses of vaccine were distributed Countywide through response partners. The Santa Barbara Public Health Department Operations Center was activated for more than three months.
3. 2013 Serogroup B meningococcal outbreak occurred at UCSB requiring a joint effort between the CDC, FDA, California Department of Public Health, the Santa Barbara County Public Health Department. FDA approved an investigational new drug (IND) to allow for a stand up of a CDC approved mass vaccination operation for students. 17,540 total vaccinations were given.

5.4.2.4.4 Probability of Occurrence

Disease outbreaks and flu epidemics occur on an ongoing basis. Occasionally these outbreaks require the initiation of the Santa Barbara County Public Health Department Infectious Disease Response Plan but have required little to no support from the County Emergency Operations Center. There is a continued threat from a novel influenza virus or other emerging epidemic or pandemic disease that would require a disaster response at the EOC level. The disease could affect the county infrastructure, and the ability of the EOC and other county departments to respond due to disease related loss of staff.

5.4.2.4.5 Climate Change Consideration

While many vector born and zoonotic diseases (VBZD), such as malaria, yellow fever, dengue, and murine typhus, are rarely seen in the United States, we are directly susceptible to VBZD that are found in warmer climates and vulnerable due to global trade and travel.
Many VBZD are climate sensitive and ecological shifts associated with climate change are expected to impact the distribution and incidences of these diseases.
Changes in temperature and precipitation directly affect vector born disease transmission through pathogen-host interaction, and indirectly through ecosystem changes and species composition.
As temperatures increases vectors can spread into new areas that were previously too cold. For example, two mosquito vectors that carry malaria are now found at the U.S.-Mexico border.

5.4.2.5 Hazardous Materials Release

5.4.2.5.1 Description of Hazard

Hazardous Waste/Materials are widely used or created at facilities such as hospitals, wastewater treatments plants, universities and industrial/manufacturing warehouses. Several household products such as cleaning supplies and paint are also considered hazardous materials. Hazardous materials include:

- Explosives;
- Flammable, non-flammable, and poisonous gases;
- Flammable liquids;
- Flammable, spontaneously combustible, and dangerous when wet solids;
- Oxidizers and organic peroxides;
- Poisons and infectious substances;
- Radioactive materials; and
- Corrosive materials.

Both mobile and external hazardous materials releases can spread and affect a wide area, through the release of plumes of chemical, biological, or radiological elements or leaks or spills. Conversely, internal releases are more likely to be confined to the structure the material is store in.

Chemical may be corrosive or otherwise damaging over time. A hazardous materials release could also result in fire or explosion. Contamination may be carried out of the immediate area of the incident by people, vehicles, wind, and water. Weather conditions can increase the size and intensity of the Hazardous Materials Release. Typography, such as hills and canyons, can increase the size of the release or make it more difficult to contain.

5.4.2.5.2 Location and Extent of Hazard in Santa Barbara County

The locations and identity of facilities that store hazardous materials are reported to local and federal governments. Many facilities have their own hazardous materials guides and response plans, including transportation companies who transport hazardous materials.

The release of hazardous materials into the environment can cause a multitude of problems. Although these incidents can happen almost anywhere, certain areas of the County are at higher risk, such as near roadways that are frequently used to transport hazardous materials and locations with industrial facilities that use, store, and/or dispose of such materials. Areas crossed by railways, waterways, airways, and pipelines also have increased potential for mishaps.

5.4.2.5.3 History of Hazard in Santa Barbara County

No significant historical events to report to date

5.4.2.5.4 Probability of Occurrence

The release of hazardous materials can occur throughout the entire county. Incidences can occur during production, storage, transportation, use or disposal of hazardous materials. Communities can be at risk if a chemical is used unsafely or released in harmful amounts into the environment. Hazardous materials can cause death, serious injury, long lasting health effects, and damage to buildings, the environment, homes, and other property.

5.4.2.5.5 Climate Change Consideration

As mentioned above, weather can play a significant factor in hazardous material releases. While there is little evidence to link climate change increase occurrences of hazardous material releases, it could impact the response and recovery efforts.

5.4.2.6 Radiological Accidents

5.4.2.6.1 Description of Hazard

Radioactive materials are routinely transported in California. These materials include the medical and industrial sources described below, as well as wastes that have radioactive components. Many of the radioactive waste shipments come from research and cleanup efforts at national laboratories and nuclear power plants. Radiological accidents that result in the release of radioactive materials may result in long-term health risks and contamination of the state resources, including air, water supply, groundwater, and agricultural lands.

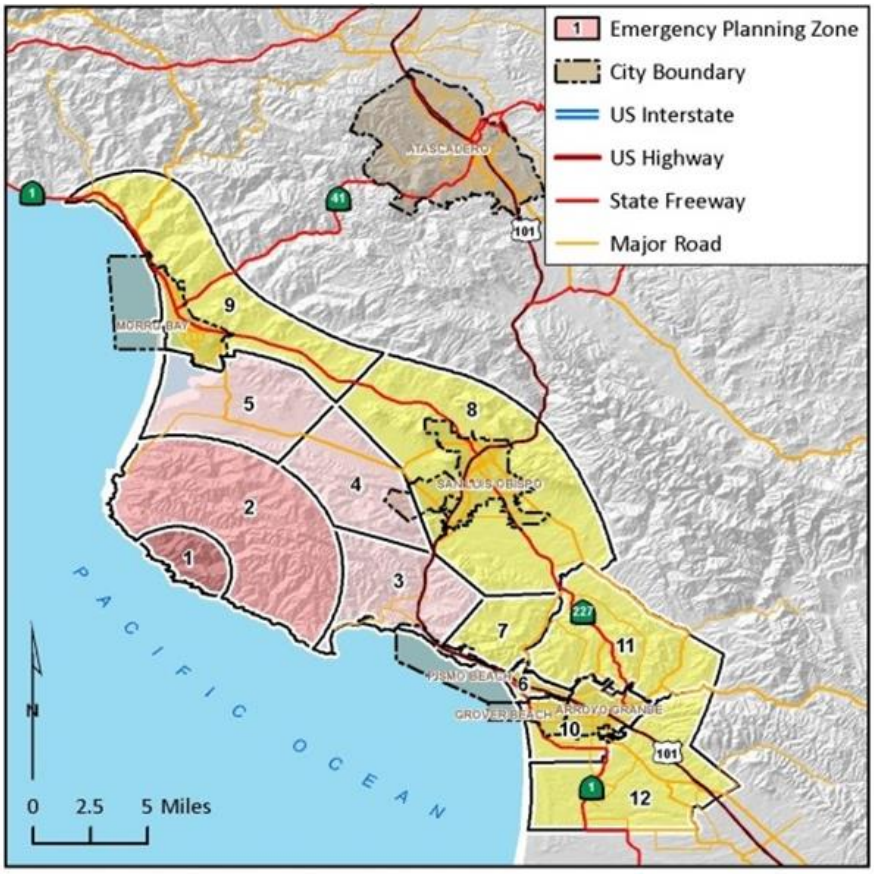
Four (4) Emergency Classification Levels (ECLs) have been established in federal regulations to characterize the severity of the emergency and the response actions required. The ECLs must be used as the foundation for emergency response planning, training and exercises.

5.4.2.6.2 Location and Extent of Hazard in Santa Barbara County

There are a few medical and industrial sources within the county that generate radioactive material; and because of the transport of the material this hazard can occur throughout most of the county. Diablo Canyon Power Plant in San Luis Obispo County is the only operating nuclear power plant (NPP) in California. The Diablo Canyon plant is undergoing seismic studies to identify the location and potential hazards associated with a recently identified off-shore earthquake fault zone as part of relicensing by the California Public Utilities Commission (CPUC) and the federal Nuclear Regulatory Commission (NRC).

State and local governments having jurisdiction within ten miles of an operating nuclear power plant in the U.S. must plan, train, and conduct emergency exercises annually in accordance with federal regulations. Emergency Planning Zone (EPZ) for Diablo Canyon Nuclear facility is shown in **Figure 5.22**. As part of the planning basis, affected agencies must establish EPZs, which consist of areas within an approximate ten mile radius drawn around each plant site. The exact EPZ size is established to provide for substantial reduction in early severe health effects in the event of a worst-case core melt accident.

Figure 5.23 A Emergency Planning Zone (EPZ) for Diablo Canyon Nuclear Facility



5.4.2.6.3 History of Hazard in Santa Barbara County

No significant radiological release have occurred to date in Santa Barbara or the state of California.

5.4.2.6.4 Probability of Occurrence

Due to strict regulation of nuclear power plants in the United States, significant nuclear power incidents that can cause harm to the public have low probability of occurrence. The probability of a catastrophic event involving a nuclear power plant is low and these plants are extremely well protected. However, as evidenced by the March 2011 events at the Fukushima Daiichi plant in Japan, caused by the Tohoku Earthquake and Tsunami, the consequences of a severe accident or a successful terrorist attack on a nuclear power plant that results in a release of radioactive materials could be very significant.

5.4.2.6.5 Climate Change Consideration

While there is little evidence to link climate change increase occurrences of radiological material releases, it could impact the response and recovery efforts.

5.4.2.7 Terrorism

5.4.2.7.1 Description of Hazard

The term terrorism refers to intentional, criminal malicious acts. There is no single, universally accepted definition of terrorism, and it can be interpreted in many ways. Terrorism is defined in the Code of Federal Regulations as "*...the unlawful use of force and violence against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of political or social objectives.*" (28 CFR, Section 0.85). For the purposes of this plan, terrorism refers to the use of weapons of mass destruction, including biological, chemical, nuclear, and radiological weapons; arson, incendiary, explosive, and armed attacks; industrial sabotage and intentional hazardous materials releases; and cyber terrorism. Conventional Attacks/Active Shooter incident is initiated by humans. It can be a well-planned coordinated attack with multiple suspects, or the result of a lone individual on a rampage.

5.4.2.7.2 Location and Extent of Hazard in Santa Barbara County

Terrorism can occur throughout the entire county but due to its intended purpose would most likely happened in more populous urban areas where more devastation (and fear) will ensue.

5.4.2.7.3 History of Hazard in Santa Barbara County

While the county has seen serval recent events of mass casualties brought on by disgruntled or distraught individuals; none of them can be categorized as terrorism.

5.4.2.7.4 Probability of Occurrence

All County businesses and facilities are perceived as a soft target resulting in increased property crimes by criminals who live outside the County. However, as the history shows, Isla Vista is on the largest soft targets in the County. Isla Vista is on the most densely populated areas in the western United States. During the weekend nights, it has historically been the location of several street parties inviting thousands of people to the community. Halloween has been a problem in the past, bringing up to forty-thousand street partygoers. Although in 2014 the celebration was subdued to local efforts on the part of students and community members to keep it smaller in nature.

5.4.2.7.5 Climate Change Consideration

While there is little evidence to link climate change increase occurrences of terrorism, depending on the type of attack, it could impact the response and recovery efforts.

5.4.2.8 Cyber Threats

5.4.2.8.1 Description of Hazard

A cyber security threat is a circumstance or event that has or indicates the potential to exploit vulnerabilities and to adversely impact organizational operations, organizational assets (including information and information systems), individuals, other organizations, or society. Critical infrastructure, such as utilities and

telecommunications, are also potential targets. Examples of cyber threats include malware, phishing, denial of service attacks, ransomware, and state-sponsored hacking.

5.4.2.8.2 Location and Extent of Hazard in Santa Barbara County

This hazard can happen anywhere within the County but will generally be targeted towards larger corporations or government.

5.4.2.8.3 History of Hazard in Santa Barbara County

While there have been several smaller cyber threats and hacking, none have reached a level of significance.

5.4.2.8.4 Probability of Occurrence

Cyber threats are on the rise globally, national, and locally. The probability of occurrence of cyber threats is rapidly increasing, especially with increased reliance on the Internet and cloud-based computing.

5.4.2.8.5 Climate Change Consideration

While there is little evidence to link climate change to increase in occurrences of cyber threats, the target could be related to persons/groups with issues with individuals or companies they perceive to have effect on the climate (i.e., greenhouse gas producers).

5.4.2.9 Aircraft Crashes

5.4.2.9.1 Description of Hazard

Aircraft crashes are defined as any accident of private, commercial, or military aircraft on land or over sea. Aircraft crashes, like other transportation accidents, are less likely to lead to a state or federal disaster declaration, than other hazards previously and afore mentioned.

5.4.2.9.2 Location and Extent of Hazard in Santa Barbara County

In addition to being within the flight pattern of many airports providing regional flights (i.e., Los Angeles International, San Francisco International, Oakland, San Jose International, Burbank Airport, John Wayne Airport, Long Beach Airport, Ontario International Airport), Santa Barbara has four (4) general aviation airports: 1) Lompoc, 2) Santa Barbara, 3) Santa Maria Public, and 4) Santa Ynez.

The Santa Barbara Airport (SBA) is located near Goleta, west of Santa Barbara. On any given day, an average of 2,100 passengers arrive and depart from the airport. Santa Barbara is the busiest airport on the California coast, between Los Angeles and San Jose; serving more than 700,000 passengers annually. Five passenger airlines and one cargo carrier operate approximately 40 daily flight departures at the airport.

The Santa Maria Airport (SMX) is located just southwest of downtown Santa Maria. The airport provides facilities for one regional airline and serves as home base for over 200 general aviation aircraft. With the longest runway on the Central Coast, and with continued improvements geared toward growth, SMX is a welcome location for future businesses and expansion.

The Lompoc Airport (LPC) is located on the north side of Lompoc. For the 12 month period ending May 8, 2009, the airport had 30,100 general aviation aircraft operations and 200 military aviation operations; with an average of 83 general aviation operations per day and 17 military operations per month. 71 single-engine and 4 ultra-light aircraft were based at the airport during that time. Skydiving operations are held daily at Skydive Santa Barbara.

The Santa Ynez Airport (IZA) is located just southeast of Santa Ynez. As of 2014, the airport serves three main functions: Private aircraft owners use it as a hub for storing their planes and for refueling, the airport boasts one of the best gliding locations in Southern California, and the airport serves as the staging ground for the Santa Barbara County Air Support Unit.

5.4.2.9.3 History of Hazard in Santa Barbara County

No significant historical events to report to date

5.4.2.9.4 Probability of Occurrence

With the amount of general aviation operations, military flights, and its position between Los Angeles/San Diego and the Bay Area, there is a notable possibility of Santa Barbara County experiencing an airline crash.

5.4.2.9.5 Climate Change Consideration

There is no none linkage between climate change and airline crashes. Although bad weather does play a factor in some airline crashes, current technology does a good job of forecasting potential conditions.

5.4.2.10 Train Accidents

5.4.2.10.1 Description of Hazard

Train accidents are defined as any accidents involving public or private trains carrying passengers or cargo along the rail corridor. Train accidents, like other transportation accidents, are less likely to lead to a state or federal disaster declaration, than other hazards previously and afore mentioned.

5.4.2.10.2 Location and Extent of Hazard in Santa Barbara County

Trains running through Santa Barbara County, and in close proximity to U.S. Highway 101, carry both commuters and commodities. Such commodities include hazardous materials, fuel (including oil), agriculture, meats, and non-consumables. A hazardous materials incident on the rails or roadway has the potential to shut down both rail and highway transportation routes where the two are within close proximity to another.

5.4.2.10.3 History of Hazard in Santa Barbara County

In 1991 the Seacliff Incident, in neighboring Ventura County, occurred when a train released 440 gallons of aqueous hydrazine. The accident required the evacuation of the nearby Seacliff Community along with the shutting down of Highway 101, and took 5 days to cleanup.

5.4.2.10.4 Probability of Occurrence

Train accidents are generally localized and the incidents result in limited impacts at the community level. However, if there are volatile or flammable substances on the train and the train is in a highly populated or densely forested area, death, injuries, and damage to homes, infrastructure, and the environment, including forest fires can occur.

5.4.2.10.5 Climate Change Consideration

There is no none linkage between climate change and train accidents; however, because of rail road track proximity along the Pacific Ocean, sea level rise could impact service. It is expected that conditions would be gradual in nature and would not create unforeseen problems or complications.

5.4.2.11 Natural Gas Pipeline Rupture & Storage Facilities

5.4.2.11.1 Description of Hazard

The United States is heavily dependent on transmission pipelines to distribute energy and fuel sources. Virtually all natural gas, which accounts for about 28 percent of energy consumed annually, is transported by transmission pipelines. Energy demand in the United States continues to increase. Although California is a leader in exploring and implementing alternative energy sources such as wind and solar, the expansion of traditional energy sources, such as natural gas, continues.

Most of the natural gas used in California comes from out-of-state natural gas basins. It is delivered to California via the interstate natural gas pipeline system. In 2012, California customers received 42 percent of their natural gas supply from basins in the Southwest, 22 percent from Canada, 23 percent from the Rocky Mountains, and 12 percent from California.

Generally speaking, transmission lines are large-diameter steel pipes carrying natural gas at high pressure and compressed to provide higher carrying capacity. Transmission lines are both interstate and intrastate, with the latter connecting to smaller distribution lines delivering gas directly to homes and businesses.

5.4.2.11.2 Location and Extent of Hazard in Santa Barbara County

Natural gas transported via the interstate pipelines, and some of the California-produced natural gas, is delivered into the Pacific Gas & Electric (PG&E) and Southern California Gas (SoCal Gas) intrastate natural gas transmission pipeline systems (commonly referred to as California's "backbone" natural gas pipeline system).Natural gas on the utilities' backbone pipeline systems is then delivered into the local transmission and distribution pipeline systems, or to natural gas storage fields. PG&E and SoCal Gas own and operate several natural gas storage fields that are located in Northern and Southern California.

Southern California Gas Company operates a natural gas storage field, La Goleta Storage Field, located on More Ranch Road in the Goleta area. SoCal Gas purchases market quality natural gas when prices are low and stores it in a depleted gas reservoir located at the La Goleta.

Data compiled by the Pipeline and Hazardous Materials Safety Administration (PHMSA) report a total of 115,292 miles of gas pipelines in California, of which 12,414 miles are classified as gas transmission lines, 403 miles are gas-gathering lines, and the majority, 102,475 miles, are for gas distribution. Nearly 40 percent of gas transmission lines are located in Los Angeles, Kern, and San Bernardino counties.

Figure 5.23 shows the location and ownership of the natural gas pipeline system. Many of the pipelines are located in areas with high seismic activity, crossing the San Andreas and other active faults.

Figure 5.24 Natural Gas Pipeline and Service Providers in California

5.4.2.11.3 History of Hazard in Santa Barbara County

No significant historical events to report to date.

5.4.2.11.4 Probability of Occurrence

Increased urbanization is resulting in more people living and working closer to existing gas transmission pipelines that were placed prior to government agencies adopting and implementing land use and other pipeline safety regulations. Compounding the potential risk is the age and gradual deterioration of the gas transmission system due to natural causes. Significant failure, including pipe breaks and explosions, can result in loss of life, injury, property damage, and environmental impacts. Causes of and contributors to pipeline failures include construction errors, material defects, internal and external corrosion, operational errors, control system malfunctions, outside force damage, subsidence, and seismicity. Growth in population, urbanization, and land development near transmission pipelines, together with addition of new facilities to

meet new demands, may increase the likelihood of pipeline damage due to human activity and the exposure of people and property to pipeline failures.

5.4.2.11.5 Climate Change Consideration

Climate change will not have a direct effect on natural gas pipelines; however, climate change could increase the demand for natural gas. This increase in demand may require the development of new pipelines; which could increase potential complications.

5.4.2.12 Levee Failure

5.4.2.12.1 Description of Hazard

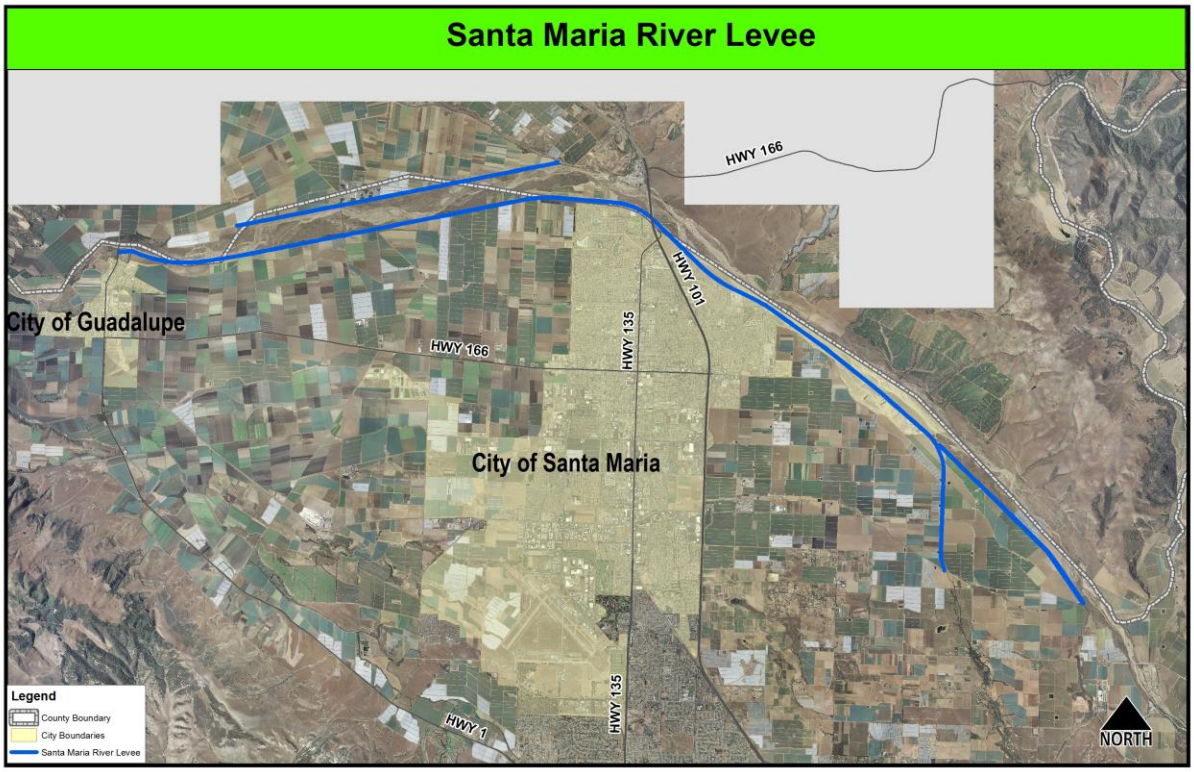
There are several areas in California that use levees to protect land from peak flood levels and/or to protect land that is below sea level. The first type of levee should be designed to withstand peak flood levels that are caused by rapid snow melt or intense rainfall within the watershed. The second type of levee should be designed to withstand nominal water levels on a continuous basis as well as peak flood levels. Failure of levees is defined as conditions that breach and/or degrade the levees.

In California, levees protect farmland, ranchland, rural residential areas, urban residential areas, and infrastructure such as roads, highways, and waterways or canals.

5.4.2.12.2 Location and Extent of Hazard in Santa Barbara County

The Santa Maria River Levee runs along the left bank (looking downstream) of the Santa Maria River approximately 17 miles from Fugler Point (at the junction of the Cuyama and Sisquoc Rivers) to approximately 600 feet downstream to the State Highway 1 Bridge near the City of Guadalupe. Approximately 5 miles of levee run along the right bank of the Santa Maria River from a point about 1 ¼ miles downstream from US Highway 101 to a point about 1 ½ miles upstream from the Southern Pacific Railroad Bridge at Guadalupe. Also, approximately 1.8-2.06 miles of channel and levees extend from the mouth of Bradley Canyon to Santa Maria River to divert flood waters. This levee system provides protection to the City of Santa Maria; including the main business district, commercial, industrial and residential property, as well as agricultural lands in the Santa Maria Valley.

Figure 5.25 Santa Maria River Levee



5.4.2.12.3 History of Hazard in Santa Barbara County

The construction of the Santa Maria River Levee was completed in 1963 by the U.S. Army Corps of Engineers. The levee was constructed to provide protection against flooding and debris flow from the City of Santa Maria; including the main business district (overflow area), adjacent agricultural lands in the Santa Maria Valley, and valuable residential, commercial, industrial, and public properties which would likely be subject to flooding. In addition, protection is available for US Highway 101, State Highway 1, Southern Pacific Railroad, Santa Maria Valley Railroad, three highway bridges, and one railroad bridge; all of which were previously subject to overflow in the Santa Maria Valley. Without protection from the levees, the standard project flood would inundate most of the Santa Maria Valley, including 80% of the city of Santa Maria.

The Santa Maria River Levee was designed to protect Santa Maria Valley from a standard project flood ranging in magnitude from 150,000 cubic feet per second (cfs) at the downstream end of the left levee to up to 160,000 cfs at Fugler Point. The Bradley Canyon Levees and channel improvements were designed to accommodate the standard project flood, which can range in magnitude from 7,000 to 9,000 cfs. However, flood flows much less than the design discharges significantly damamged the levee system in 1966, 1969, 1980 and 1998. Damages from each of these floods occurred at different locations, under relatively low flow conditions, and were caused by flow impingement on the levee structure. In 1981 about a fourth of the project was protected from further undermining with groins andother features but a subsequent 600 ft breach in 1998 in a reach without groins indicating that future damage was likely.

In 2009, the Army Corps of Engineers improved the riverside slope of south levee with soil cement revetment and steel sheet pile wall protection from Blosser Road to the Bradley Canyon confluence. A portion of the Bradley Canyon levee was also improved in 2013.

5.4.2.12.4 Probability of Occurrence

Several floods have occurred since the levees were constructed, each with relatively low peak discharges. Because the natural channel averages about 2,000' in width, the floods did not fill the channel but meandered and impinged against the existing levees. This impingement undermined the levee toe causing considerable damage and jeopardized adjacent properties, demonstrating that the levee was vulnerable to smaller discharges and as a result would not provide the protection for which it was designed. The levee improvements by the Corps will reduce the probability of impinging flows undermining the levee in critical areas. Those portions of the levee that were not improved will still be subject to the possibility of undermining and failure.

5.4.2.12.5 Climate Change Consideration

Increased rainfall, runoff, and snow pack melt from climate change could generate more water than the levees were designed to support. Additionally, climate change conditions could damage earthen levees creating weaknesses that would also reduce its level of protection.

5.4.2.13 Tsunami

5.4.2.13.1 Description of Hazard

A tsunami is a series of long waves generated in the ocean by a sudden displacement of a large volume of water. Underwater earthquakes, landslides, volcanic eruptions, meteoric impacts, or onshore slope failures cause this displacement. Tsunami waves travel at speeds averaging 450 to 600 miles per hour. As a tsunami nears the coastline, its speed diminishes, its wavelength decreases, and its height increases. Depending on the type of event that creates the tsunami, as well the remoteness of the event, the tsunami could reach land within a few minutes or after several hours. Low-lying areas could experience severe inland inundation of water and deposition of debris more than 3,000 feet inland.

5.4.2.13.2 Location and Extent of Hazard in Santa Barbara County

The Cities of Santa Barbara and Carpinteria are located on or near several offshore geological faults, the more prominent faults being the Mesa Fault, the Santa Ynez Fault in the mountains, and the Santa Rosa Fault. There are other unnamed faults in the offshore area of the Channel Islands. These faults have been active in the past and can subject the entire area to seismic action at any time.

5.4.2.13.3 History of Hazard in Santa Barbara County

The relative threat for local tsunamis in Santa Barbara can be considered low due to low recurrence frequencies. Large, locally-generated tsunamis are estimated to occur once every 100 years. Thirteen possible tsunamis have been observed or recorded from local earthquakes between 1812 and 1988. There have been no recorded Tsunamis in Santa Barbara County since 1988. These tsunami events were poorly documented and some are very questionable. There is no doubt that earthquakes occurring along submarine faults off Santa Barbara could generate large destructive local tsunamis (http://www.drgeorgepc.com/Tsunami1812SantaBarbara.html). Internet research provides some documentation that two tsunamis were generated from two major earthquakes in the Santa Barbara region in December of 1812. The size of these tsunamis may never be known with certainty, but there are unconfirmed

estimates of 15 feet waves at Gaviota, 30-35 feet waves at Santa Barbara, and waves of 15 feet or more at Ventura. These estimates are found in various literature and based on anecdotal history only.

Major faults of the San Andreas zone, although capable of strong earthquakes, cannot generate any significant tsunamis. Only earthquakes in the Transverse Ranges, specifically the seaward extensions in the Santa Barbara Channel and offshore area from Point Arguello, can generate local tsunamis of any significance. The reason for this may be that earthquakes occurring in these regions result in a significant vertical displacement of the crust along these faults. Such tectonic displacements are necessary for tsunami generation.

Two separate events, occurring in 1877 and 1896, are listed in NOAA's online database as having heights of 1.8 and 2.5 feet waves. However, tsunami heights from historical records are estimated and should not be regarded as exact. Other recorded tsunamis affecting Santa Barbara during the 20th century are in the 0.1 – 1.0 foot range.

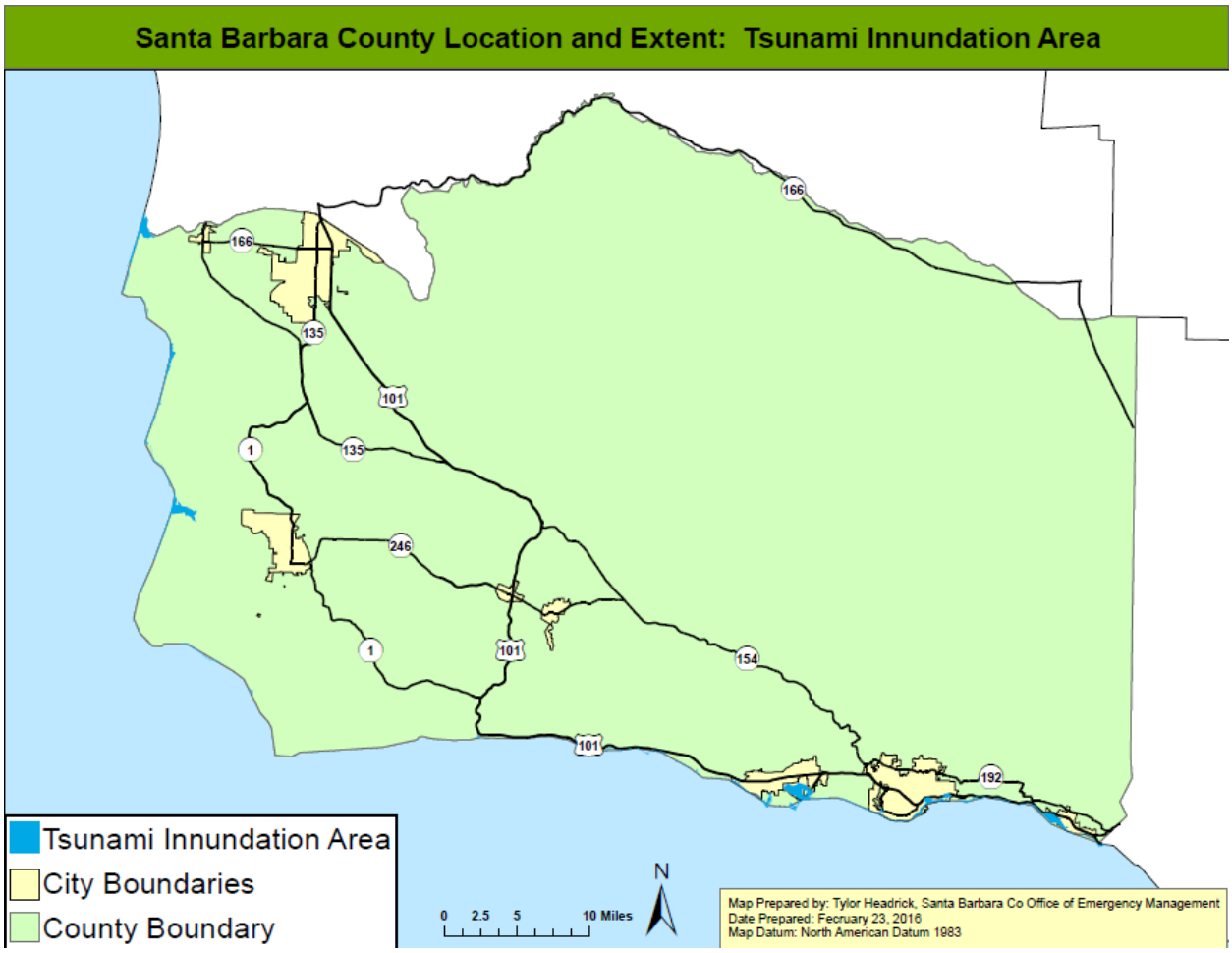
On February 27, 2010, a magnitude 8.8 earthquake occurred along the central coast of Chile and produced a tsunami. For the coast of Southern California, it was one of the largest tsunami episodes since 1964. In general, tsunami waves between 2 and 4 feet were reported. Tsunami waves of around 3 feet were reported by tide gauges across the Santa Barbara Channel. At Santa Barbara Pier, significant beach erosion was reported along with displacement of buoys. The tsunami surge lasted in excess of 20 hours. The most significant damage occurred along the coasts of Ventura and southern Santa Barbara counties. Numerous reports of dock damage were reported along with beach erosion.

On March 11, 2011, a magnitude 9.0 earthquake occurred off the Pacific coast of Tohoku, Japan. This earthquake devastated many communities in Japan and caused tsunami effects across the ocean in Santa Barbara County. The only significant impact to Santa Barbara County was to the dredging contractor for the harbor. The City harbor operations documented approximately $1,500 of damages (Public Assistance). The dredging contractor may pursue SBA funding.

5.4.2.13.4 Probability of Occurrence

The University of Southern California (USC) Tsunami Research Group has modeled areas in Santa Barbara County that could potentially be inundated in the event of a tsunami. This model is based on potential earthquake sources and hypothetical extreme undersea, near-shore landslide sources. The data was mapped by Cal OES for the purpose of Tsunami Evacuation Planning. Extreme tsunami inundation areas were mapped and used to profile maximum potential exposure. The figure below (**Figure 5.24**) shows tsunami run up limits for Santa Barbara County. The tsunami inundation map helps to assist cities and counties in identifying their tsunami hazard areas. The inundation line represents the maximum considered tsunami run up from a number of extreme, yet realistic, tsunami sources.

Figure 5.26 Tsunami Inundation Area



Based on the tsunami inundation map above, several areas along the coast of Santa Barbara have the potential to be inundated by a tsunami. However, since the probability of an earthquake occurring is rare, the probability of a tsunami is also rare.

5.4.2.13.5 Climate Change Consideration

Tsunamis are created by earthquakes or other earth movements, to date, no relationship has been made between climate change and the occurrences of earthquakes or other earth movements.

5.4.2.14 Civil Disturbance

5.4.2.14.1 Description of Hazards

Civil Disturbance is a term generally used to describe disorderly conduct or a breakdown of orderly society by a large group of people. Civil Disturbance can range from a form protest against major socio-political problems to riots.

5.4.2.14.2 Location and Extent of Hazard in Santa Barbara County

Civil Disturbance can occur in any part of Santa Barbara County; however, it will generally be located within larger metropolitan areas.

5.4.2.14.3 History of Hazard in Santa Barbara County

No significant historical events to report to date

5.4.2.14.4 Probability of Occurrence

There are no studies that predict the probability of civil disturbance occurrences.

5.4.2.14.5 Climate Change Consideration

While there is no direct linkage between climate change and civil disturbances, there could be indirect linkages. As climate change impacts are either felt or perceived to be felt it could ignite passions within people to demonstrate against possible causes or enablers.

5.4.2.15 Well Stimulation and Hydraulic Fracturing

5.4.2.15.1 Description of Hazard

"Well stimulation" is an oil industry term which describes various techniques used to increase oil and gas production by the addition of heat (through steam), chemicals and/or pressure to the oil-bearing formation. Hydraulic fracturing, commonly called "fracking", is a specific type of well stimulation treatment that involves high‐pressure injection of water, sand and chemical additives to cause fracturing of subsurface rock resulting in release of gas or oil trapped inside. Acid well stimulation introduces one or more acids (applied at any pressure) to a well or geologic formation either alone or in combination with hydraulic fracturing treatments. Steam injection (e.g., cyclic steaming, steam flooding), is a technique that heats the targeted production zone to make heavy oils flow more readily to the well bore. The intent is not to break (i.e., fracture) the oil-holding formation (which is usually sandy in composition so doesn't need to be broken), but to heat it and make the oil therein less viscous. Possible environmental impacts that could result from well stimulation treatments include effects on water and air quality and seismic safety, which are considered potential hazards and require further study.

Well stimulation treatments have occurred for many years throughout oilfields in California, mostly within Kern, Ventura and Los Angeles Counties. The State legislature passed Senate Bill (SB) 4 on September 20, 2013, which directed the State Department of Oil, Gas and Geothermal Resources (DOGGR) to begin regulating well stimulation treatments, including fracking, by amending the State Public Resources and Water Codes. On July 1, 2015, pursuant to the regulations included in SB 4, DOGGR completed the following:

- Certified the Final Environmental Impact Report (EIR) titled "Analysis of Oil and Gas Well Stimulation Treatments in California."Adopted permanent rules and regulations specific to well stimulation treatments.

SB4 specifically requires:

- Well operators to apply for a permit that includes a water management plan and a groundwater monitoring plan before performing well stimulation activities.
- DOGGR to post issued permits on the publicly accessible portion of its internet web site.
- Suppliers claiming trade secret protection for the chemical composition of additives used in hydraulic fracturing to disclose the composition of these materials to DOGGR as part of permit applications.

5.4.2.15.2 Location and Extent of Hazard in Santa Barbara County

County Planning and Development confirms that, to date, no onshore oil operators have proposed to use fracking to extract oil. Cyclic steaming techniques have been used in Santa Barbara County, mainly in the Cat Canyon oilfield in the Santa Maria Valley. More recently, cyclic steaming has also been used in the Orcutt oilfield.

5.4.2.15.3 History of Hazard in Santa Barbara County

Oil producers have generally not used hydraulic fracturing onshore in Santa Barbara County so there is no history to identify. Cyclic steaming has been used in the Cat Canyon oilfield in the Santa Maria Valley since the 1960's. Cyclic steaming has also been used in the Orcutt oilfield since 2007.

5.4.2.15.4 Probability of Occurrence

County Planning and Development confirms that hydraulic fracturing is not currently being conducted onshore in Santa Barbara County. An operator proposing to frack is required to go through an extensive environmental analysis and obtain a discretionary permit prior to implementing this technique. The probability of occurrence for fracking is low. Cyclic steaming is currently in use, as mentioned above; its probability of occurrence is high.

5.4.2.15.5 Climate Change Consideration

There are no known direct linkages between climate change and well stimulation techniques used in Santa Barbara County.

5.4.2.15 Marine Invasive Species

5.4.2.15.1 Description of Hazard

The introduction of non‐indigenous species (NIS) into coastal marine and estuarine waters can cause significant and enduring economic, human health, and environmental impacts. In coastal environments, commercial shipping is the most important vector for species introductions. Commercial ships transport organisms through two primary mechanisms (vectors): ballast water and vessel biofouling. Ballast water is taken on and released by a vessel during cargo loading and discharging operations to maintain the vessel's trim and stability. Biofouling organisms are aquatic species attached to or associated with submerged or wetted hard surfaces. Ships transfer organisms to California waters from throughout the world. The transfer of ballast water from "source" to "destination" ports results in the movement of many organisms from one region to the next. Additionally, as vessels move from port to port, biofouling communities are transported along with their "host" structure. Once introduced, invasive species are likely to become a permanent part of an ecosystem and may flourish, creating environmental imbalances, presenting risks to human health, and causing significant economic problems. Examples include the zebra and quagga mussel infestations in the Colorado River Aqueduct System and California waterways, and the propagation of aquatic weeds, such as water hyacinth, in the California Delta.

5.4.2.15.2 Location and Extent of Hazard in Santa Barbara County

All water bodies that are subject to recreational/commercial vessels and/or hydraulically connected to potential sources of infestation.

5.4.2.15.3 History of Hazard in Santa Barbara County

The County of Santa Barbara Community Services Department Parks Division has been conducting Aquatic Invasive Species inspections on vessels being launched at Cachuma Lake since 2008. To date, staff has no indications that Cachuma Lake has been exposed to Quagga or Zebra Mussels, and early detection monitoring has detected no mussels.

5.4.2.15.4 Probability of Occurrence

In December 2013, the operator at Lake Piru in Ventura County notified the State of California Department of Fish and Wildlife that Quagga Mussels are present in Lake Piru. This is a significant finding because it is the first lake infected by the Quagga Mussel that is not fed by the Colorado River system.

5.4.2.15.5 Climate Change Consideration

Climate change can directly affect Marine Invasive Species and their ability to thrive off our coast.

Section 6 VULNERABILITY ASSESSMENT

6.1 OVERVIEW

The purpose of this section is to estimate the potential vulnerability (impacts) of hazards within the county on the built environment (residential, non-residential, critical facilities, etc.) and population. To accomplish this three (3) different approaches will be used: 1) application of scientific loss estimation models; 2) analysis of exposure of critical facilities to hazards; and 3) a qualitative estimate of the impacts to hazards. It is important to note that the first two approaches can only be applied to hazards that have an exposure area (footprint). For those hazards where an exposure layer does not exist, a brief qualitative assessment of the potential vulnerability will be presented. This will be done for hazards that are countywide or can occur anywhere within the county.

6.1.1 Scientific Loss Estimation Models

The scientific loss estimation modeling efforts will include the utilization of the Federal Emergency Management Agency (FEMA) Hazus-MH 3.0 model. Hazus-MH is a nationally applicable standardized methodology that estimates potential losses from earthquakes, hurricane winds and floods. Hazus-MH uses state-of-the-art Geographic Information Systems (GIS) software to map and display hazard data and the results of damage and economic loss estimates for buildings and infrastructure. It also allows users to estimate the impacts of earthquakes, hurricane winds and floods on populations. Estimating losses is essential to decision-making at all levels of government, providing a basis for developing mitigation plans and policies, emergency preparedness and response and recovery planning. This modeling will be done for Earthquake and Flood hazards only.

Hazus standard configuration allows for “out-of-the-box” regional or community-wide loss assessment using default (“Level 1) building inventory databases, aggregated to the census tract (earthquake) or census block (flood) level. A summary of Hazus default building inventory data for Santa Barbara County, and the unincorporated areas of the County, are given in **Table 6-1** (by general occupancy) and **Table 6-2** (by general building type). The distribution of buildings across the various construction classes given in Table 2 is estimated using Hazus default relationships (e.g., x percent of offices may be built of concrete frame, y% of offices may be built of reinforced masonry, etc.). The actual distribution of building across these construction types may be different. For example, the California Seismic Safety Commission (CSSC) published results of unreinforced masonry building surveys (CSSC, 2006), which indicate that the 23 URM buildings in Unincorporated Santa Barbara County have been retrofitted (vs. 185 URM buildings predicted by the default database).

Table 6.1 Hazus-MH 3.0 Default Building Inventory Data for Santa Barbara County by General Occupancy

Jurisdiction	General Occupancy	Building Replacement Value ($1,000)	Contents Replacement Value ($1,000)	Building Square Footage (1,000 Sq. Ft.)	Building Count
Santa Barbara County	Residential	$34,724,716	$17,364,871	231,312	116,304
	Commercial	$6,387,442	$6,837,941	38,617	7,325
	Industrial	$1,307,134	$1,815,947	9,609	1,934
	Other	$1,805,563	$1,905,059	11,455	1,810
	TOTAL	**$44,224,855**	**$27,923,818**	**290,993**	**127,373**
Unincorporated County	Residential	$12,555,887	$6,278,776	80,881	41,690
	Commercial	$1,409,147	$1,519,231	8,436	1,905
	Industrial	$329,603	$447,815	2,520	626
	Other	$638,808	$648,426	4,486	615
	TOTAL	**$14,933,445**	**$8,894,248**	**96,323**	**44,836**
	%	**33.8%**	**31.9%**	**33.1%**	**35.2%**

Table 6.2 Hazus-MH 3.0 Default Building Inventory Data for Santa Barbara County by General Building Type

Jurisdiction	General Building Type	Building Replacement Value ($1,000)	Building Replacement Value (%)	Estimated Building Count	% of Building Count
Santa Barbara County	Concrete	$2,492,739	5.6%	2,396	2%
	Manufactured Housing	$415,023	0.9%	7,669	6%
	Precast Concrete	$1,556,413	3.5%	2,005	2%
	Reinforced Masonry	$3,088,459	7.0%	3,858	3%
	Steel	$2,461,502	5.6%	2,614	2%
	Unreinforced Masonry	$614,394	1.4%	727	1%
	Wood Frame (Other)	$1,733,790	3.9%	2,001	2%
	Wood Frame (Single-family)	$31,862,522	72.0%	106,108	83%
	TOTAL	**$44,224,842**		**127,378**	
	Concrete	$595,812	4.0%	623	1%

Unincorporated County	Manufactured Housing	$149,010	1.0%	2,734	6%
	Precast Concrete	$379,548	2.5%	561	1%
	Reinforced Masonry	$772,503	5.2%	1,120	2%
	Steel	$627,345	4.2%	731	2%
	Unreinforced Masonry	$145,716	1.0%	185	0%
	Wood Frame (Other)	$396,156	2.7%	563	1%
	Wood Frame (Single-family)	$11,867,350	79.5%	38,324	85%
	TOTAL	**$14,933,440**		**44,841**	
	%	**33.8%**		**35.2%**	

Table 6-3 provides a summary of the Hazus-MH essential facilities default data (police stations and public schools) for anta Barbara County, and the unincorporated County Areas. The Hazus-MH essential facilities default data for fire station was augmented to account for a significant number of missing facilities for Santa Barbara County. Table 6-3 also indicates the construction type and design level assumed by Hazus-MH for these facilities; all are assumed to be wood frame of either High or Moderate code design level. A more accurate risk assessment could be conducted if additional facility information was collected, such as structural system, number of stories, year of construction/seismic code used for design, building square footage, building replacement value, and content replacement value. It should be noted that the Hazus-MH default database represents each school campus with a single building record of an assumed construction type. In reality, most public schools are multi-building campuses, built over a period of years (i.e., buildings may be designed to different seismic codes). To improve the risk assessment for public schools, information on each individual building would need to be collected.

Table 6.3: Hazus-MH 3.0 Default Essential Facilities Data for Santa Barbara County

Essential Facility Type	HAZUS-MH Default Structural Class and Design Level	Santa Barbara County	Unincorporated County Areas
Fire Stations*	W1 (Wood Frame ≤ 5,000Sq.Ft.), Moderate Code Design Level	41	17
Police Stations	W1 (Wood Frame ≤ 5,000Sq.Ft.), Moderate Code Design Level	16	12
Public Schools	W1 (Wood Frame ≤ 5,000Sq.Ft.), High Code Design Level	123	34

* For the current assessment, the default fire station data has been revised to include missing stations.

The lifeline inventory within HAZUS-MH is divided between transportation and utility lifeline systems. There are seven transportation systems that include highways, railways, light rail, buses, ports, ferries and airports; and six utility systems that include potable water, wastewater, natural gas, crude & refined oil, electric power, and communications. The lifeline inventory data are provided in **Tables 6-4** and **Table 6-5**.

Table 6.4 Transportation System Lifeline Inventory

System	Component	# Locations/ # Segments	Replacement value (millions of dollars)
Highway	Bridges	360	**407.90**
	Segments	270	**3,299.40**
	Tunnels	1	**1.70**
		Subtotal	**3,709.10**
Railway	Bridges	6	**0.60**
	Facilities	5	**13.30**
	Segments	157	**263.90**
	Tunnels	0	**0.00**
		Subtotal	**277.80**
Light Rail	Bridges	0	**0.00**
	Facilities	0	**0.00**
	Segments	0	**0.00**
	Tunnels	0	**0.00**
		Subtotal	**0.00**
Bus	Facilities	5	**6.40**
		Subtotal	**6.40**
Ferry	Facilities	3	**4.00**
		Subtotal	**4.00**
Port	Facilities	0	**0.00**
		Subtotal	**0.00**
Airport	Facilities	5	**53.30**
	Runways	8	**303.70**
		Subtotal	**357.00**
		TOTAL	**4,354.30**

Table 6.5: Utility System Lifeline Inventory

System	Component	# Locations / Segments	Replacement value (millions of dollars)
Potable Water	Distribution Lines	NA	**323.20**
	Facilities	0	**0.00**
	Pipelines	0	**0.00**
		Subtotal	**323.20**
Waste Water	Distribution Lines	NA	**193.90**
	Facilities	8	**628.70**
	Pipelines	0	**0.00**
		Subtotal	**822.60**
Natural Gas	Distribution Lines	NA	**129.30**
	Facilities	0	**0.00**
	Pipelines	0	**0.00**
		Subtotal	**129.30**
Oil Systems	Facilities	2	**0.20**
	Pipelines	0	**0.00**
		Subtotal	**0.20**
Electrical Power	Facilities	4	**519.20**
		Subtotal	**519.20**
Communication	Facilities	42	**5.00**
		Subtotal	**5.00**
		TOTAL	**1,799.50**

6.1.2 Analysis of Exposure of Critical Facilities to Hazards

Santa Barbara County Planning Team and the Mitigation Advisory Committee (MAC) reviewed and updated its list critical facilities and a generated a summary of the facilities by major categories: Law, Fire, Public Works, Health and Human Services, Administrative, Communications, and Other (**Table 6-6**). This list of critical facilities presents the buildings and structures that are the County's primary concern for ensuring resiliency; they include both County owned or operated facilities as well as some privately owned and

operated facilities. Information for County owned or operated facilities (building replacement cost and building content costs) were reviewed and updated as needed; where available the same information was reviewed and updated for the privately owned or operated facilities.

Using Geographic Information Systems (GIS) software, each critical facilities was geolocated on maps to illustrate the geographic location of each facility. Based on each facility's geolocation, GIS software was then used to identify facilities within the hazard exposure area (footprint). The results were a map and a table summarizing the total number of exposed critical facilities by the major categories; and a total of the building replacement cost and building content costs for county owned or operated facilities. This approach was done for Wildfire, Sea Level Rise, Dam Failure, Tsunami, Landslides/Earth Movements, Climate-related (some), and Levee Failure.

Table 6.6 Critical Facilities in Santa Barbara County

Category of Facility	Total Structures	Total Real Property	Total Personal Property
Administration	17	112,862,099	14,469,801
Communications	21	194,369	1,317,359
Fire	29	19,492,626	2,695,113
Health and Human Services	113	127,116,743	21,247,992
Law	37	137,472,148	14,310,865
Public Works	35	52,656,525	4,696,012
Other	20	46,572,863	3,822,269
Total	**272**	**496,367,373**	**62,559,411**

*****Numerous critical facilities in the County are privately owned, but fulfill our County mission, house County property, and/or house County personal. Most privately owned critical facilities have not provided Total Real Property and Total Personal Property figures, therefore these numbers are not fully reflective of the true total property values of all critical facilities in Santa Barbara County.

6.1.3 Qualitative Estimate of Impacts

The approach used to complete this effort involves utilizing readily available data (i.e., Census) to extrapolate and estimate potential vulnerability. In some cases, the estimation will build upon historic events but it may also include projecting worst case potentials. The MAC and the County Planning Team

summarized the remaining hazards which the County is vulnerable and assessed the amount and type of damage that could be expected. This approach was done for Droughts/Water Shortage, Energy Shortage, Agricultural Pest, Hazardous Material Release, Terrorism, Aircraft Crashes, Civil Disturbance, Climate-related (some) Oil Spill, Epidemic/Pandemic, Radiological Incident, Cyber Threat, Train Accident, Well Stimulation/Fracking, and Marine Invasive Species.

6.2 SCIENTIFIC LOSS ESTIMATION ANALYSIS

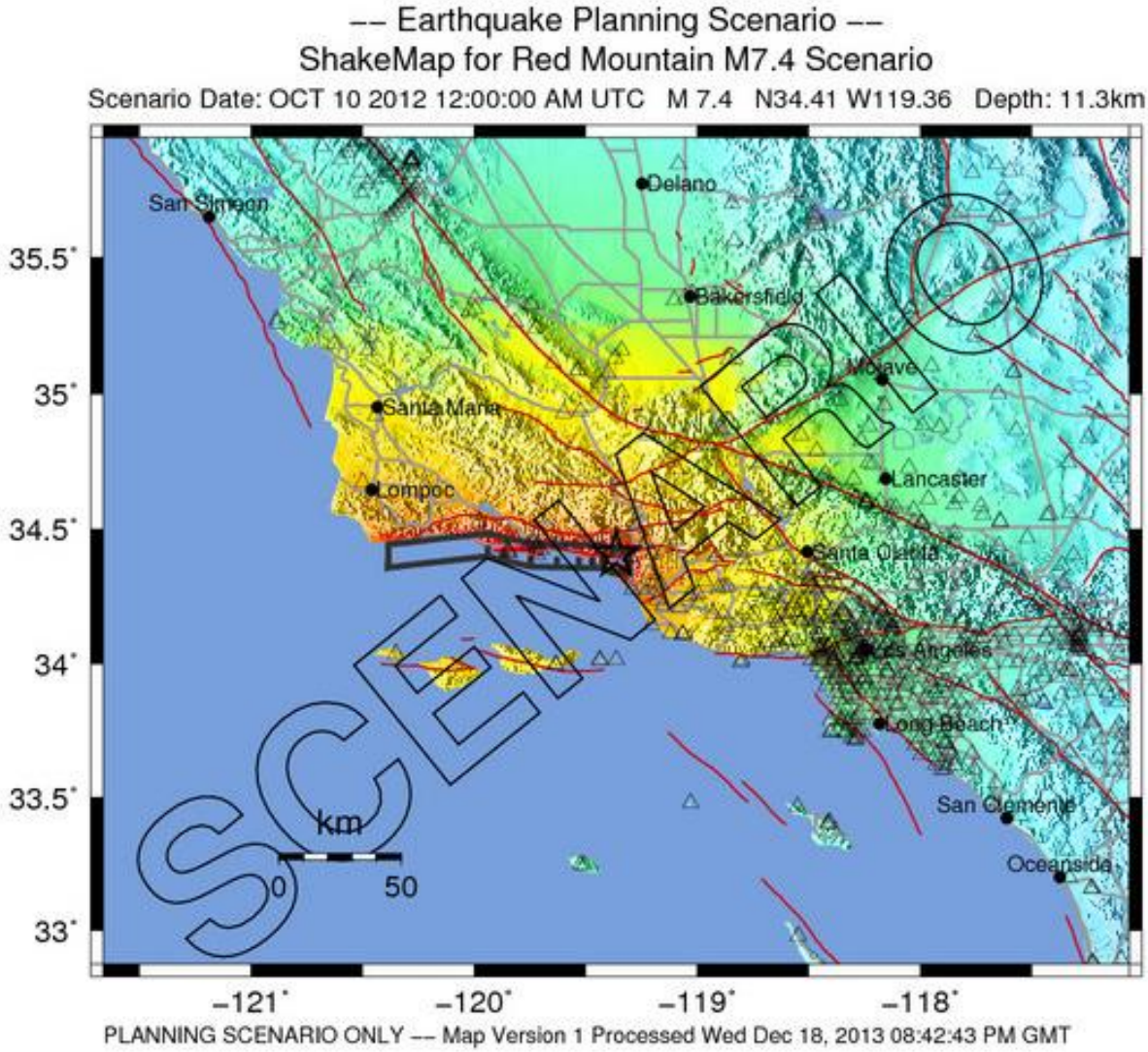
6.2.1 Earthquake and Liquefaction *(High Impact/Medium Probability)*

The entire geography of Santa Barbara County is exposed to some risk of shaking from an earthquake. The many fault lines, soil types, and construction types lead to a complicated assessment of vulnerability to earthquake. However, most of the land-based faults are either inactive or potentially active. Nearly all of the seismicity has been in the Santa Barbara Channel.

6.2.1.1 HAZUS-MH Earthquake Risk Assessment

Two earthquake scenarios developed by the United States Geological Survey (USGS), as shown in **Figure 6.1** and **Figure 6.2**, were selected to assess the range of impacts across the county. County-level maps of ground shaking for the same scenarios are shown in **Figure 6.3** and **Figure 6.4**.

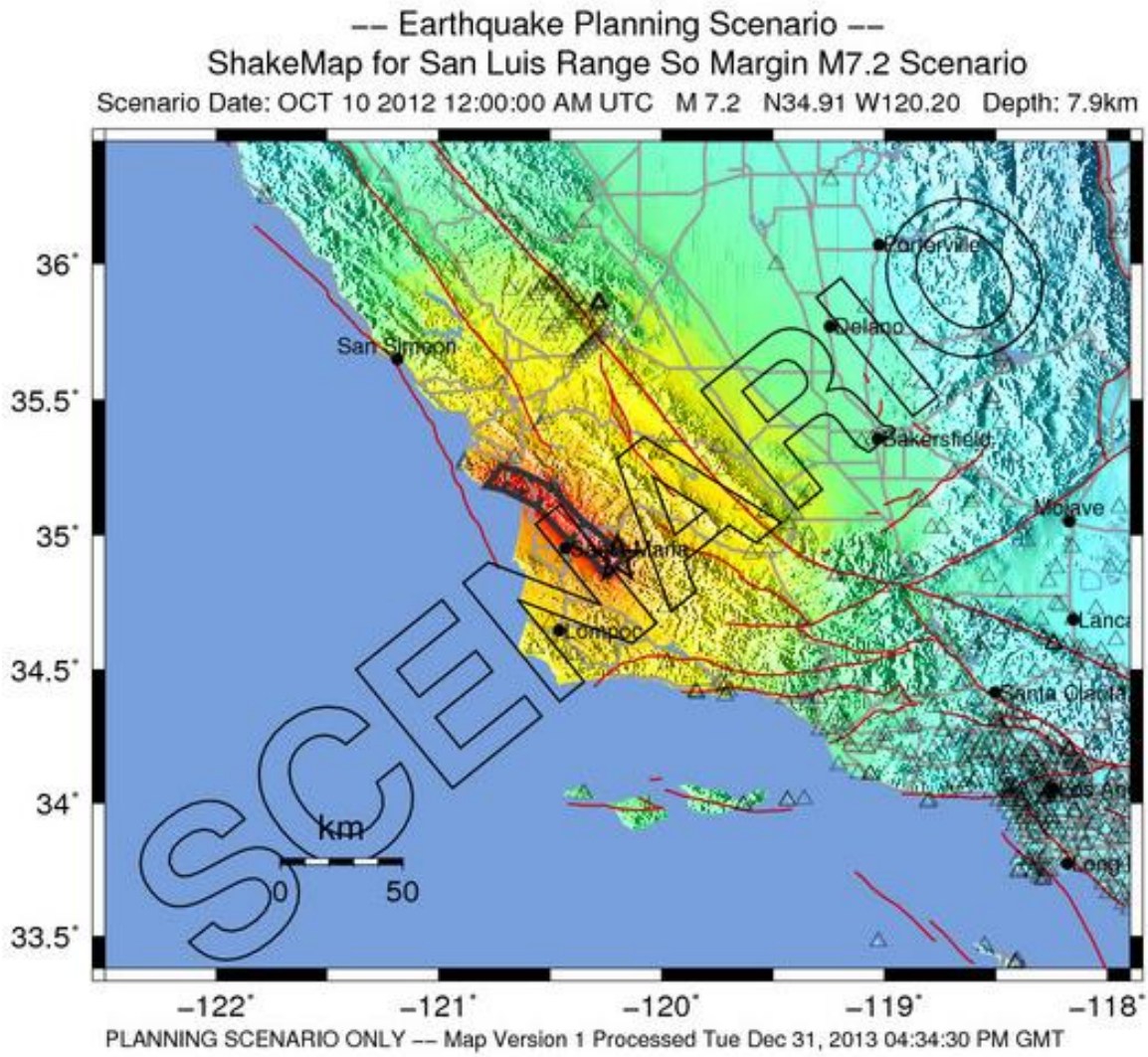
Figure 6.1: Scenario 1 – M7.4 Earthquake on the Red Mountain Fault



PERCEIVED SHAKING	Not felt	Weak	Light	Moderate	Strong	Very strong	Severe	Violent	Extreme
POTENTIAL DAMAGE	none	none	none	Very light	Light	Moderate	Mod./Heavy	Heavy	Very Heavy
PEAK ACC.(%g)	*<0.1*	*0.5*	*2.4*	*6.7*	*13*	24	44	83	>156
PEAK VEL.(cm/s)	<0.07	0.4	1.9	5.8	*11*	*22*	*43*	*83*	*>160*
INSTRUMENTAL INTENSITY	I	II–III	IV	V	VI	VII	VIII	IX	X+

Scale based upon Wald, et al.; 1999

Figure 6.2 Scenario 2 M7.2 Earthquake on the San Luis Range Fault, South Margin



PERCEIVED SHAKING	Not felt	Weak	Light	Moderate	Strong	Very strong	Severe	Violent	Extreme
POTENTIAL DAMAGE	none	none	none	Very light	Light	Moderate	Mod./Heavy	Heavy	Very Heavy
PEAK ACC.(%g)	<0.1	0.5	2.4	6.7	13	24	44	83	>156
PEAK VEL.(cm/s)	<0.07	0.4	1.9	5.8	11	22	43	83	>160
INSTRUMENTAL INTENSITY	I	II–III	IV	V	VI	VII	VIII	IX	X+

Scale based upon Wald, et al.; 1999

Figure 6.3 USGS ShakeMap Ground Motions for Santa Barbara County for a M7.4 Earthquake on the Red Mountain Fault (Scenario 1)

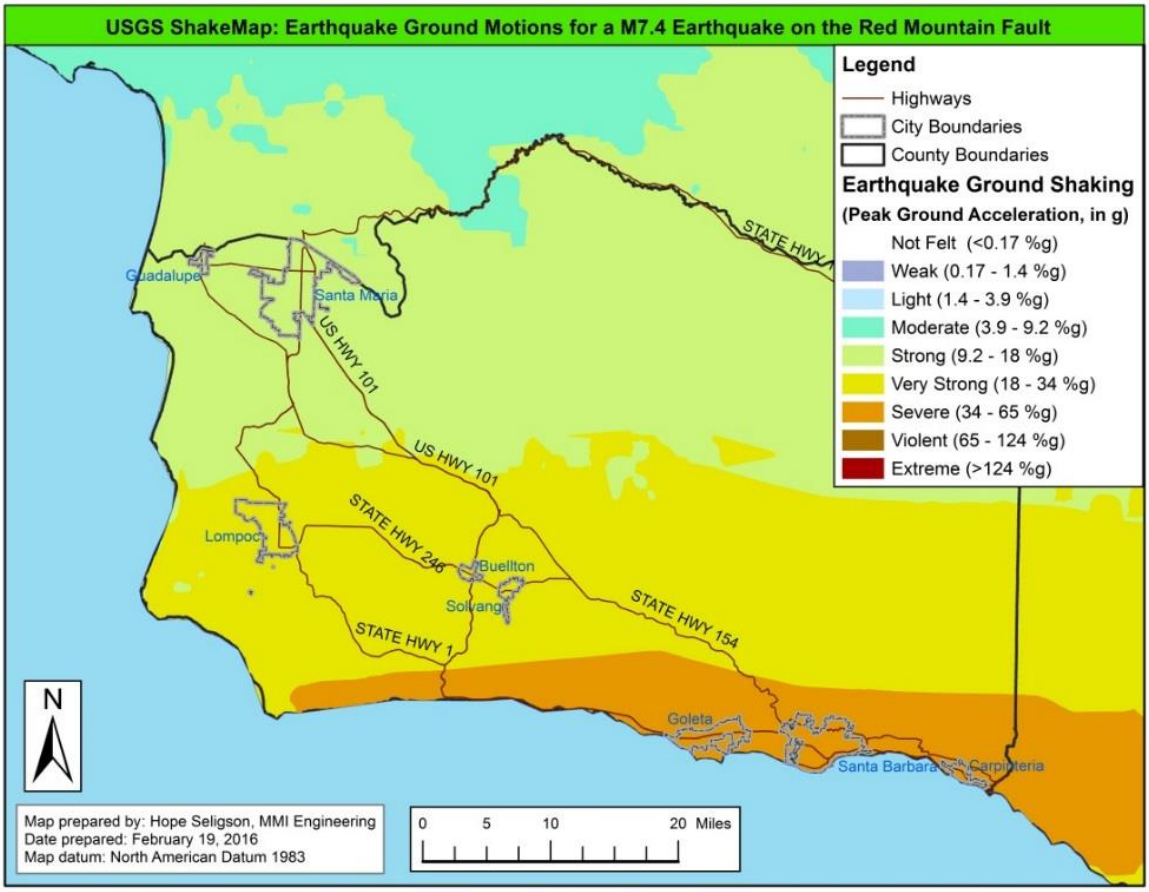
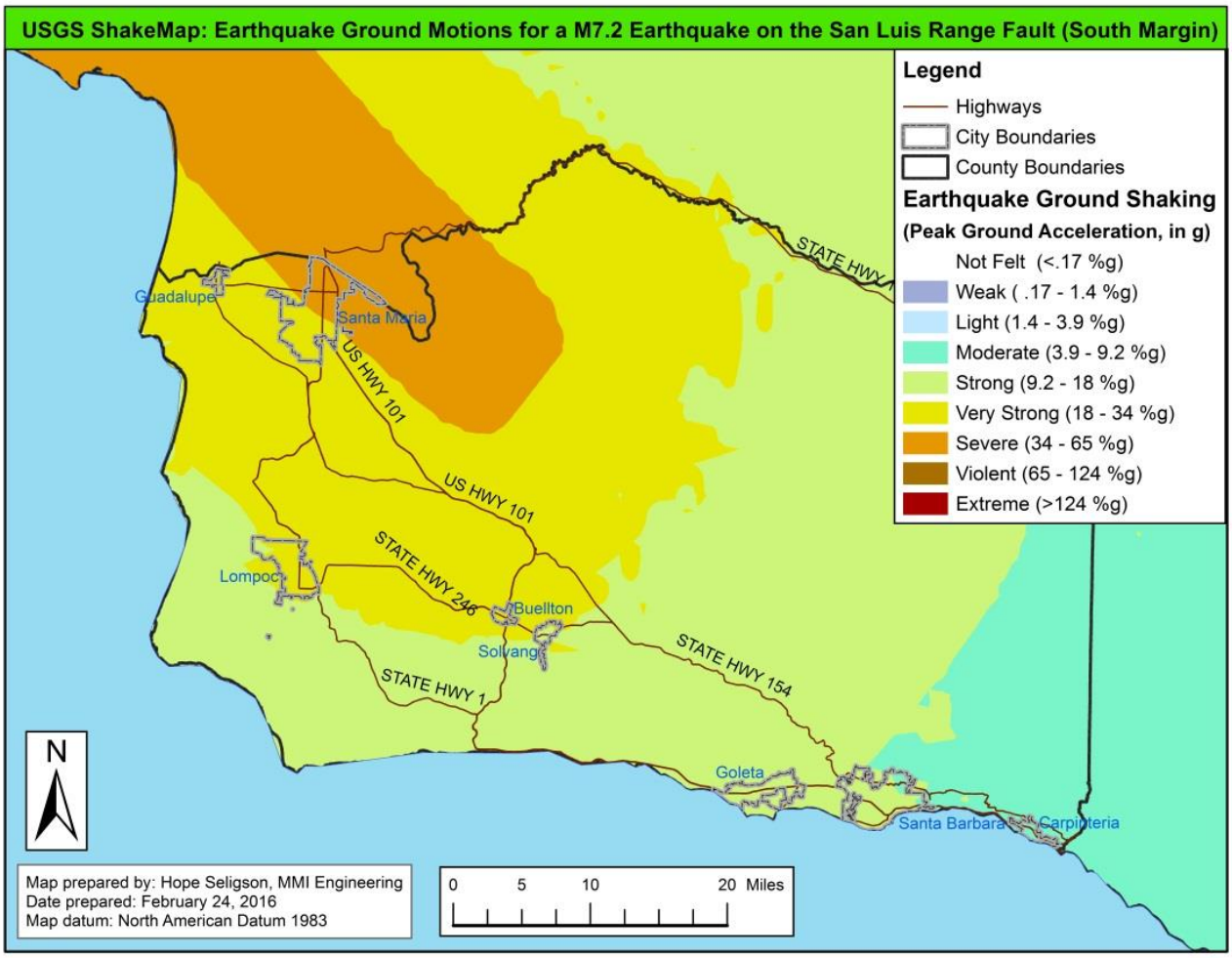


Figure 6.4 USGS Shake Map Ground Motions for Santa Barbara County for a M7.2 Earthquake on the San Luis Range Fault, South Margin (Scenario 2)



As noted above, the latest version of Hazus (Hazus 3.0, released in November, 2015) was used to conduct county-wide earthquake risk assessments. The Hazus results, computed at the census tract level, were aggregated to produce city-level impact summaries. An overview of the county-wide results for both scenarios is provided in **Table 6.7**, along with the sub-set of results that represent the unincorporated county areas. As shown, the M7.4 Red Mountain Fault earthquake scenario (which impacts the southern part of the county) generates more building damage and loss in the County and in the unincorporated county areas, than the M7.2 San Luis Range Fault earthquake scenario (which impacts the northern part of the County).

Table 6.8 provides a breakdown of estimated building damage (building count by Hazus damage state) by general building type, allowing for an understanding of the distribution of predicted damage in the modeled scenarios.

Functionality of essential facilities included in the Hazus default database (with additional fire station facilities added) in the two scenario earthquakes is summarized in **Table 6.9** for Santa Barbara County and the unincorporated county areas.

Table 6.7 Estimated Impacts for Two Earthquake Scenario Events Affecting Santa Barbara County

		Santa Barbara County		Unincorporated County	
		M7.4 Red Mountain	**M7.2 San Luis Range South Margin**	**M7.4 Red Mountain**	**M7.2 San Luis Range South Margin**
Direct Economic Losses for Buildings ($1,000)					
	Total Building Exposure Value	**44,224,855**		**14,933,445**	
Capital Stock Losses	Cost of Structural Damage	434,128	92,238	128,706	13,032
	Cost of Non-Structural Damage	1,782,698	431,791	523,679	74,652
	Total Building Damage	2,216,826	524,029	652,385	87,684
	Building Loss Ratio %	5.0%	1.2%	1.5%	0.2%
	Cost of Contents Damage	688,049	176,643	203,969	33,472
	Inventory Loss	15,507	3,463	4,589	572
Income Losses	Relocation Loss	186,261	39,827	50,432	3,947
	Capital-Related Loss	129,318	23,692	28,078	1,716
	Rental Income Loss	116,283	21,160	27,103	1,772
	Wage Losses	157,673	31,615	36,784	1,953
	Total Direct Economic Loss	**3,509,917**	**820,429**	**1,003,339**	**131,116**
	% Of Countywide Loss	**100.0%**	**100.0%**	**28.6%**	**16.0%**
Casualties					
Day Casualties	**Casualties - 2 pm**				
	Level 1 - minor injuries, basic first aid	1,163	288	335	21
	Level 2 - hospital treat & release	297	63	82	3
	Level 3 - injuries requiring hospitalization	47	9	13	0
	Level 4 - fatalities	87	17	23	0
	Total Casualties	**1,594**	**377**	**453**	**24**
Night Casualties	**Casualties - 2 am**				
	Level 1 - minor injuries, basic first aid	467	138	162	12
	Level 2 - hospital treat & release	94	20	31	1
	Level 3 - injuries requiring hospitalization	11	2	3	0
	Level 4 - fatalities	21	3	6	0
	Total Casualties	**593**	**163**	**202**	**13**
Shelter					
Shelter	Displaced Households	2,485	355	669	6
	People Requiring Short-term Shelter	1,719	367	528	3

Debris (thousands of tons)					
Debris	Brick, Wood & Other (Light) Debris	240	61	76.4	8.0
	Concrete & Steel (Heavy) Debris	592	99	153.3	7.8
	Total Debris	**832**	**160**	**229.7**	**15.8**

Table 6.8 Estimated Building Damage (Building Count by General Building type, by Damage State) for Two Earthquake Scenario Events Affecting Santa Barbara County

		Santa Barbara County		Unincorporated County	
		M7.4 Red Mountain	**M7.2 San Luis Range South Margin**	**M7.4 Red Mountain**	**M7.2 San Luis Range South Margin**
Concrete	None	1,035	1,922	248	547
	Slight	502	258	144	51
	Moderate	479	140	136	20
	Extensive	255	59	68	5
	Complete	125	18	27	1
	TOTAL	**2,396**	**2,397**	**623**	**624**
Manuf. Housing	None	3,266	3,767	836	1689
	Slight	1,044	1,320	263	478
	Moderate	991	1,560	395	457
	Extensive	1,705	841	869	102
	Complete	665	184	370	7
	TOTAL	**7,671**	**7,672**	**2,733**	**2,733**
Precast Concrete	None	795	1,524	207	469
	Slight	320	242	103	58
	Moderate	541	178	161	28
	Extensive	265	48	71	5
	Complete	80	10	18	0
	TOTAL	**2,001**	**2,002**	**560**	**560**
Reinforced Masonry	None	1,978	3,231	567	1019
	Slight	672	330	212	68
	Moderate	815	222	241	29
	Extensive	300	64	82	5
	Complete	93	12	19	0
	TOTAL	**3,858**	**3,859**	**1,121**	**1,121**
Steel	None	977	1,985	249	604
	Slight	322	260	106	69
	Moderate	605	241	190	42
	Extensive	534	101	140	9
	Complete	170	22	41	1

	TOTAL	**2,608**	**2,609**	**726**	**725**
Unreinforced Masonry	None	259	534	56	152
	Slight	110	99	32	23
	Moderate	154	63	46	10
	Extensive	119	23	33	1
	Complete	84	8	19	0
	TOTAL	**726**	**727**	**186**	**186**
Wood Frame (Other)	None	888	1,604	240	491
	Slight	521	257	160	55
	Moderate	419	111	121	16
	Extensive	139	25	35	1
	Complete	32	4	7	0
	TOTAL	**1,999**	**2,001**	**563**	**563**
Wood Frame (Single-family)	None	64,022	86,952	23217	33919
	Slight	34,839	17,301	12745	4214
	Moderate	7,180	1,846	2342	191
	Extensive	68	12	20	1
	Complete	1	0	0	0
	TOTAL	**106,110**	**106,111**	**38,324**	**38,325**
ALL BUILDING TYPES	None	73,220	101,519	25,620	38,890
	Slight	38,330	20,067	13,765	5,016
	Moderate	11,184	4,361	3,632	793
	Extensive	3,385	1,173	1,318	129
	Complete	1,250	258	501	9
	TOTAL	**127,369**	**127,378**	**44,836**	**44,837**

Table 6.9 Predicted Essential Facility Functionality in Two Earthquake Scenario Events Affecting Santa Barbara County

		Santa Barbara County		Unincorporated County	
		M7.4 Red Mountain	**M7.2 San Luis Range South Margin**	**M7.4 Red Mountain**	**M7.2 San Luis Range South Margin**
Fire Stations	Functionality < 50 % on Day 1	20	5	8	1
	Functionality 50 - 75% on Day 1	1	6	0	2
	Functionality >75% Day 1	20	30	9	14
Police Stations	Functionality < 50 % on Day 1	6	2	5	1
	Functionality 50 - 75% on Day 1	1	2	1	1

	Functionality >75% Day 1	9	12	6	10
Public Schools	Functionality < 50 % on Day 1	54	18	10	2
	Functionality 50 - 75% on Day 1	1	17	1	8
	Functionality >75% Day 1	68	88	23	24

6.2.2 Flood and Coastal Storm Surge *(Medium Impact/High Probability)*

Hazus 3.0 was used to develop a flood depth grid for the 1-percent annual chance (100-year) flood, using Hazus 3.0 built-in, basic (i.e., Level 1) flood depth estimation methodology. The Hazus 3.0 flood hazard assessment methodology uses available information and local river and floodplain characteristics, such as frequency, discharge and ground elevation to estimate flood elevation, and ultimately flood depth. Digital elevation model (DEM) data with 30-meter resolution, available from the USGS' National Elevation Dataset (see: http://nationalmap.gov/elevation.html) has been utilized in the current assessment.

It should be noted that the flood depth grid generated by Hazus 3.0 ***is not*** equivalent to regulatory floodplain data contained in FEMA's Digital Flood Insurance Rate Maps (DFIRMs), which are the result of extensive, detailed engineering study. The Hazus-generated flood depth grid is a hypothetical representation of a potential flooding scenario, intended for non-regulatory uses. Further, it should also be noted that the DEM data used in the default analysis do not reflect the presence of channels and levees. A more detailed assessment would utilize higher resolution DEM data, such as LIDAR-based DEM data, and/or would require GIS-based revisions to the DEM to better reflect local flood control structures. Given that the Hazus 3.0 Level 1 approach does not consider the presence of levees, Hazus 3.0 loss and damage estimates produced for areas with levees (e.g., along the Santa Maria River) should be considered "worst-case" flood losses, reflecting potential flood damage that could occur in the event that the levees fail. Hazus-estimated flood depths across Santa Barbara County are provided in **Figure 6.5**.

An overview of the county-wide Hazus results for the 100-year flood scenario is provided in **Table 6.10**, along with the sub-set of results that represent the unincorporated county areas. **Table 6.11** provides a breakdown of estimated building damage (building count by percent damage range) by general occupancy. As shown, most of the flood-damaged buildings are single family homes. Functionality of essential facilities included in the Hazus default database (with additional fire station facilities added) in the flood scenario is summarized in **Table 6.12** for Santa Barbara County.

Figure 6.5 Hazus-Estimated Flood Depths for a 1-percent Annual Chance (100-year) Flood

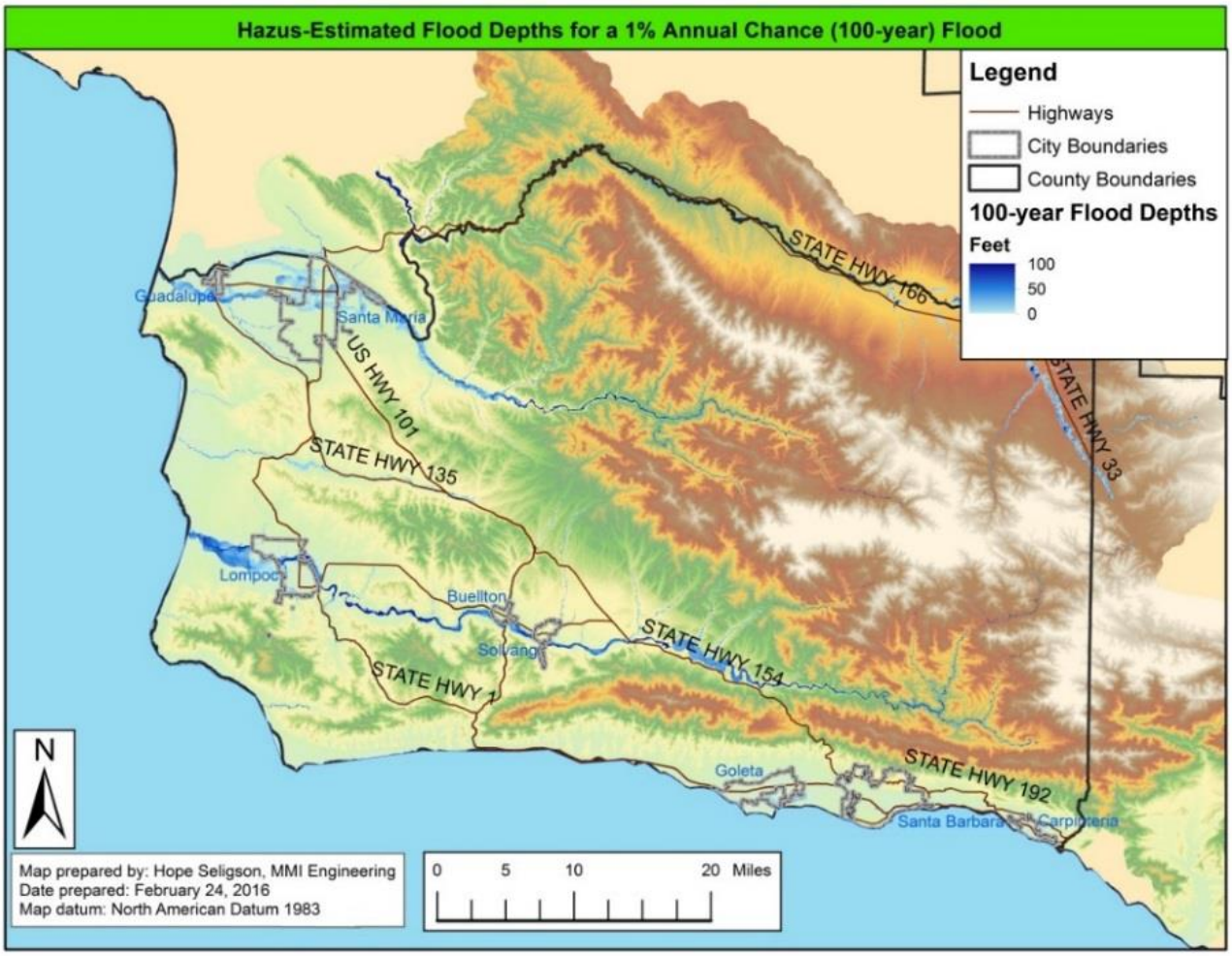


Table 6.10 Hazus -Estimated Impacts for the 1-Percent Annual Chance (100-Year) Flood Scenario Affecting Santa Barbara County

		Santa Barbara County	Unincorporated County
Direct Economic Losses for Buildings ($1,000)			
	Total Building Exposure Value	**44,224,855**	**14,933,445**
Capital Stock Losses	Total Building Damage	549,710	55,476
	Building Loss Ratio %	*1.2%*	*0.1%*
	Cost of Contents Damage	566,373	58,465
	Inventory Loss	9,022	1,397
Income Losses	Relocation Loss	1,624	112
	Capital-Related Loss	1,736	196
	Rental Income Loss	472	34
	Wage Losses	2,880	220
	Total Direct Economic Loss	**1,131,817**	**115,900**
	% Of Countywide Loss	**100.0%**	**10.2%**
Shelter			
Shelter	Displaced Population	57,963	2,918
	Number of People Requiring Short-term Shelter	54,248	2,262
Debris (thousands of tons)			
Debris	Finishes	41.3	4.6
	Structures	7.8	2.3
	Foundations	7.7	2.0
	Total Debris	**56.7**	**8.9**

Table 6.11 Estimated Building Damage (Building Count by General Occupancy, by Percent Damage Range) for a 1-percent Annual Chance (100-year) Flood Scenario Affecting Santa Barbara County

		Santa Barbara County	Unincorporated County
Building Damage Count in Flooded Census Blocks by Occupancy			
Single Family Homes	None	2,344	95
	1 - 10%	1,775	88
	11 - 20%	2,472	134
	21 - 30%	867	48
	31 - 40%	662	35
	41 - 50%	276	11
	Substantial Damage	196	9

	TOTAL	**8,592**	**420**
Manufactured Housing	None	208	11
	1 - 10%	14	1
	11 - 20%	29	1
	21 - 30%	31	1
	31 - 40%	0	0
	41 - 50%	19	1
	Substantial Damage	76	5
	TOTAL	**377**	**20**
Other Residential	None	70	0
	1 - 10%	8	0
	11 - 20%	23	0
	21 - 30%	8	0
	31 - 40%	0	0
	41 - 50%	0	0
	Substantial Damage	0	0
	TOTAL	**109**	**0**
Commercial	None	16	1
	1 - 10%	42	0
	11 - 20%	47	0
	21 - 30%	4	0
	31 - 40%	0	0
	41 - 50%	0	0
	Substantial Damage	0	0
	TOTAL	**109**	**1**
Building Damage Count in Flooded Census Blocks by Occupancy			
Industrial	None	0	0
	1 - 10%	1	0
	11 - 20%	4	0
	21 - 30%	0	0
	31 - 40%	0	0
	41 - 50%	0	0
	Substantial Damage	1	1
	TOTAL	**6**	**1**
Other Occupancies	None	4	0
	1 - 10%	6	0
	11 - 20%	1	0
	21 - 30%	0	0
	31 - 40%	0	0
	41 - 50%	0	0
	Substantial Damage	1	0

	TOTAL	**12**	**0**
ALL OCCUPANCIES	None	2,642	107
	1 - 10%	1,846	89
	11 - 20%	2,576	135
	21 - 30%	910	49
	31 - 40%	662	35
	41 - 50%	295	12
	Substantial Damage	274	15
	TOTAL	**9,205**	**442**

Table 6.12 Predicted Essential Facility Functionality for a 1-percent Annual Chance (100-year) Flood Scenario Affecting Santa Barbara County

		Santa Barbara County	Unincorporated County Areas
Fire Stations	# facilities located within flooded areas	5	1
	# facilities with Moderate or Greater Damage	2	1
	# facilities expected to be non-functional on Day 1	4	1
Police Stations	# facilities located within flooded areas	2	0
	# facilities with Moderate or Greater Damage	2	0
	# facilities expected to be non-functional on Day 1	2	0
Public Schools	# facilities located within flooded areas	12	2
	# facilities with Moderate or Greater Damage	2	0
	# facilities expected to be non-functional on Day 1	5	0

6.3 CRITICAL FACILITIES ANALYSIS

6.3.1 Flood and Coastal Storm Surge *(Medium Impact/High Probability)*

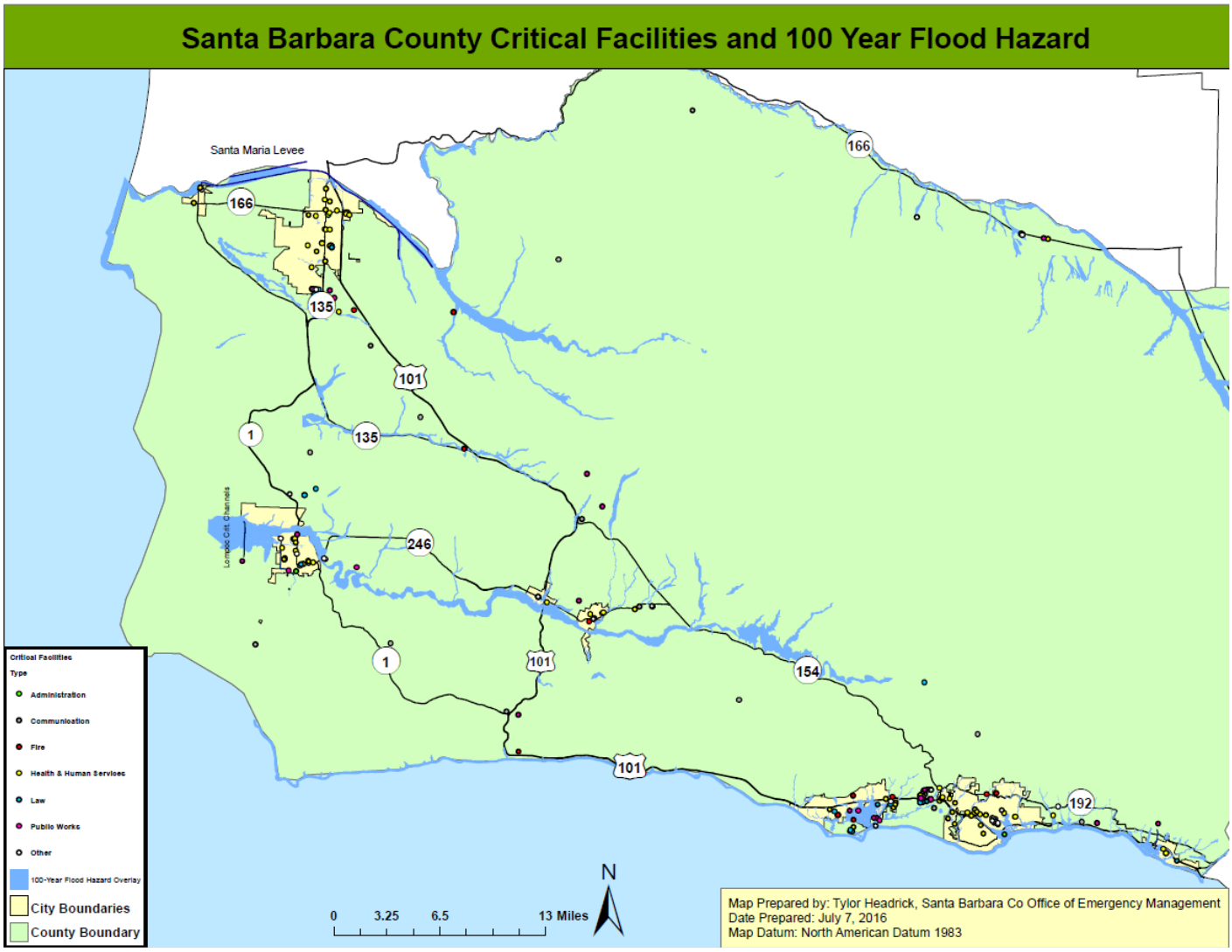
Although Flood and Coastal Surge damage was well delineated in the previous section (Scientific Loss Estimation modeling), the County Planning Team and the MAC wanted to include additional vulnerability data for the Critical Facilities. The exposure of the critical facilities to flood zones is summarized in **Table 6.13** and depicted on **Figure 6.6**.

Table 6.13 Critical Facilities by Category in Flood Zones

Critical Facility Category	100-Year	500-Year
Administrative	2	3
Communications	0	0
Fire	5	5
Health and Human Services	6	19
Law	9	9
Public Works	7	8
Other	0	4

*Some Critical Facilities are located in both a 100-year and 500-year Flood Zone.

Figure 6.6 Critical Facilities in 100 Year Flood Zone



6.3.1.1 Repetitive Loss (RL) Properties

Repetitive loss properties are defined as property that is insured under the NFIP that has filed two or more claims in excess of $1,000 each within any consecutive 10-year period since 1978. Currently, there are 35 repetitive loss structures in Santa Barbara County's unincorporated areas. Thirty three (33) of the 35 are located in the South Coast Flood Zone. The other repetitive loss property is a mobile home in the Lompoc Valley Flood Zone. An overview of repetitive loss areas in the County is presented in the map (**Figure 6.7**).

The RL properties in the South Coast Flood Zone are built on a narrow coastal strip which fronts on the Pacific Ocean. The seven mile long strip extends from Olive Mill Road in Montecito, east to Sandyland Cove Road near Carpinteria

Most of the land within this narrow coastal strip is designated Zone VE on the FIRMs. There is also V-Zone fronting the entire strip. Between these zones there is a small land area designated as A-Zones at the locations where six coastal creeks and the Carpinteria Slough empty into the ocean. This portion of the coast is periodically subject to high velocity wave action as was experience in January and March of 1983. The Base Flood Elevation (BFE) ranges from 11 to 27 feet NAVD88 along the coastal strip.

On the portion of the coastal strip RL area in the vicinity of the Carpinteria Slough, the V-Zone BFE is 11 feet NAVD88. During past flooding events, County personnel have observed flood elevations of approximately 10 to 11 feet (USGS MSL Datum) in the vicinity of the Carpinteria Slough. Since 1988 the County has been requiring lowest horizontal structural member to be elevated to 13.6 feet NAVD88 datum.

The 33 RL structures are among over 300 homes built in the area. With the exception of homes that have been substantially improved or razed and rebuilt, most of these homes were built prior to the County's participation in the CRS. Due to the very high value of homes in this area, it is infrequent that the substantial improvement threshold is met, requiring pre-FIRM structures to be brought into compliance with NFIP standards. There is little new development on the strip since the area is essentially built out. Because the parcels are small and the land amongst the most valuable in California there is a trend to maximize space in accordance with zoning regulations by addition additions, remodeling and occasionally tearing structures down and rebuilding.

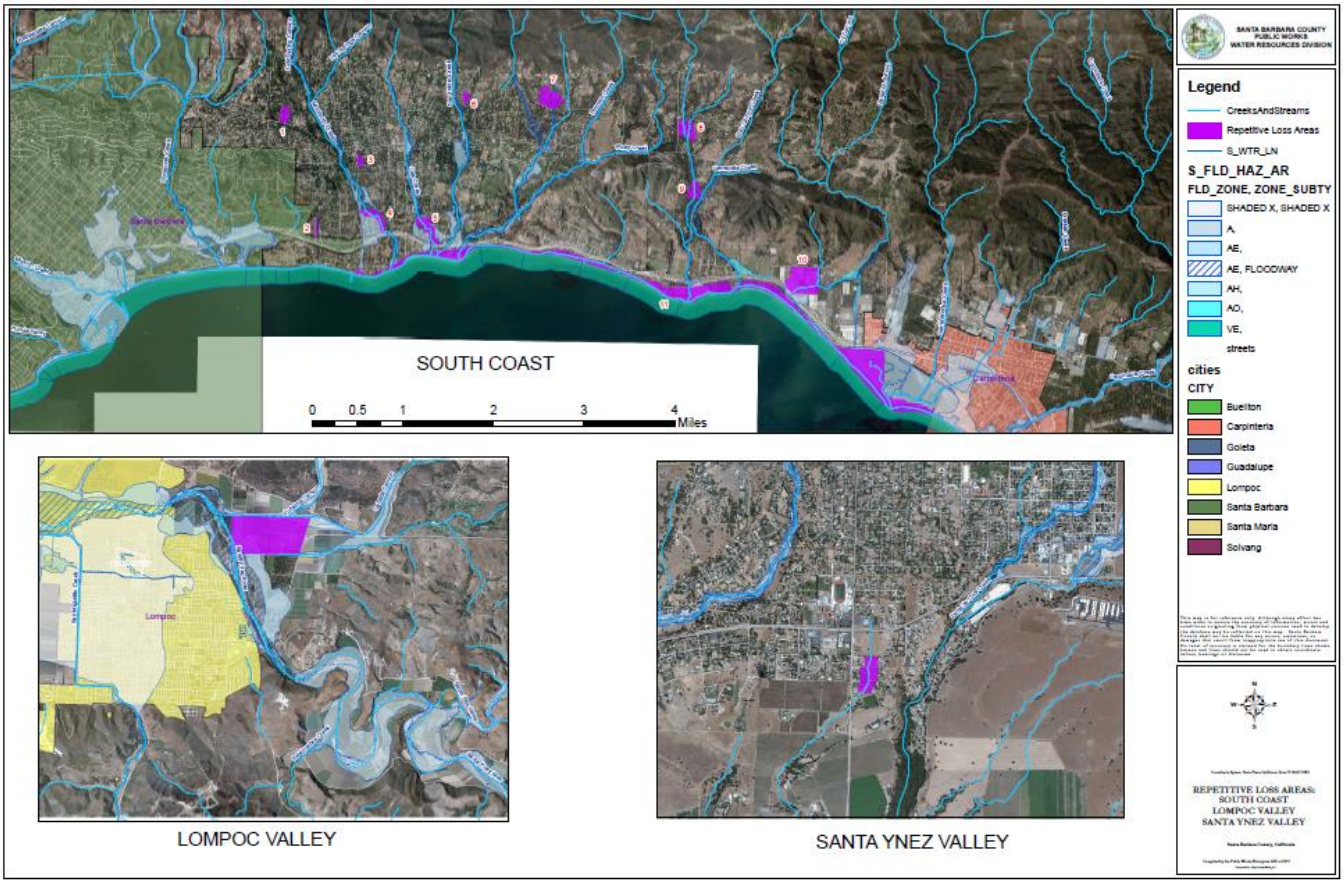
Currently, there is one repetitive loss area in the Lompoc Valley Flood Zone. It is a post-FIRM elevated manufactured home in an un-numbered A- Zone. It was constructed in 1989 and elevated in accordance with the County NFIP Ordinance. The parcel on which the structure is situated is only partially within the SFHA. The owner of the property is not interested in relocating the manufactured home to a different location on the parcel.

Currently, there is one repetitive loss area in the Santa Ynez Valley Flood Zone. The parcel on which the structure is situated is not within the SFHA. There is an unmapped water course which is likely cause of flooding for this structure. The loss was a result of a significant storm event that occurred in the area in 2005.

Floodplain Management and Flood Mitigation Education and Outreach: The largest losses to the NFIP in Santa Barbara County are the 33 RL structures in the South County Coastal Basin. Options for dealing

with those properties structurally are very limited. Hard protection such as groins, revetments, sea walls, etc. is economically unfeasible and generally not able to gain environmental permit approval. Acquisition and demolition is also not feasible, as these are among the most expensive and most desirable properties in California. Elevation and less extensive retrofits may be an alternative. However, with view-shed restrictions and the political implications of providing grant assistance to this type of property is unlikely. For these reasons, the County has developed multiple outreach and education strategies to encourage self- responsible actions in these areas and other flood prone areas in general. The County will target education and outreach programs to a variety of audiences to not only encourage retrofit and flood loss reduction activities but to encourage flood resistant future development.

Figure 6.7 Repetitive Loss Areas: South Coast, Lompoc Valley, Santa Ynez Valley



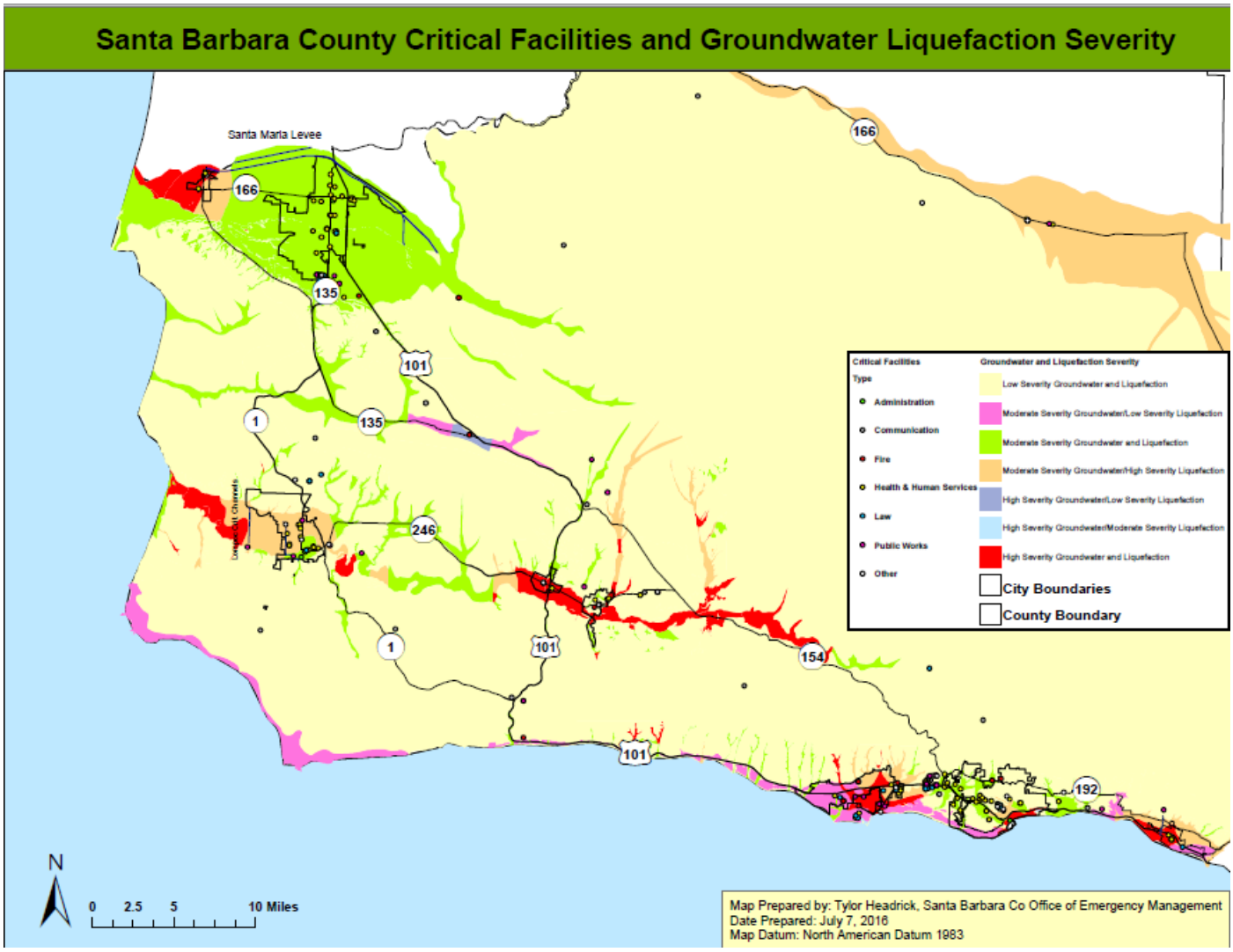
6.3.2 Groundwater Liquefaction *(High Impact/Medium Probability)*

Although Earthquake damage was well delineated in the previous section (Scientific Loss Estimation modeling), the County Planning Team and the MAC wanted to include additional vulnerability data for Groundwater Liquefaction Severity for Critical Facilities. The exposure of the critical facilities to flood zones is summarized in in **Table 6.14** and depicted in **Figure 6.7**.

Table 6.14 Critical Facilities by Category in Groundwater Liquefaction Zones (Level of Severity Groundwater/Level of Severity Liquefaction)

Critical Facility Category	moderate/low	moderate/moderate	moderate/high	high/low	high/high
Administrative	0	4	3	0	2
Communications	1	1	0	0	1
Fire	4	3	9	2	3
Health and Human Services	3	44	29	0	9
Law	4	14	7	0	1
Public Works	0	10	11	0	5
Other	0	2	5	0	2

Figure 6.8 Groundwater Liquefaction Severity Zones



6.3.3 Wildfire *(Medium Impact/High Probability)*

In looking at critical facilities' vulnerability to wildfire, there were three measures that were evaluated. The first is whether a critical facility is within the Fire Severity Zone (FSZ). The FSZ is mapped by the CA Department of Forestry and Fire Protection. It shows the geographic extents for areas of significant fire hazards based on fuels, terrain, weather, and other relevant factors. The second measure for vulnerability is the Wildland Urban Interface which is the potential treatment zone where projects could be conducted to reduce wildland fire threats to people. For the purposes of this analysis, "within the WUI" represents those critical facilities that are in the geographical area where the three factors of "threat to people", "communities at risk", and "distance to developed areas" intersect. The final measure is that of "Fire Threat". Fire Threat is a combination of the factors of fire frequency and potential fire behavior. The two factors are combined to create five (5) threat classes ranging from "Little or No Threat" to "Extreme". The exposure of the critical facilities to these three measures is indicated in the tables (**Table 6.14**, **Table 6.15**, and **Table 6.16**) and figures (**Figure 6.7**. **Figure 6.8**, and **Figure 6.9**) below. It is worth noting that all critical facilities have at least some threat from one or more of the three measures. Because of this, the exposure has been color coded low too high in a yellow, orange, red scheme to make it easier for the reader to discern the different designations.

Table 6.14 Critical Facilities by Category in Fire Hazard Severity Zone

Critical Facility Category	Moderate	High	Very High
Administrative	0	0	0
Communications	0	5	1
Fire	3	1	6
Health and Human Services	2	0	2
Law	0	0	3
Public Works	4	5	2
Other	2	3	2

Figure 6.9 Critical Facilities in Fire Hazard Severity Zone

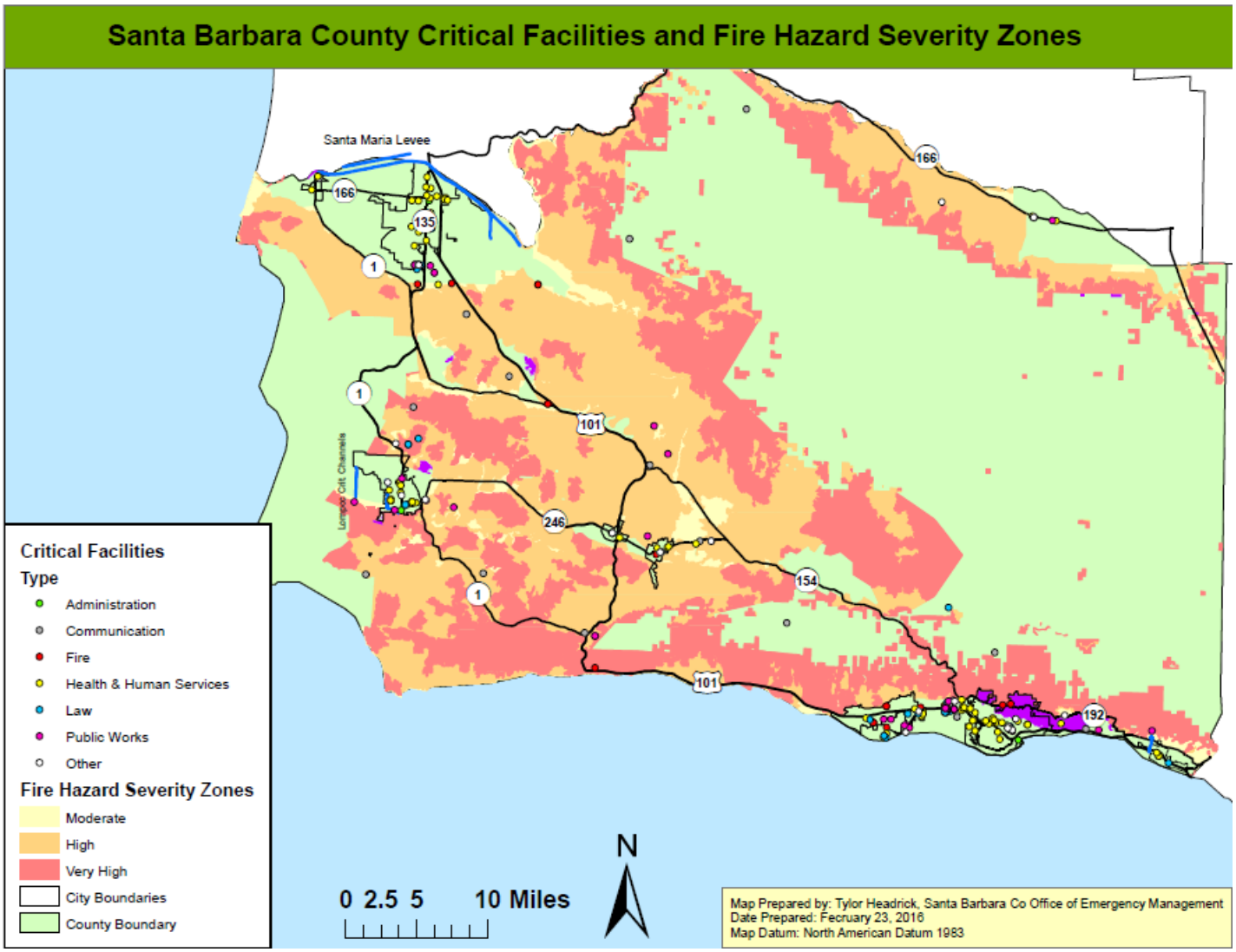


Table 6.15 Critical Facilities by Category in Wildland Urban Interface (WUI) Zone

Critical Facility Category	Within Zone
Administrative	11
Communications	14
Fire	28
Health and Human Services	87
Law	31
Public Works	32
Other	13

Figure 6.10 Critical Facilities in Wildland Urban Interface (WUI)

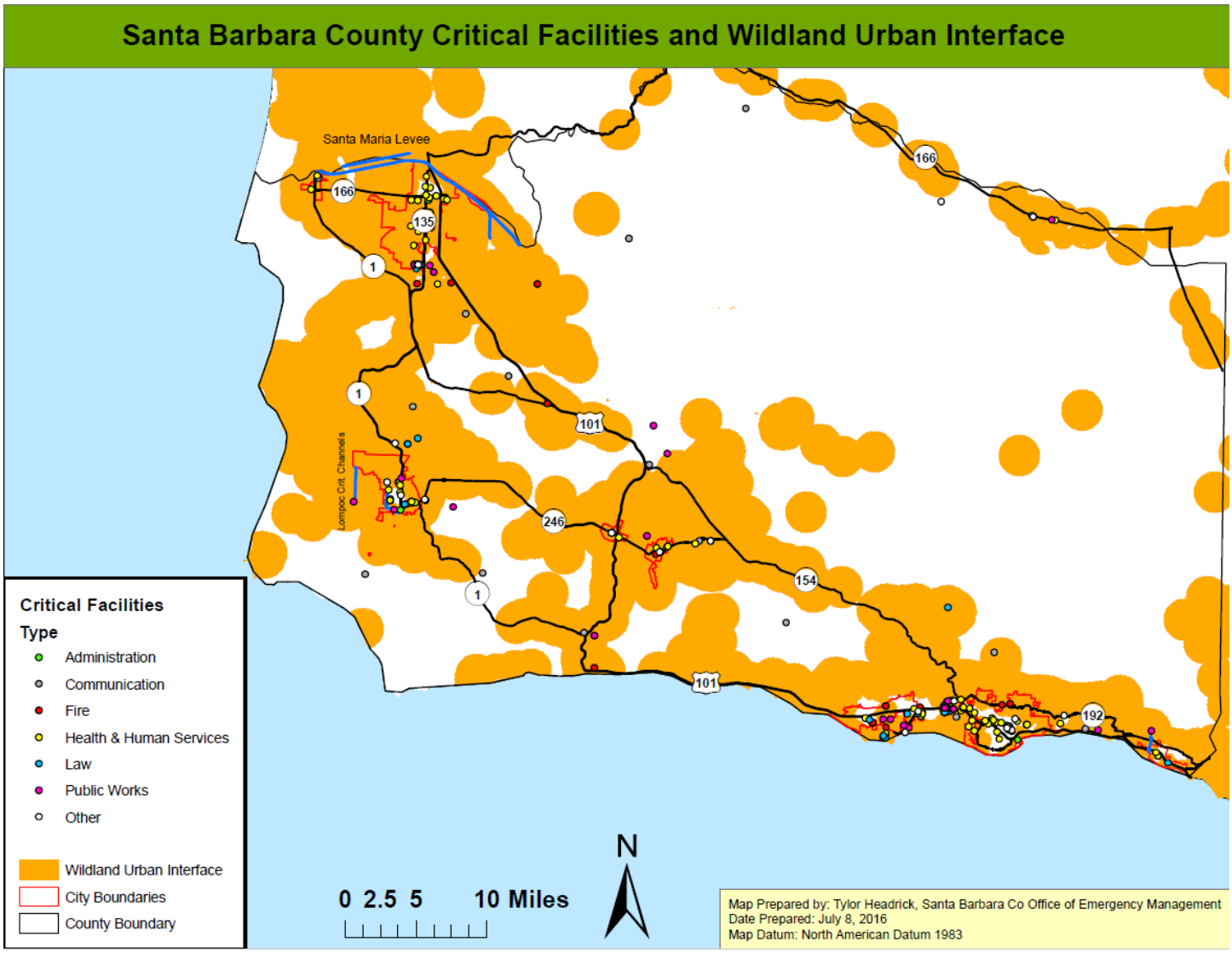
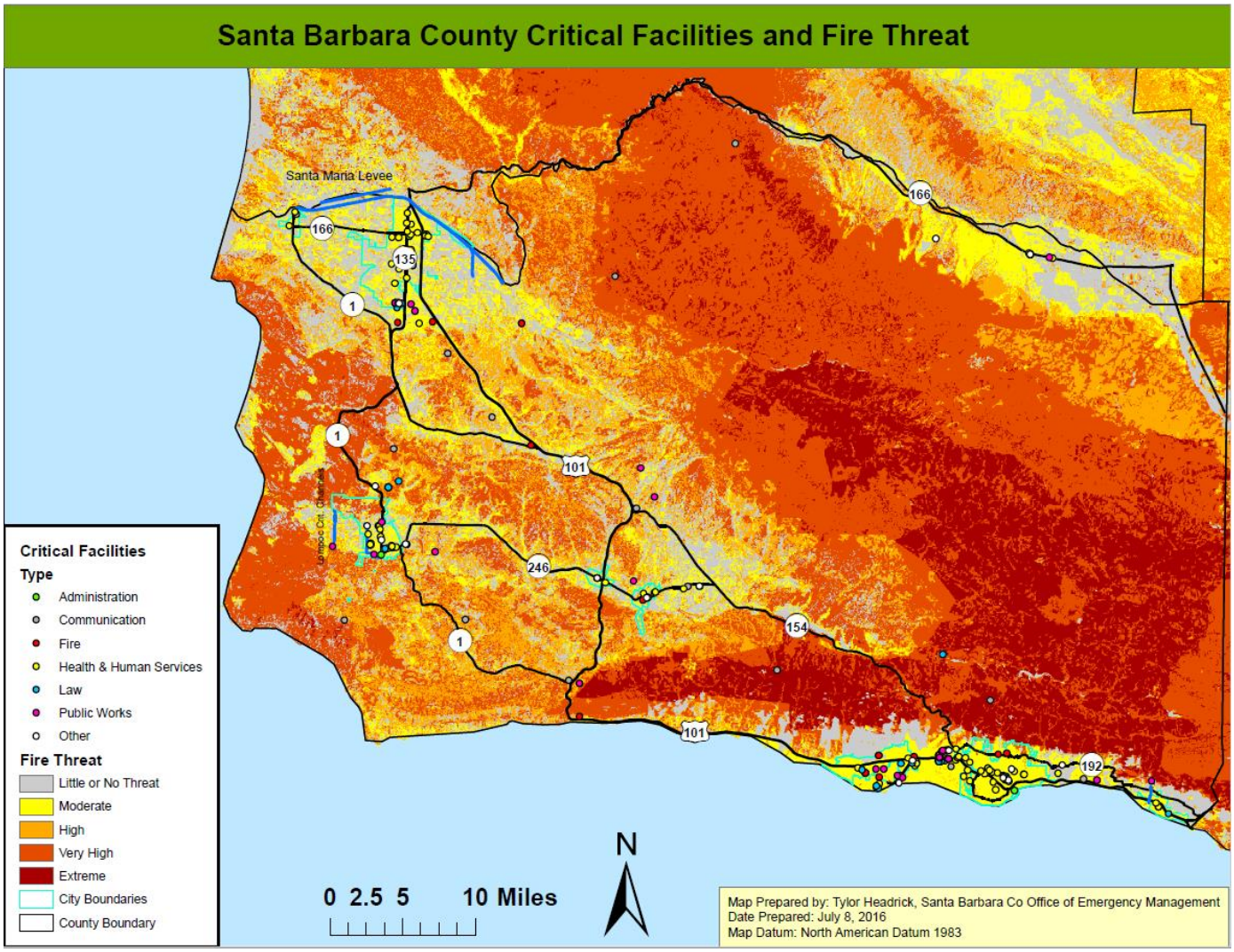


Table 6.16 Critical Facilities by Category in Fire Threat Zones

Critical Facility Category	Moderate	High	Very High	Extreme
Administrative	14	0	0	0
Communications	6	9	4	2
Fire	19	4	0	0
Health and Human Services	95	3	0	0
Law	29	4	1	0
Public Works	26	5	0	0
Other	15	2	0	0

Figure 6.11 Critical Facilities in Fire Threat Zones



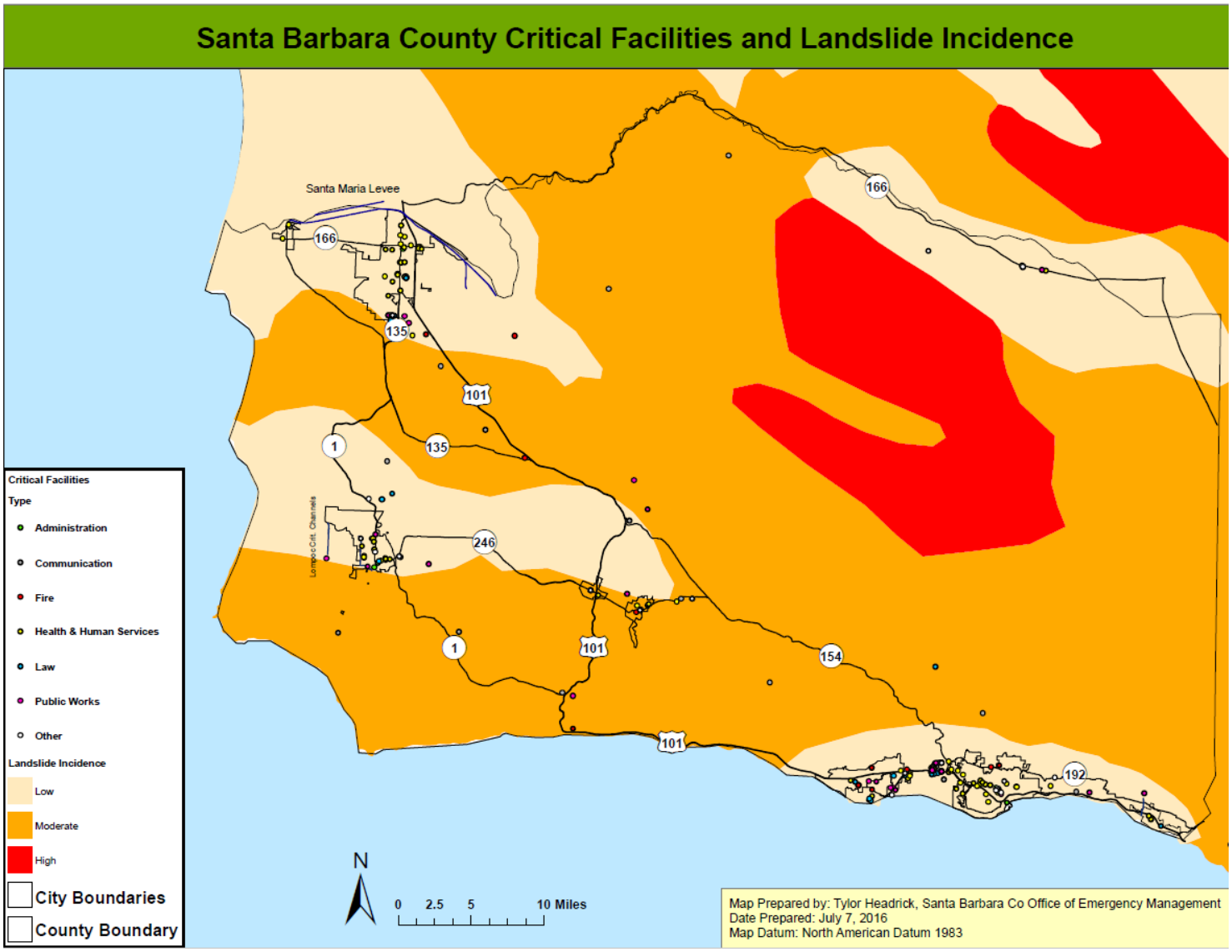
6.3.4 Landslide and other Earth Movement *(Medium Impact/High Probability)*

In an effort to assess vulnerability for landslides, data was collected from the United States Geological Survey (USGS) that represents landslide incidence and susceptibility. The geographies impacted are categorized into low, moderate, and high zones. These layers were intersected with the critical facilities to estimate exposure and show that there is approximately $14.4 million in structure value and just under $4 million in contents with at least moderate risk to landslides. The table below (**Table 6-17**) summarizes the total exposure and **Figure 6-10** depicts the location of those facilities that fall into a moderate risk. None of the County's critical facilities have a high risk of landslide vulnerability. All facilities not shown fall into the low risk category.

Table 6.17 Critical Facilities by Category in Landslide Zones

Critical Facility Category	Low	Moderate	High
Administrative	0	2	0
Communications	0	12	0
Fire	0	8	0
Health and Human Services	0	5	0
Law	0	2	0
Public Works	0	5	0
Other	0	4	0

Figure 6.12 Critical Facilities and Landslide Incidence



6.3.5 Sea Level Rise, Coastal Storm Surge and Erosion *(Medium Impact/High Probability)*

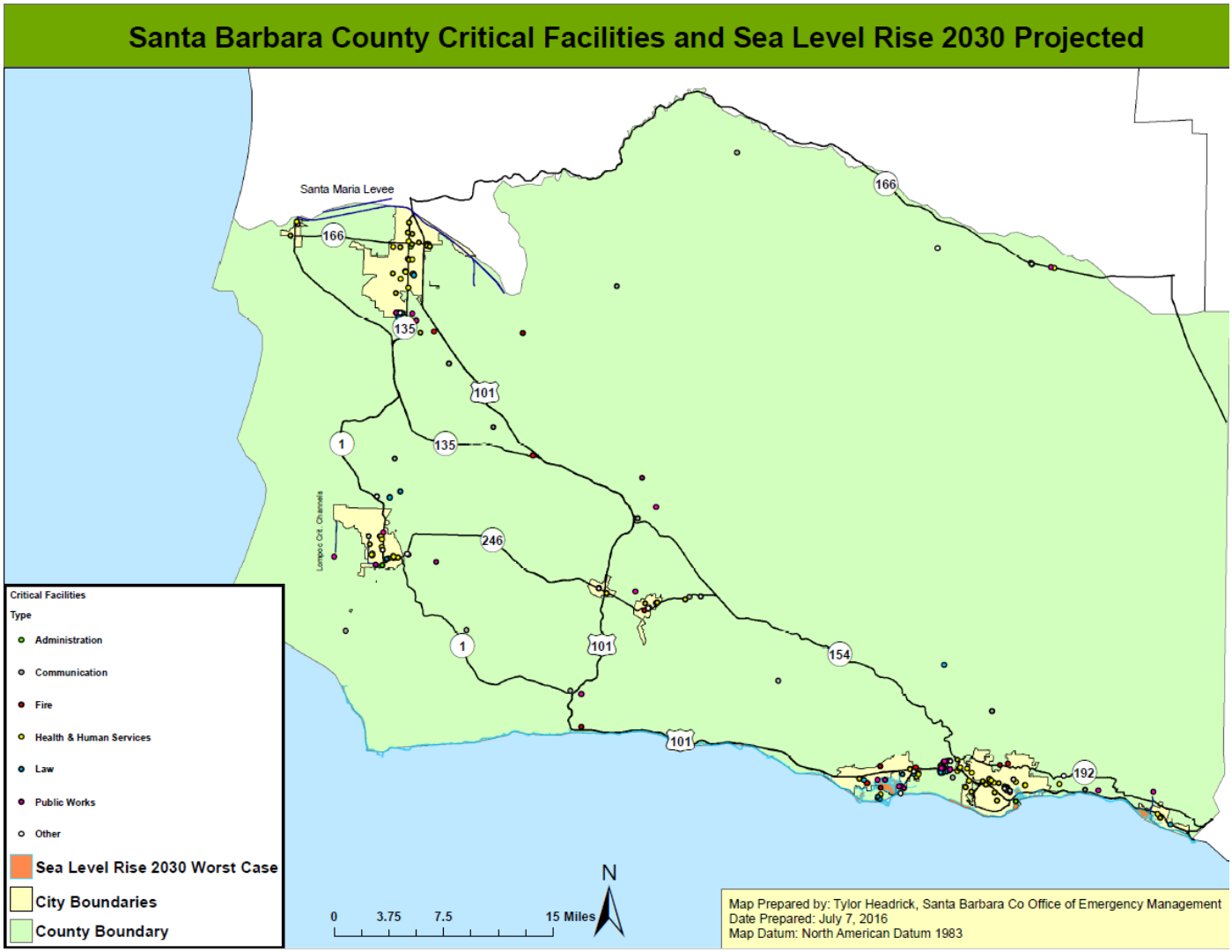
Santa Barbara County will be vulnerable to Sea Level Rise (SLR) along its coastline. SLR coupled with increased frequency, severity, and duration of high tide and storm events related to climate change will result in more frequent and severe extreme events along the coast. These events could expose the coast to severe flooding and erosion, damage to coastal Critical Facilities and real estate, and salinity intrusion into delta areas and coastal aquifers (Projecting Future Sea Level, A Report from the California Climate Change Center, 2006).

Table 6-18 illustrates the potential impact to Critical Facilitates from SLR, while **Figure 6.11** illustrates the vulnerability of the County's Critical Facilities to Sea Level Rise over the next 30 years.

Table 6.18 Critical Facilities by Category in SLR Zones

Critical Facility Category	Moderate
Administrative	0
Communications	0
Fire	0
Health and Human Services	0
Law	0
Public Works	2
Other	1

Figure 6.13 Critical Facilities and Sea Level Rise



6.3.6 Dam Failure *(High Impact/Low Probability)*

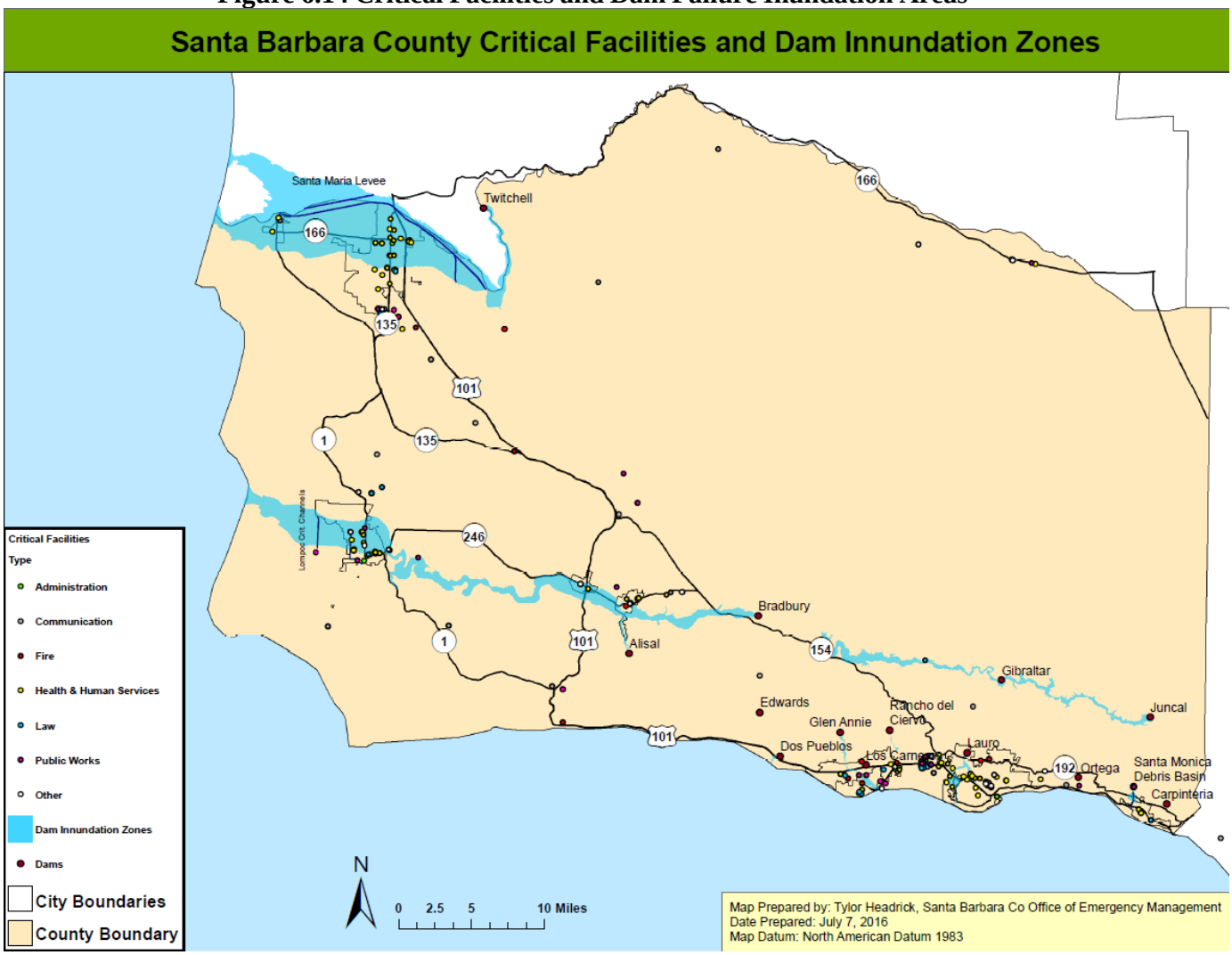
There are nine major dams in the County: Alisal Creek, Bradbury, Dos Pueblos, Gibraltar, Glen Anne, Juncal, Ortega, Rancho Del Ciervo, and Twitchell. Bradbury dam has the largest concern of failure because floodwaters from this dam would affect Cachuma Village, Solvang, Buellton, Lompoc City, Lompoc Valley, and south Vandenberg AFB. A failure of the remaining eight (8) dams would affect portions of populated cities and communities, forest and agricultural lands, roads, and highways. The dam failure vulnerability is simply a look at those critical facilities exposed to risk as indicated by whether they fall into a geographic region that represents a dam inundation zone. There are 39 County critical facilities within the dam inundation zones. The 39 critical facilities represent approximately $400 million in building value and almost $35 million in contents exposed to the risk (**Table 6-19**); however, over half of the critical facilities,

nineteen (19) of the 39 at risk facilities, did not have any dollar information available. **Figure 6-12** depicts the location of the critical facilities in relation to the dam failure inundation zones.

Table 6.19 Critical Facilities by Category in Dam Inundation Zones

Critical Facility Category	Bradbury	Dos Pueblo	Gibraltar	Glenn Annie	Lauro	Rancho	Santa Monica	Twitchell
Administrative	0	0	0	0	0	0	0	1
Communications	0	0	0	0	0	0	0	1
Fire	2	0	0	0	0	0	0	0
Health and Human Services	10	0	0	0	2	0	0	22
Law	1	0	1	0	0	0	0	0
Public Works	1	0	0	1	0	0	0	0
Other	4	0	0	1	0	0	0	0

Figure 6.14 Critical Facilities and Dam Failure Inundation Areas



6.3.7 Tsunami *(Medium Impact/Low Probability)*

Tsunami waves travel at speeds averaging 450 to 600 miles per hour. As a tsunami nears the coastline, its speed diminishes, its wavelength decreases, and its height increases. Depending on the type of event that creates the tsunami, as well the remoteness of the event, the tsunami could reach land within a few minutes or after several hours. Low-lying areas could experience severe inland inundation of water and deposition of debris more than 3,000 feet inland.

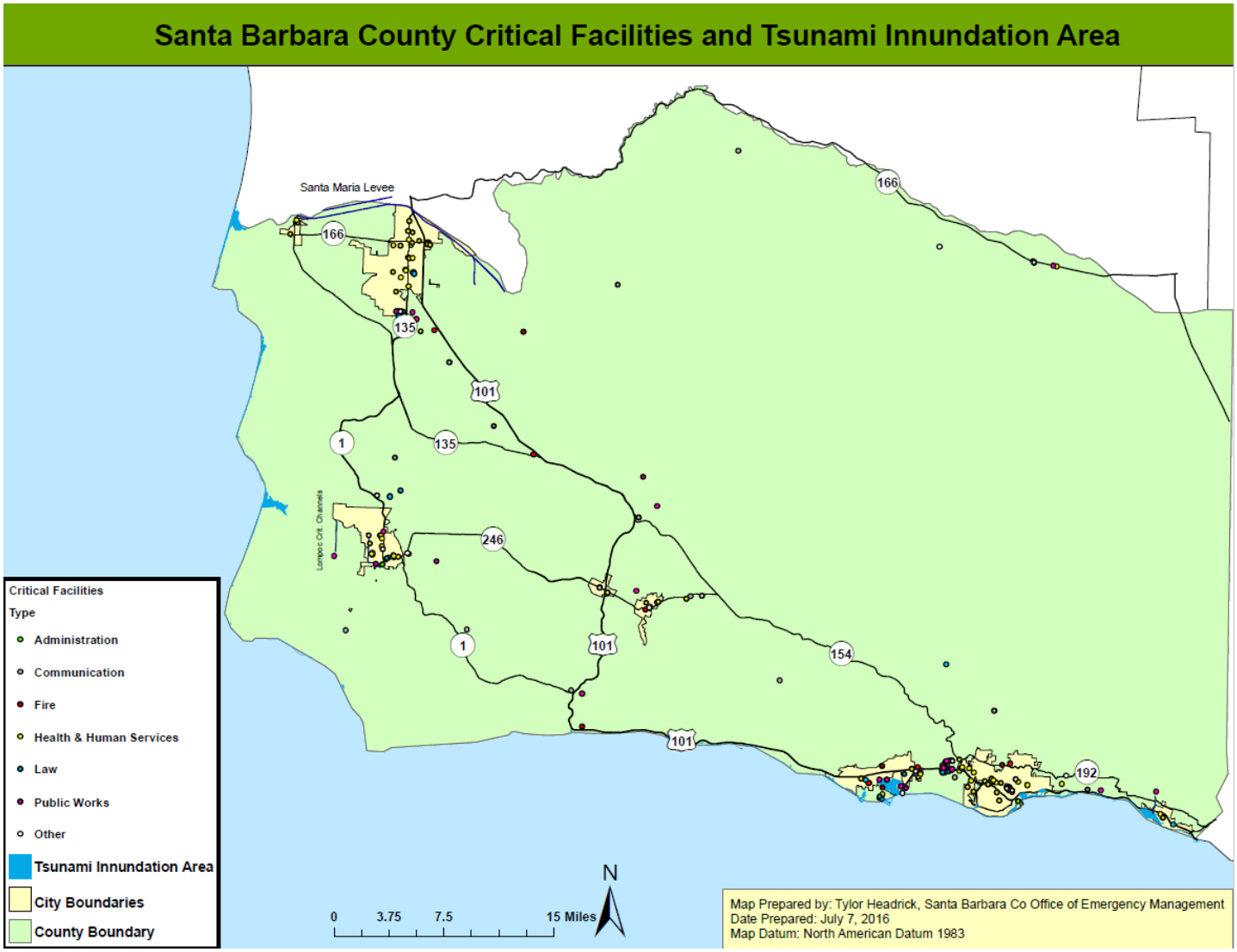
The University Of Southern California Tsunami Research Group has modeled areas in Santa Barbara County that could potentially be inundated in the event of a tsunami. This model is based on potential earthquake sources and hypothetical extreme undersea, near-shore landslide sources were mapped and used to profile maximum potential exposure.

Critical facilities provided by the County were compared against the extreme tsunami inundation zone overlay to see whether they fell within the geographic extent of the hazard. When the structures were compared to the tsunami hazard areas, only one (the Goleta Pier) of the XXX facilities fell within the risk area. The Goleta Pier has an estimated structure value of approximately $6.4 million with no dollar value provided for content costs (**Table 6-21**). **Figure 6-14** depicts the location of the critical facilities in relation to the extreme tsunami inundation zone.

Table 6.21 Critical Facilities by Category in Extreme Tsunami Inundation Zone

Critical Facility Category	Total Buildings	Building Value	Content
Administrative	1	6,141,305	70,387
Communications	0	0	0
Fire	0	0	0
Health and Human Services	0	0	0
Law	0	0	0
Public Works	3	0	0
Other	1	6,386,203	0

Figure 6.15 Critical Facilities and Tsunami Inundation Areas



6.4 QUALITATIVE ESTIMATE OF IMPACTS ANALYSIS

6.4.1 Drought and Water Shortage *(Medium Impact/High Probability)*

A drought is present when a region receives below-average precipitation, resulting in prolonged shortages in its water supply, whether atmospheric, surface, or ground water. A drought can last for months or years, or may be declared after as few as 15 days. The effects of the drought are most visible in the Santa Barbara County when looking at the current capacity and maximum storage of the two main water reservoirs in the county, Lake Cachuma and Twitchell. On February 16, 2016, Cachuma was reported to be at 14.9% capacity, and Twitchell was at 0.2% capacity.

Climate change has the potential to make drought events more common in California, including Santa Barbara. Extreme heat creates conditions more conducive for evaporation of moisture from the ground,

increasing the possibility of drought. A warming planet could lead to earlier melting of winter snow packs, leaving lower stream flows and drier conditions in the late spring and summer. Snow packs in northern California are important for water storage and ensuring adequate supply in the summer months when water is most needed. Changing precipitation distribution and intensity have the potential to cause more of the fallen precipitation run-off rather than be stored. The result is an increased potential for more frequent and more severe periods of drought.

Past experience with Santa Barbara droughts tells us that drought impacts are felt first by those most dependent on or affected by annual rainfall – fire departments, ranchers engaged in dryland grazing, rural residents relying on wells in low-yield rock formations, or other small water systems lacking a reliable water source. Drought and water shortage can happen countywide; and have significant impacts on the populations and the economy. Significant economic impacts on Santa Barbara's agriculture industry can occur as a result of short- and long-term drought conditions; these include hardships to farmers, farm workers, packers, and shippers of agricultural products. In some cases, droughts can also cause significant increases in food prices to the consumer due to shortages. Drought can also result in lack of water and subsequent feed available to grazing livestock, potentially leading to risk of livestock death and resulting in losses to the Santa Barbara's agricultural economy.

Drought can have secondary impacts. For example, drought is a major determinant of wildfire hazard, in that it creates greater propensity for fire starts and larger, more prolonged conflagrations fueled by excessively dry vegetation, along with reduced water supply for firefighting purposes.

6.4.2 Levee Failure *(Medium Impact/Low Probability)*

The stability of levees is a function of several variables: water level change, ground shaking, and static loading. Water level changes can be due to peak flood levels or rapid draw-down; both are known to adversely affect the stability of levees. Ground shaking is a function of earthquakes in and around the levees but can occur up to 100 kilometers or more away and still affect levee performance. Static loading represents the nominal loading conditions that regularly exist, but documented levee failures have occurred with no adverse conditions other than static loading (for example, with the Jones Tract failure in 2004).

6.4.3 Severe Weather (Medium Impact/High Probability)

6.4.3.1 Extreme Heat

Extreme heat can have significant impacts on populations, lifeline infrastructure, and the economy. These events can highlight the importance of thoughtful social vulnerability analyses, consideration for socially isolated elderly populations, and illustrate how seemingly unrelated phenomena combine to create disaster. An example is when increased use of air conditioners during heat waves can lead to power outages, which makes the events even more deadly.

The California Climate Adaptation Strategy (CAS), citing a California Energy Commission study, states that "over the past 15 years, heat waves have claimed more lives in California than all other declared disaster

events combined." For example, the 1989 Loma Prieta Earthquake resulted in 63 deaths, the 1992 Northridge Earthquake was responsible for the loss of 55 lives, and the 2003 Southern California Firestorms resulted in 24 deaths; however, the worst single heat wave event in California occurred in Southern California in 1955, when an eight-day heat wave is said to have resulted in 946 deaths. The July 2006 heat wave in California caused the deaths of about 140 people over a 13-day period.

Because of this, the following groups could be considered vulnerable or at greater risk in a heat emergency:

- People with developmental/intellectual disabilities - refers to a severe and chronic disability that is attributable to a mental or physical impairment that begins before an individual reaches adulthood. These disabilities include cerebral palsy, epilepsy, mobility and autism.
- Blind/low vision
- Deaf/Hard of hearing
- Mobility Injuries: from auto accidents, falls, sports, and or war. These injuries can cause damage to the brain, spinal cord, hearing, sight and mobility
- Chronic Conditions: Diabetes, Arthritis, dialysis, asthma and epilepsy
- Older adults: Have age-related limitations. (move slower, sight and sound limitations, etc.)
- Children: Challenges include dependency not only for care, but decision-making, processing information and trauma differently than adults, they may be unable to articulate their needs, may decompensate faster than adults, and are generally more susceptible to thirst, hunger, temperature, etc. than adults.
- Animals, including domestic pets, livestock, and poultry are also susceptible to extreme heat. For example, dogs and cats are in danger of heat stroke in temperatures of 110°F. The heat wave of 2006 resulted in 15 reported pet deaths and more than 25,000 cattle, and 700,000 fowl heat- related deaths. Heat wave impacts to livestock can lead to financial losses in California's agricultural economy.

The Spatial Hazard Events and Loss Data for the United States (SHELDUS), estimates that approximately 47 heat events occurred in California between the years 1960 and 2008. Adjusted to 2008 dollars, SHELDUS reports that severe heat events in California caused roughly $1.8 million in property damage and $531.7 million in crop damage.

6.4.3.2 Freeze

Sustained temperatures below freezing in Santa Barbara's generally mild weather regions can cause life loss and health risks to vulnerable populations; and have significant impacts on the lifeline infrastructure and the economy. Similar to Extreme Heat events, the same populations, lifeline infrastructure, and parts of the economy are vulnerable to and could be impacted by Freeze events.

Although infrequent, freezes can severely affect Santa Barbara agriculture. Freezing temperatures occurring during winter and spring growing seasons can cause extensive crop damage. Secondary impacts of freeze disasters can include major economic impacts on farmers, farm workers, packers, and shippers of agricultural products. Freezes can also cause significant increases in food prices to the consumer due to shortages. Freezing spells are likely to become less frequent as climate temperatures increase; if emissions follow higher pathways, freezing events could occur only once per decade in a sizable portion of the state by the second half of the 21st century. While fewer freezing spells would decrease cold-related health effects, too few freezes could lead to increased incidence of disease as vectors and pathogens do not die off.

6.4.3.3 Hailstorm

Hailstorms are rare in Santa Barbara County and as such represent a relatively low risk for most areas, compared to areas in the Midwest and southern United States where risk exposure is severe and many lives and millions of dollars are lost annually due to this hazard. In the event of a large hailstorm event, it is not expected to have significant impact on the population, built environment, lifeline infrastructure, or the economy.

6.4.3.4 Hurricane

Santa Barbara County is at very low risk of hurricanes, although it is possible for one to threaten the Southern California coast. No hurricanes have hit California in recorded history because tropical storm winds generally blow from east to west. California is affected by heavy rain resulting from tropical winds that blow north from Mexico and become colder by the time they hit California. In the future, monitoring is needed to determine whether present patterns of movement of such storms continue or are modified by the warming of waters off the Pacific Coast due to climate change. In the unlikelihood of a significant event, hurricanes would have a considerable impact on the population, built environment, lifeline infrastructure, and the economy.

6.4.3.5 Tornado

While Santa Barbara has tornadoes, such events represent a relatively low risk for most areas, compared to areas in the Midwest and southern United States where risk exposure is severe and many lives and millions of dollars are lost annually due to this hazard. However, in the unlikelihood of a significant tornado event it is expected to have a considerable impact on the population, built environment, lifeline infrastructure, and the economy.

6.4.3.6 Windstorm

In the likelihood of a significant event, windstorms, especially Sundowner winds, could have a considerable impact on the population, built environment, lifeline infrastructure, and the economy. Sundowner winds adversely affect fire weather

6.4.4 Energy Shortage and Energy Resilience *(Medium Impact/High Probability)*

Energy disruptions are considered a form of lifeline system failure. Disruptions can be the consequence of another hazard, or can be a primary hazard, absent of an outside trigger. Santa Barbara County has two power providers. Pacific Gas and Electric provides electricity in the northern part of the county, with termination of services north of the Gaviota area. Southern California Edison provides power to the Southern part of the county, with service terminating in Gaviota. The two systems are not connected. Thus, if there is a major interruption of service in the Santa Barbara area, then all service is denied west of the outage to Gaviota. Likewise, if there is a major interruption of service coming from the north, power south to Gaviota from the outage may be affected.

Santa Barbara continues to experience both population growth and weather cycles that contribute to a heavy demand for power. Predicted increases in heat waves as well as increasingly severe winter storms will put ever greater strain on Santa Barbara’s two electricity providers and the Southern California Gas Company. In

the event of a significant energy shortage it will have a significant impact on the population, built environment, lifeline infrastructure, and the economy.

6.4.5 Oil Spill *(Medium Impact/High Probability)*

In the event of a significant oil spill it will have a significant impact on the environment and the economy. The environmental impacts contribute to short- and long-term impacts on economic activities in areas affected by oil spills. Moratoriums may be temporarily imposed on fisheries, and tourism may decline in beach communities, resulting in economic hardship on individuals dependent on those industries for their livelihood and on the economic health of the community as well.

6.4.6 Agricultural Pests and Disease *(Low Impact/High Probability)*

A significant agricultural pest or disease event will have an impact on the environment and the local economy. The actual acreage of agriculture in Santa Barbara County exposed to pests and disease, as well as other hazards, is 546,512.61 acres including 138,723.18 acres of crop land.

6.4.7 Epidemic/Pandemic/Vector Borne Disease *(Low Impact /Medium Probability)*

The county, as well as the state and country, are vulnerable to epidemics or pandemics caused by either newly emerging or existing diseases spread person to person, through a vector such as a mosquito, or both. A significant epidemic or pandemic disease event can have considerable impact on the population, the economy, and essential public services. The county's pandemic influenza disease response plan, developed in 2007 through the coordination efforts of county departments and partner agencies, established a solid foundation for improved coordination and intervention by all participants. Implementation of this plan for an influenza pandemic or other epidemic or pandemic disease event would enable county departments to fulfill their significant roles and responsibilities through a coordinated strategy aimed at protecting the public's health and minimizing the impact on the economy and essential public services.

6.4.8 Hazardous Materials Release *(Medium Impact/Medium Probability)*

The release of hazardous materials into the environment can cause a multitude of problems for the population, built environment, lifeline infrastructure, environment, and the economy. Although these incidents can happen almost anywhere, certain areas of the County are at higher risk, such as near roadways that are frequently used to transport hazardous materials and locations with industrial facilities that use, store, and/or dispose of such materials. Aras crossed by railways, waterways, airways, and pipelines also have increased potential for mishaps.

Incidences can occur during production, storage, transportation, use or disposal of hazardous materials. Communities can be at risk if a chemical is used unsafely or released in harmful amounts into the environment. Hazardous materials can cause death, serious injury, long lasting health effects, and damage to buildings, the environment, homes, and other property.

The locations and identity of facilities that store hazardous materials are reported to local and federal governments. Security measures at these facilities can be heightened. Many facilities have their own hazardous materials guides and response plans, including transportation companies who transport hazardous materials.

6.4.9 Radiological Incident *(High Impact/Low Probability)*

Minor radiological accidents are possible at several facilities in Santa Barbara County that utilize some form of uranium including UCSB and area hospitals; however, a major concern for residents of Santa Barbara County is the Diablo Canyon Power Plant (DCPP). A significant radiological incident will have significant impacts on the population, built environment, lifeline infrastructure, environment, and the economy.

6.4.10 Terrorism *(Medium Impact/Medium Probability)*

In the unlikelihood of a significant terrorism event, there could be considerable impact on the population, built environment, lifeline infrastructure, environment, and the economy.

In the last fifteen years, three major incidents falling into the general category of Conventional Attacks/Active Shooter have occurred in the County. These types of events have an ability to impact the community on many levels, including ways that can undermine the quality of life within the County.

6.4.11 Cyber Threat *(Low Impact/Medium Probability)*

In the unlikelihood of a significant cyber event, there could be considerable impact on the population, built environment, lifeline infrastructure, environment, and the economy.

A cyber threat can infiltrate many institutions including banking, medical, education, government, military, and communication and infrastructure systems. The majority of effective malicious cyber-activity has become web-based. Recent trends indicate that hackers are targeting users to steal personal information and moving away from targeting computers by causing system failure. The duration of a cyber-attack is dependent on the complexity of the attack, how widespread it is, how quickly the attack is detected, and the resources available to aid in restoring the system. A cyber-attack could be geared toward one organization, one type of infrastructure and/or a specific geographical area. The affected area could range from small to large scale. Cyber-attacks generated toward large corporations can negatively affect the economy. A 2014 report from the MacAfee Corporation stated that the annual global loss to the global economy is between $375B and $500B. Attacks geared toward critical infrastructure and hospitals can result in the loss of life and the loss of basic needs, such as power and water, to the general public. Cyber-attacks can lead to the loss of operational capacity.

Most jurisdictions have several levels of security in place, dependent upon security levels of individuals and the geographical locations (onsite or remote). Redundant dispatch centers with separate systems that can function if the primary center isn’t functioning are desirable.

Humans are the weakest link in a chain of cyber security. It remains difficult to continuously monitor and manage human/operator vulnerability. However, to address this weakness it is suggested the all jurisdictions

in the Santa Barbara County continue, or develop a security training program which all employees are required to complete or renew annually.

6.4.12 Aircraft Crash *(Low Impact/Medium Probability)*

In the unlikelihood of a significant aircraft crash, depending on the location, there could be considerable impact on the population and the built environment.

There are four airports in Santa Barbara County: Lompoc Airport, Santa Barbara Airport, Santa Maria Public Airport, and Santa Ynez Airport. Commercial flights are available at the Santa Barbara Airport and Santa Maria Public Airport. In addition to flights in and out of the municipal airports, commercial and private air traffic passes over the county. Military aircraft utilize Vandenberg Air Force Base. Each airport maintains emergency response plans that are tested at regular intervals with local government response agencies in accordance with FAA regulations.

A major air accident that occurs in a heavily populated residential area can result in considerable loss of life and property. Damage assessment and disaster relief efforts associated with an air accident will require support from other local governments, private organizations, and in certain instances, from the State and Federal governments.

It is anticipated that the mental health needs of survivors and surrounding residents will have to be addressed resulting from the trauma associated with the accident. A coordinated response team, comprised of mental health professionals, should take a proactive approach meeting the mental health needs from any traumatic disaster.

6.4.13 Train Accident *(Low Impact/High Probability)*

In the unlikelihood of a significant train accident there could be considerable impact on the population, economy, and the environment.

Trains running through Santa Barbara County, and in close proximity to U.S. Highway 101 in some areas, carry commuters and all other types of commodities including hazardous materials, fuel (including oil), agriculture, meats, and non-consumables. A hazardous material incident on rails or roadway has the potential to shut down both rail and highway transportation routes where the rail line and Highway101 are in close proximity.

This was the case in the 1991 Seacliff Incident, in neighboring Ventura County where a train accident released 440 gallons of aqueous hydrazine. The accident required the evacuation of the nearby Seacliff community along with the shutting down of Highway 101, and took 5 days to cleanup.

6.4.14 Natural Gas Pipeline/Storage Facility Accidents *(Medium Impact/Low Probability)*

In the unlikelihood of a significant natural gas pipeline or storage facility accident there could be considerable impact on the population, built environment, lifeline infrastructure, economy, and the environment.

Recently a large natural gas leak was discovered near the Porter Ranch area in Los Angeles County, prompting the evacuations of nearly 5,000 households that only recently were able to return to their homes.

Natural gas transported via the interstate pipelines, and some of the California-produced natural gas, is delivered into the Pacific Gas & Electric (PG&E) and Southern California Gas (SoCal Gas) intrastate natural gas transmission pipeline systems (commonly referred to as California's "backbone" natural gas pipeline system). Natural gas on the utilities' backbone pipeline systems is then delivered into the local transmission and distribution pipeline systems, or to natural gas storage fields. PG&E and SoCal Gas own and operate several natural gas storage fields that are located in Northern and Southern California.

Southern California Gas Company operates a natural gas storage field, La Goleta Storage Field, located on More Ranch Road in the Goleta area. SoCal Gas purchases market quality natural gas when prices are low and stores it in a depleted gas reservoir located at the La Goleta. The gas is withdrawn at times of high demand and sold to consumers located in 12 counties in central and southern California. SoCal Gas is currently moving forward with its plan to increase capacity of this storage field and provide additional supplies of locally produced natural gas to help meet customer demand. The project involved extracting native natural gas from previously untapped deep reservoirs by drilling two wells into known gas reserves and two exploratory wells into prospective reserves. After the native gas reserves are depleted, the reservoirs will be converted to storage use. The project does not involve hydraulic fracturing.

Generally speaking, transmission lines are large-diameter steel pipes carrying natural gas at high pressure and compressed to provide higher carrying capacity. Transmission lines are both interstate and intrastate, with the latter connecting to smaller distribution lines delivering gas directly to homes and businesses.

6.4.15 Civil Disturbance *(Medium Impact/Low Probability)*

In the unlikelihood of a civil disturbance, depending on the cause and effect, there could be considerable impact on the population, built environment, lifeline infrastructure, economy, and the environment.

While Santa Barbara County does not have a history of riots, it has had several events in Isla Vista that would qualify as a civil disturbance such as the annual Halloween Event and Flotopia which have attracted crowds of 20,000 or more and resulted in death, several injuries and widespread property damage.

6.4.16 Well Stimulation/Hydraulic Fracking *(Medium Impact/Low Probability)*

More information on the potential impacts from well stimulation/hydraulic fracking operations are being researched. There are several studies currently being conducted regarding the possible environmental impacts that could result from fracking and well stimulation, including effects on water and air quality and seismic safety (which are considered potential hazards).

6.4.17 Marine Invasive Species *(Medium Impact/Low Probability)*

The introduction of non-indigenous species (NIS) into Santa Barbara County coastal marine, estuarine and lake waters can cause significant and enduring economic, human health, and environmental impacts. Ships transfer organisms to California waters from throughout the world. The transfer of ballast water from “source” to “destination” ports results in the movement of many organisms from one region to the next.

The Santa Barbara Coast and Lake Cachuma are vulnerable to Marine Invasive Species and close monitoring of marine and lake vessels as well as water dropping (snorkeling) aircraft is needed.

Section 7 County Mitigation Strategies

7.1 Mitigation Goals and Objectives

The county-wide mitigation priorities are represented by identifying common goals and objectives. Using the 2011 HMP, the MAC reviewed and revised the goals and objectives to reflect the current county-wide capabilities, exposure to hazards, and vulnerability assessment findings. As part of the planning process, the County Planning Team reviewed and validated these goals and objectives.

Table 7.1 Goals and Objectives

Goal 1: Promote disaster resiliency for future development to help them become less vulnerable to hazards
Objective 1.A Facilitate the development (or updating) of the County's Comprehensive Plan, City General Plans, and zoning ordinances to limit (or ensure safe) development in hazard areas
Objective 1.B: Facilitate the incorporation and adoption of building codes and development regulations that encourage disaster resistant design
Objective 1.C: Facilitate consistent implementation of plans, zoning ordinances, and building and fire codes
Goal 2: Promote disaster resiliency for existing assets (critical facilities/infrastructure and public facilities) and people to help them become less vulnerable to hazards
Objective 2.A: Mitigate vulnerability of structures and public infrastructure including facilities, roadways, and utilities
Objective 2.B: Mitigate vulnerable populations
Objective 2.C: Support a coordinated permitting processes and consistent enforcement
Goal 3: Enhance hazard mitigation coordination and communication
Objective 3.A: Address data limitations identified in Hazard Profiling and Risk Assessment
Objective 3.B: Increase awareness and knowledge of hazard mitigation principles and practice among local government officials
Objective 3.C: Provide technical assistance to local governments to implement their mitigation plans

Objective 3.D: Educate the public to increase awareness of hazards, potential impact, and opportunities for mitigation actions
Objective 3.E: Monitor and publicize the effectiveness of mitigation actions implemented countywide
Objective 3.F: Educate the professional community on design and construction techniques that will minimize damage from the identified hazards
Objective 3.G: Participate in initiatives that have mutual hazard mitigation benefits for the County, cities, state, tribal, and federal governments
Objective 3.H: Encourage other organizations, within the public, private, and non-profit sectors, to incorporate hazard mitigation activities into their existing programs and plans
Objective 3.I: Continue partnerships between the state, local, and tribal governments to identify, prioritize, and implement mitigation actions
Objective 3.J: Continuously improve the County's capability and efficiency at administering pre- and post-disaster mitigation programs, including providing technical support to cities and special districts

7.2 MITIGATION ACTION/PROGRESS

The County planning team reviewed the mitigation actions identified in the 2004 and 2011 HMP to determine the status of each mitigation action. **Table 7.2** provides an overview and the status of each mitigation actions. All incomplete projects will be reassessed by the County planning team and if deemed necessary will be included in the new mitigation actions section (Section 7.4).

Table 7.2 Previous Mitigation Actions

2004 Plan Action #	Mitigation Action Description	Status	Comments
2004-9	Las Vegas and San Pedro Creeks Culvert Additions	Completed	1. The Caltrans portion, UPRR bridges, conform grading work, and floodwall work are complete. 2.The transition structure will be constructed June-August 2016.
2004-14	Santa Maria Levee Protection Project	Completed	Project started 2010 and completed in 2014

2004-22	Evaluate Enhancements to Defensible Space Program	Completed	Policy has been updated by County Fire and reflects PRC 4291.
2004-23	Continue Update to Santa Barbara County Fire Unit Fire Plan	Completed	The SBC Unit Strategic Fire Plan has been updated to 2015 and reflects Cal Fire State Template.
2004-24	Increase GIS Capabilities within Fire Department	Completed	Permanent GIS Technician hired. County Fire is also developing a GIS Intern program to add Extra Help GIS Technicians. New GIS software acquired to reflect latest technologies.
2004-1	Enhance the dissemination of risk data	In Progress	
2004-2	Obtain better data on the impacts of hazards on future development	In Progress	
2004-3	Enhance Post-Disaster Damage Inspections to Include Mitigation Strategies	In Progress	

2004-4	Seismic Rehabilitation of Existing Bridge Structures	In Progress	Caltrans has identified all bridge structures requiring upgrades - Currently the Bridges are being brought up to code by FHWA and CalTrans programs and funding.
2004-25	Tsunami Plan Consistency and Outreach	In Progress	A draft county-wide plan was drafted in 2008. Key components still working are signage placement for impacted jurisdictions and notification protocols for response agencies and the public. A Tsunami Working Group and Executive Committees continue to address planning issues and possible solutions.
2004-8	Atascadero Creek Channel Liner Improvements (Goleta)	Not started-consideration for future	
2004-11	San Ysidro Creek Realignment	Not started-consideration for future	
2004-12	Padaro Lane Ditch Improvements	Not started-consideration for future	

2004-13	Foster Road Storm Drainage Improvements	Not started-consideration for future	
2004-15	Los Alamos Storm Drainage Project	Not started-consideration for future	
2004-16	Expand Kovar Regional Basin	Not started-consideration for future	
2004-17	San Antonio Creek Improvements	Not started-consideration for future	
2004-19	Repetitive Loss Structure Voluntary Audits	Not started-consideration for future	
2004-21	Update Fire Hazard Severity Zone Mapping	Ongoing	Map adopted by State and County in 2007; and updated by the State of California with input from local jurisdictions in the future.

2004-20	Provide Incentives for RL and other flood prone property owners to retrofit homes to be safer from flooding or to construct new homes to higher standards	On-going	New and substantially improved structures in the RL area along the coast have a minimum elevation requirement regardless of FEMA's published Base Flood Elevation (BFE). This requirement helps to get discounted flood insurance rates in the unincorporated county.
2004-5	Increase Participation in Floodplain Re-mapping Initiative	On-going	Currently, the Flood Control is in a process of preparing notices to the public in regards of the new FEMA remapping along the coastal line.
2004-6	Floodplain Management and Flood Mitigation Education and Outreach	On-going	Participation in an Annual Flood Awareness week and presenting the information to the public at 2 County's locations: the Santa Barbara and the Santa Maria and advertising on the Public Works website.

2004-7	Adding Community Volunteers to Creek Walk Committees	On-going	The District engages the community on an annual basis during development of the Annual Routine Maintenance Plan. A Draft Summary is posted on the District's website, notices are sent out to interested parties, and a notice is posted in several local newspapers announcing the availability of the Draft Summary as well as the dates and times of the two public workshops individuals are welcome to attend to ask questions about the plan and/or provide comments. The public is also welcome to provide public comment when the Final Annual Routine Maintenance Plan is at our Board of Directors for approval.
2004-10	Mission Creek Channel Improvements (Santa Barbara)	On-going	Completed: 1. The box culvert from the UPRR tracks to just downstream of Yanonali St.; 2. Reach 2B-1- downstream from Montecito St. to the UPRR. 3. Reach 1B- downstream of Yanonali St. to Mason St.; 4. Reach 1A-Phase 1 - downstream from Mason St. 5. Reach 1A-Phase 2- downstream from Mason St. to State St.. The project was contracted by the City of Santa Barbara. The next portion scheduled for constructed in Summer 2016 is Reach 2A.

2004-18	Monitor RL properties for Substantial Improvement	On-going	The Flood Control District reviews all existing developments in the Special Flood Hazard Area (SFHA) and requires the applicant to determine whether or not the improvements are substantial. Developments which are substantial must be brought into compliance with the floodplain management ordinance.

2011 Plan Action #	Mitigation Action Description	Status	Comments
2011 - 1	Tecolote Tunnel rebuild	Not yet started	New in 2011
2011 - 2	Seismic Retrofit of 14 County Courthouse Facilities	Deferred from EQ-1 from 2004	Phase I and Phase II Seismic Analysis was completed. Buildings with a rating of 4 or higher were seismically retrofit for a total of 3 out of the 14 courthouse buildings. Hazard Mitigation Grant Program funding from FEMA and matching funds from the Courts were used.
2011 - 3	Inventory of Un-reinforced Masonry Structures	Deferred from EQ-6 from 2004	P&D's County Building Official is working on this project. General Services has supplied a list of County-owned unreinforced masonry structures that are in the unincorporated area of the County.
2011 - 4	Bradley Channel Improvements	Project Canceled	New in 2011

2011 - 5	'A' Street Basin	Project Canceled	New in 2011
2011 - 6	Unit II Ditch Improvements	Project Canceled	New in 2011
2011 - 7	Laguna County Sanitation District Earthquake Retrofit Project 1	Complete	Deferred EQ-4 from 2004
2011 - 8	Laguna County Sanitation District Earthquake Retrofit/Analysis Project 2	Project Canceled	Deferred EQ-5 from 2004
2011 - 9	Seismic Safety and Mitigation Outreach and Education	Project Canceled	Deferred EQ-7 from 2004
2011 - 10	Laguna County Sanitation District Flood Analysis and Protection	Ongoing w/ Plant Upgrade	Deferred FLD-34 from 2004
2011 - 11	Evaluate Expansion of Flood Warning System	Not yet started	Deferred FLD-40 from 2004
2011 - 12	GIS Multi-Hazard Disaster Management Information System	Not yet started	Deferred GEN-1 from 2004
2011 - 13	Old San Marcos Road Geotechnical Survey of Slope Stability	Complete	Deferred LSD/WDF-2 from 2004
2011 - 14	South County Geotechnical Survey of Slope Stability	Ongoing	Deferred LSD-3 from 2004

2011 - 15	North County Geotechnical Survey of Slope Stability	Ongoing	Deferred LSD-4 from 2004
2011 - 16	Ongoing Wildfire Education Campaign	Ongoing	New in 2011
2011-17	Staffing of Operations Division of Fire Department	Complete	Deferred WDF-6 from 2004
2011 – 18	Incorporate Dam inundation Area "Information Only" Layer in FEMA DFIRM Map Modernization Initiative	Complete	Deferred DF- 1 from 2004
2011 – 19	Construct Storm Drainage Improvements at Toro Canyon Park	Deferred	Deferred FLD-23 from 2004
2011 – 20	Tucker's Grove Park Interior Access Road Creek Crossing Improvements	Deferred	Deferred FLD-24 from 2004
2011 – 21	Cachuma Lake Mohawk Trail Bridge and Dock Abutment Rehabilitation and Access Improvements	Deferred	Deferred FLD-26 from 2004
2011 - 22	Cachuma Lake Mohawk Camping Area Bridge Abutment Protection	Deferred	Deferred FLD-27 from 2004
2011 – 23	Enhancements to Annual Culvert Inspection Program to Include Mitigation Strategies	Ongoing	Deferred FLD-31 from 2004

2011 – 24	University Circle Open Spaces Berkeley Bike/Pedestrian Bridge Removal and Replacement	Deferred	Deferred FLD-35 from 2004
2011 – 25	Jalama Beach Park Waterline Protection	Deferred	Deferred FLD-36 from 2004
2011 – 26	Live Oak Camp Access Road Protection	Deferred	Deferred FLD-37 from 2004
2011 – 27	Bridge Scour Abatement Program	Ongoing	Deferred FLD-44 from 2004
2011 – 28	Investigation of Low Capacity Bridges to Determine	Completed	Deferred FLD-45 from 2004
2011 – 29	Goleta Beach Park Embankment Protection for Park Maintenance Facilities	Deferred	Deferred LSD/CE-5 from 2004
2011 – 30	Wallace Avenue Bluff Re- Vegetation and Stabilization	Deferred	Deferred LSD/CE-7 from 2004
2011 – 31	Mountainous Road Rockfall Hazard Geotechnical Surveys	Completed	Deferred LSD/WDF-8 from 2004
2011 – 32	Parks - Guadalupe Dunes Park Entrance Road	Deferred	New in 2011

2011 – 33	Santa Barbara Bowl - Service Road Improvements (N. End Drive- Service Road off of Newton Rd) Entrance	Project Canceled	New in 2011
2011 – 34	Toro Canyon Park Gazebo Access Road Drainage	Deferred	Deferred FLD-39 from 2004
2011 – 35	Obtain National Weather Service "Storm Ready" Designation	Completed	Deferred FLD-42 from 2004
2011 – 36	Jalama Road Geotechnical Survey of Slope Stability	Completed	Deferred LSD/WDF-9 from 2004
2011 – 37	Relocate the Hearts Adaptive Riding Center	In-Progress	New in 2011
2011 – 38	Geotechnical Engineered Solution of Slope Failure on Glen Annie Road (South County)	Completed	Deferred LSD-1 from 2004
2011 – 39	Cachuma Lake Recreational Area Public Access Ramp Protection	Deferred	Deferred FLD-29 from 2004
2011 – 40	Cachuma Lake Water Treatment Plant Relocation	Deferred	Deferred FLD-28 from 2004
2011 – 41	Develop a Debris Management Plan for Public Works Infrastructure generated debris	Not Started (see new language in 4.2.1.7)	Deferred GEN-4 from 2004

2011 – 42	Goleta Beach Park Pier Abutment Protection	Deferred	Deferred LSD/CE-6 from 2004
2011 – 43	Enhance Fire Weather Forecasting and Predictive Services Program	Ongoing	Deferred WDF-2 from 2004
2011 – 44	Firewise Community Planning and Prevention Techniques Training	Not yet Started	Deferred WDF-7 from 2004

7.3 PRIORITIZING MITIGATION ACTION

The County planning team used the STAPLE/E Criteria (Social, Technical, Administrative, Political, Legal, Economic, and Environmental) to evaluate and prioritize the mitigation actions. Based on the evaluation score of each of STAPLE/E Criteria (**Table 7.3**), mitigation actions received a cumulative score. The cumulative score was then used to prioritize the mitigation actions. The following scale was used to evaluate each STAPLE/E Criteria:

0= Poor (negative impacts)

1= Fair (neutral or no impacts)

2= Good (positive impacts)

The intent of prioritizing mitigation actions is to help the County focus and concentrate their efforts; however, it should be noted that when and if specialized grants and/or funds are made available that could finance a mitigation action the County may adjust the ranking to enable them to implement the mitigation action.

Table 7.3 STAPLE/E Criteria

SOCIAL	• Is the proposed action socially acceptable to the community? • Are there equity issues involved that would mean that one segment of the community are treated unfairly? • Will the action cause social disruption?
TECHNICAL	• Will the proposed action work? • Will it create more problems than it solves? • Does it solve a problem or only a symptom? • Is it the most useful action in light of other community goals?
ADMINISTRATIVE	• Can the community implement the action? • Is there someone to coordinate and lead the effort? • Is there sufficient funding, staff, and technical support available? • Are there ongoing administrative requirements that need to be met?
POLITICAL	• Is the action politically acceptable? • Is there public support both to implement and to maintain the project?
LEGAL	• Is the community authorized to implement the proposed action? Is there a clear legal basis or precedent for this activity? • Are there legal side effects? Could the activity be construed as a taking? • Is the proposed action allowed by the general plan, or must the general plan be amended to allow the proposed action? • Will the community be liable for action or lack of action? • Will the activity be challenged?
ECONOMIC	• What are the costs and benefits of this action? • Do the benefits exceed the costs? • Are initial, maintenance, and administrative costs taken into account? • Has funding been secured for the proposed action? If not, what are the potential sources (public, non-profit, and private)? • How will this action affect the fiscal capability of the community? • What burden will this action place on the tax base or local economy? • What are the budget and revenue effects of this activity? • Does the action contribute to other community goals, such as capital improvements or economic development? • What benefits will the action provide?
ENVIRONMENTAL	• How will the action affect the environment? • Will the action need environmental regulatory approvals? • Will it meet local and state regulatory requirements? • Are endangered or threatened species likely to be affected?

7.4 MITIGATION ACTION

The following table (**Table 7.4**) presents the prioritized list of mitigation actions which will be considered and implemented during the life of this plan update.

Table 7.4 Prioritized and Recommended Mitigation Actions

Project Number	Project Title	STAPLE/E Rating
2016-31	Critical Infrastructure Threat Assessment ID Project	20
2016-6	Fire ECC Facility	20
2016-34	Assess and Mitigate Structure Ignition Vulnerabilities	19
2016-12	Montecito Creek Channel Improvements, Montecito	19
2016-32	Establish Drought Task Force	19
2016-7	South Coast Foothill Fuel Break	18
2016-13	North Ave Storm Drain Improvements, East Side Lompoc	18
2016-1	Establish Climate Change Task Force	18
2016-4	Ongoing Wildfire Education Campaign	18
2016-5	Enhance Fire Weather Forecasting Program	18
2016-33	Retrofit Water Supply System	17
2016-28	Airport Ditch Lining, Orcutt	17
2016-21	Maria Ygnacio East Debris Basin Modification, Goleta	16
2016-22	Maria Ygnacio Main Debris Basin Modification, Goleta	16
2016-23	San Ysidro Debris Basin Modification, Montecito area	16
2016-24	Cold Springs Debris Basin Modification, Montecito area	16
2016-25	Rattlesnake Debris Basin Modification, Upper Santa Barbara	16
2016-27	Unit II Channel Improvements, Santa Maria	16
2016-30	Implementation of County Energy and Climate Action Plan	16
2016-26	Faraday Storm Drain, Santa Ynez	14
2016-9	Romero Creek Capacity Improvements, Montecito	13
2016-10	Oak Creek Capacity Improvements, Montecito	13
2016-11	San Ysidro Creek Capacity Improvements, Montecito	13
2016-14	Cebada Canyon Channel Improvements, Lompoc Valley	12
2016-15	Sycamore Canyon Master Drainage Plan, Santa Barbara	12
2016-16	Mission Canyon Master Drainage Plan, Santa Barbara	12
2016-17	San Pedro Creek Fish Passage, Goleta	12
2016-2	Guadalupe Levee Project	12
2016-3	HWY 166 Drainage Project	12
2016-19	Bradley Channel Relining, Santa Maria	10
2016-20	Bradley Channel Improvements, Santa Maria	10
2016-29	Stockpile Area-South Coast	7

7.5 IMPLEMENTATION PLAN

Number# 2016-1	**STAPLE/E Rating:** 18

Action Title
Establish Climate Change Task Force

Action Description
Establish and maintain a multi-jurisdictional Climate Change Task Force to: 1) Assess vulnerability to climate change 2) Monitor climate change conditions 3)Forecast short term and long term impacts 4) Develop related mitigation projects and programs

Relevant Objective

	Promote disaster resiliency for future development to reduce/eliminate vulnerability to hazards
	1A
	1B
	1C
	Promote disaster resiliency for existing development and people to reduce/eliminate vulnerability to hazards
x	2A
	2B
	2C
	Enhance hazard Mitigation coordination and communication
	3A
	3B
	3C
x	3D
	3E
	3F
x	3G
	3H
x	3I
x	3J

Applicable Hazards

	Earthquake
	Liquefaction
	Landslides and Other Earth Movements
	Expansive Soils/Land Subsidence
	Wildfire
x	Flood
x	Coastal Storm Surge
x	Climate-Related
x	Sea Level Rise/Coastal Flooding and Erosion
x	Droughts and Water Shortage

		Severe Weather and Storms
		Extreme Heat
		Freeze
		Hailstorm
		Tornado
		Hurricane
		Windstorm
		Energy Shortage and Energy Resilience
		Oil Spill
		Dam Failure
	x	Agricultural Pests and Disease
		Epidemic/Pandemic/Vector Borne Disease
		Hazardous Material Release
		Radiological Incident
		Terrorism
		Cyber Threat
		Aircraft Crash
		Train Accident; Explosion and/or Chemical Release
		Natural Gas Pipeline/Storage Facility Accidents
		Levee Failure
		Tsunami
		Civil Disturbance
		Well Stimulation/Hydraulic Fracking
		Marine Invasive Species

Estimated timeline to complete
2018

Cost/Funding Source
Unknown/ Acquire HMA Grant, PDM Grant

Responsible Agency/Department
Planning and Development

Comments

Number# 2016-2	**STAPLE/E Rating:** 12
Action Title Guadalupe Levee Project	
Action Description Study the feasibility and the benefits of building a Levee system adjacent to the city of Guadalupe to prevent chronic flooding.	

Relevant Objective

	Promote disaster resiliency for future development to reduce/eliminate vulnerability to hazards
	1A
	1B
	1C
	Promote disaster resiliency for existing development and people to reduce/eliminate vulnerability to hazards
X	2A
	2B
	2C
	Enhance hazard Mitigation coordination and communication
	3A
	3B
	3C
	3D
	3E
	3F
	3G
	3H
	3I
	3J

Applicable Hazards

	Earthquake
	Liquefaction
	Landslides and Other Earth Movements
	Expansive Soils/Land Subsidence
	Wildfire
x	Flood
	Coastal Storm Surge
	Climate-Related
	Sea Level Rise/Coastal Flooding and Erosion
	Droughts and Water Shortage
	Severe Weather and Storms
	Extreme Heat
	Freeze

		Hailstorm	
		Tornado	
		Hurricane	
		Windstorm	
		Energy Shortage and Energy Resilience	
		Oil Spill	
		Dam Failure	
		Agricultural Pests and Disease	
		Epidemic/Pandemic/Vector Borne Disease	
		Hazardous Material Release	
		Radiological Incident	
		Terrorism	
		Cyber Threat	
		Aircraft Crash	
		Train Accident; Explosion and/or Chemical Release	
		Natural Gas Pipeline/Storage Facility Accidents	
		Levee Failure	
		Tsunami	
		Civil Disturbance	
		Well Stimulation/Hydraulic Fracking	
		Marine Invasive Species	
Estimated timeline to complete 2026			
Cost/Funding Source 100 million/ Acquire HMA Grant, PDM Grant			
Responsible Agency/Department County Flood Control/Army Core of Engineers			
Comments			

Number# 2016-3	**STAPLE/E Rating:** 12

Action Title
HWY 166 Drainage Project

Action Description
Improve drainage along both side s of Hwy 166 in the city of Guadalupe to mitigate chronic flooding of roadway.

Relevant Objective

	Promote disaster resiliency for future development to reduce/eliminate vulnerability to hazards
	1A
	1B
	1C
	Promote disaster resiliency for existing development and people to reduce/eliminate vulnerability to hazards
x	2A
x	2B
	2C
	Enhance hazard Mitigation coordination and communication
	3A
	3B
	3C
	3D
	3E
	3F
x	3G
	3H
	3I
	3J

Applicable Hazards

	Earthquake
	Liquefaction
	Landslides and Other Earth Movements
	Expansive Soils/Land Subsidence
	Wildfire
x	Flood
	Coastal Storm Surge
	Climate-Related
	Sea Level Rise/Coastal Flooding and Erosion
	Droughts and Water Shortage
	Severe Weather and Storms
	Extreme Heat
	Freeze

		Hailstorm	
		Tornado	
		Hurricane	
		Windstorm	
		Energy Shortage and Energy Resilience	
		Oil Spill	
		Dam Failure	
		Agricultural Pests and Disease	
		Epidemic/Pandemic/Vector Borne Disease	
		Hazardous Material Release	
		Radiological Incident	
		Terrorism	
		Cyber Threat	
		Aircraft Crash	
		Train Accident; Explosion and/or Chemical Release	
		Natural Gas Pipeline/Storage Facility Accidents	
		Levee Failure	
		Tsunami	
		Civil Disturbance	
		Well Stimulation/Hydraulic Fracking	
		Marine Invasive Species	
Estimated timeline to complete 2021			
Cost/Funding Source 5 million/ Acquire HMA Grant, PDM Grant			
Responsible Agency/Department CALTRANS			
Comments			

Number#	**STAPLE/E Rating:**
2016-4	18

Action Title
Ongoing Wildfire Education Campaign

Action Description
The "Ready! Set! Go!" Campaign was launched in May of 2009. This campaign is a new approach to educating Southern California residents about the year-round threat of wildfire. This public education program seeks to gain active public involvement in reducing life and property loss caused by wildfires. The program was developed by agencies in California Regional Mutual Aid Regions 1 and 6 to convey a unified message. The program is designed to be used by any agency and can be modified to meet a specific jurisdiction's needs.

Relevant Objective

	Promote disaster resiliency for future development to reduce/eliminate vulnerability to hazards
	1A
	1B
	1C
	Promote disaster resiliency for existing assets and people to reduce/eliminate vulnerability to hazards
	2A
	2B
	2C
	Enhance hazard mitigation coordination and communication
	3A
	3B
	3C
x	3D
	3E
	3F
	3G
	3H
	3I
	3J

Applicable Hazards

	Earthquake
	Liquefaction
	Landslides and Other Earth Movements
	Expansive Soils/Land Subsidence
x	Wildfire
	Flood
	Coastal Storm Surge
	Climate-Related
	Sea Level Rise/Coastal Flooding and Erosion

		Droughts and Water Shortage
		Severe Weather and Storms
		Extreme Heat
		Freeze
		Hailstorm
		Tornado
		Hurricane
		Windstorm
		Energy Shortage and Energy Resilience
		Oil Spill
		Dam Failure
		Agricultural Pests and Disease
		Epidemic/Pandemic/Vector Borne Disease
		Hazardous Material Release
		Radiological Incident
		Terrorism
		Cyber Threat
		Aircraft Crash
		Train Accident; Explosion and/or Chemical Release
		Natural Gas Pipeline/Storage Facility Accidents
		Levee Failure
		Tsunami
		Civil Disturbance
		Well Stimulation/Hydraulic Fracking
		Marine Invasive Species

Estimated timeline for completion
Ongoing. Continually update education materials and provide educational programs to the public on an annual basis.

Estimated Cost/Funding Source
$20,000 annually/ Acquire Fire Safe Council Grant

Responsible Agency/Department
County Fire Department, Public Information Officer

Comments
Best way to prepare the public for emergencies is to provide education. This program covers everything from preparing your home to the actual evacuation.

Number#	**STAPLE/E Rating:**
2016-5	18

Action Title
Enhance Fire Weather Forecasting Program

Action Description
The current fire weather program is based on the U.S. Forest Service system, which includes only 4 remote automated weather stations throughout the county. The stations are in areas that are not representative of the micro-climates that exist within the county. A larger and better network would allow the county to focus fire prevention efforts from year to year in the most accurate and threatened locations.

- Acquire 7 permanent and 4 portable automated fire weather stations. SBC Fire purchased and installed 3 permanent RAWS in 2014/2015. They are located at San Marcos Pass, Refugio Pass, and Tepusquet. Four additional units are proposed for Carpinteria Foothills, Gaviota, Santa Ynez Valley, and Cuyama. County Fire has two portable RAWS that need to be replaced due to age and legacy technology.
- Site the stations at optimum locations throughout the County, with the flexibility of moving the portables on an annual basis.

Cost is anticipated to be approximately $110,000 for 4 new permanent stations and two portables, and a budget of approximately $4,000 per year for maintenance will be needed. With more accurate forecasting, limited resources could be applied to more targeted locations for prevention and operational activities resulting in significant cost savings and likely losses avoided due to prevention activities.

Relevant Objective

	Promote disaster resiliency for future development to reduce/eliminate vulnerability to hazards
	1A
	1B
	1C
	Promote disaster resiliency for existing assets and people to reduce/eliminate vulnerability to hazards
	2A
	2B
x	2C
	Enhance hazard mitigation coordination and communication
	3A
	3B
	3C
	3D
	3E
	3F
	3G
	3H
	3I
	3J

Applicable Hazards

		Earthquake
		Liquefaction
		Landslides and Other Earth Movements
		Expansive Soils/Land Subsidence
	X	Wildfire
		Flood
		Coastal Storm Surge
	X	Climate-Related
		Sea Level Rise/Coastal Flooding and Erosion
		Droughts and Water Shortage
	X	Severe Weather and Storms
		Extreme Heat
		Freeze
		Hailstorm
		Tornado
		Hurricane
		Windstorm
		Energy Shortage and Energy Resilience
		Oil Spill
		Dam Failure
		Agricultural Pests and Disease
		Epidemic/Pandemic/Vector Borne Disease
		Hazardous Material Release
		Radiological Incident
		Terrorism
		Cyber Threat
		Aircraft Crash
		Train Accident; Explosion and/or Chemical Release
		Natural Gas Pipeline/Storage Facility Accidents
		Levee Failure
		Tsunami
		Civil Disturbance
		Well Stimulation/Hydraulic Fracking
		Marine Invasive Species

Estimated timeline for completion
2018

Estimated Cost/Funding Source
$114,000/ Acquire Fire Safe Council Grant, PDM Grant, Fire Act Grant

Responsible Agency/Department
County Fire, Prevention Section

Comments
RAWS units/ Fire Weather Program will allow the implementation of a Fire Danger Operating Plan to provide daily Burning Index values and Fire Danger adjective ratings for use in fire business decision support.

Number#	**STAPLE/E Rating:**
2016-6	20

Action Title
Fire Emergency Communications Center (ECC) Facility

Action Description
Build second Fire ECC in Battalion 2. This would provide redundancy in the event that the existing South Coast combined Sherriff/Fire ECC is compromised by a natural disaster.

Relevant Objective

	Promote disaster resiliency for future development to reduce/eliminate vulnerability to hazards
	1A
	1B
	1C
	Promote disaster resiliency for existing assets and people to reduce/eliminate vulnerability to hazards
x	2A
	2B
	2C
	Enhance hazard mitigation coordination and communication
	3A
	3B
	3C
	3D
	3E
	3F
	3G
	3H
	3I
	3J

Applicable Hazards

x	Earthquake
	Liquefaction
x	Landslides and Other Earth Movements
	Expansive Soils/Land Subsidence
x	Wildfire
x	Flood
	Coastal Storm Surge
	Climate-Related
	Sea Level Rise/Coastal Flooding and Erosion
x	Droughts and Water Shortage
	Severe Weather and Storms
	Extreme Heat
	Freeze

		Hailstorm	
		Tornado	
		Hurricane	
		Windstorm	
		Energy Shortage and Energy Resilience	
	x	Oil Spill	
	x	Dam Failure	
		Agricultural Pests and Disease	
		Epidemic/Pandemic/Vector Borne Disease	
	x	Hazardous Material Release	
	x	Radiological Incident	
		Terrorism	
		Cyber Threat	
	x	Aircraft Crash	
	x	Train Accident; Explosion and/or Chemical Release	
		Natural Gas Pipeline/Storage Facility Accidents	
		Levee Failure	
	x	Tsunami	
		Civil Disturbance	
		Well Stimulation/Hydraulic Fracking	
		Marine Invasive Species	

Estimated timeline for completion
2021

Estimated Cost/Funding Source
$5,000,000/ Acquire Homeland Security Grant, PSWIN Grant

Responsible Agency/Department
County Fire/Sheriff

Comments
The existing South Coast ECC is located in a High Fire Hazard area and was evacuated during the 1990 Paint Fire. Adding a dedicated Fire ECC in the north or central county would allow redundancy in the event of a disaster that compromised one facility. Personnel could be crossed trained to handle both Fire and Law duties as needed.

Number#	**STAPLE/E Rating:**
2016-7	18

Action Title
South Coast Foothill Fuel Break

Action Description
Plan and implement the completion of a community defensible space fuel break along the foothills of the Santa Ynez Mountains from the Ventura County line to Telecote Canyon west of Goleta City.

Relevant Objective

	Promote disaster resiliency for future development to reduce/eliminate vulnerability to hazards
	1A
	1B
	1C
	Promote disaster resiliency for existing assets and people to reduce/eliminate vulnerability to hazards
x	2A
x	2B
	2C
	Enhance hazard mitigation coordination and communication
	3A
	3B
	3C
	3D
	3E
	3F
x	3G
	3H
x	3I
	3J

Applicable Hazards

	Earthquake
	Liquefaction
	Landslides and Other Earth Movements
	Expansive Soils/Land Subsidence
X	Wildfire
	Flood
	Coastal Storm Surge
	Climate-Related
	Sea Level Rise/Coastal Flooding and Erosion
	Droughts and Water Shortage
	Severe Weather and Storms

		Extreme Heat
		Freeze
		Hailstorm
		Tornado
		Hurricane
		Windstorm
		Energy Shortage and Energy Resilience
		Oil Spill
		Dam Failure
		Agricultural Pests and Disease
		Epidemic/Pandemic/Vector Borne Disease
		Hazardous Material Release
		Radiological Incident
		Terrorism
		Cyber Threat
		Aircraft Crash
		Train Accident; Explosion and/or Chemical Release
		Natural Gas Pipeline/Storage Facility Accidents
		Levee Failure
		Tsunami
		Civil Disturbance
		Well Stimulation/Hydraulic Fracking
		Marine Invasive Species

Estimated timeline for completion
2021

Estimated Cost/Funding Source
$800,000/ Acquire Fire Safe Council Grant, SRA Grant

Responsible Agency/Department
County Fire

Comments
This project would involve planning, designing, and creating a fuel break along the foothills of the Santa Barbara South Coast. Cost would include CEQA documentation, GIS work, and implementation using hand crews.

Number#	**STAPLE/E Rating:**
2016-8	17

Action Title
East Side Storm Drain Outlet reconstruction, Santa Barbara City

Action Description
Reconstruction of the existing box culvert at the Ocean, installation of a new Tidal Gate.

Relevant Objective

	Promote disaster resiliency for future development to reduce/eliminate vulnerability to hazards
	1A
	1B
	1C
	Promote disaster resiliency for existing development and people to reduce/eliminate vulnerability to hazards
	2A
	2B
	2C
x	2D
x	2E
	Enhance hazard Mitigation coordination and communication
	3A
	3B
x	3C
	3D
	3E
	3F
	3G
	3H
	3I
	3J

Applicable Hazards

	Earthquake
	Liquefaction
	Landslides and Other Earth Movements
	Expansive Soils/Land Subsidence
	Wildfire
x	Flood
	Coastal Storm Surge
	Climate-Related
	Sea Level Rise/Coastal Flooding and Erosion
	Droughts and Water Shortage
	Severe Weather and Storms
	Extreme Heat

		Freeze	
		Hailstorm	
		Tornado	
		Hurricane	
		Windstorm	
		Energy Shortage and Energy Resilience	
		Oil Spill	
		Dam Failure	
		Agricultural Pests and Disease	
		Epidemic/Pandemic/Vector Borne Disease	
		Hazardous Material Release	
		Radiological Incident	
		Terrorism	
		Cyber Threat	
		Aircraft Crash	
		Train Accident; Explosion and/or Chemical Release	
		Natural Gas Pipeline/Storage Facility Accidents	
		Levee Failure	
		Tsunami	
		Civil Disturbance	
		Well Stimulation/Hydraulic Fracking	
		Marine Invasive Species	
Estimated timeline to complete TBD			
Cost/Funding Source $342,000/Acquire HMA Grant, PDM Grant			
Responsible Agency/Department Santa Barbara County Public Works, Flood Control			
Comments			

Number#	**STAPLE/E Rating:**
2016-9	13

Action Title
Romero Creek Capacity Improvements, Montecito

Action Description
Improve the capacity of the existing facilities. The project consists of widening the channel from 30 feet and 18 feet currently, to 74 feet.

Relevant Objective

	Promote disaster resiliency for future development to reduce/eliminate vulnerability to hazards
	1A
	1B
	1C
	Promote disaster resiliency for existing development and people to reduce/eliminate vulnerability to hazards
	2A
	2B
	2C
x	2D
x	2E
	Enhance hazard Mitigation coordination and communication
	3A
	3B
x	3C
	3D
	3E
	3F
	3G
	3H
	3I
	3J

Applicable Hazards

	Earthquake
	Liquefaction
	Landslides and Other Earth Movements
	Expansive Soils/Land Subsidence
	Wildfire
x	Flood
	Coastal Storm Surge
	Climate-Related
	Sea Level Rise/Coastal Flooding and Erosion
	Droughts and Water Shortage
	Severe Weather and Storms

		Extreme Heat	
		Freeze	
		Hailstorm	
		Tornado	
		Hurricane	
		Windstorm	
		Energy Shortage and Energy Resilience	
		Oil Spill	
		Dam Failure	
		Agricultural Pests and Disease	
		Epidemic/Pandemic/Vector Borne Disease	
		Hazardous Material Release	
		Radiological Incident	
		Terrorism	
		Cyber Threat	
		Aircraft Crash	
		Train Accident; Explosion and/or Chemical Release	
		Natural Gas Pipeline/Storage Facility Accidents	
		Levee Failure	
		Tsunami	
		Civil Disturbance	
		Well Stimulation/Hydraulic Fracking	
		Marine Invasive Species	
Estimated timeline to complete TBD			
Cost/Funding Source $25,197,000/ Acquire HMA Grant, PDM Grant			
Responsible Agency/Department Santa Barbara County Public Works, Flood Control			
Comments			

Number#	**STAPLE/E Rating:**
2016-10	13

Action Title
Oak Creek Capacity Improvements, Montecito

Action Description
Improve the capacity of the existing facilities. This project will replace 14 foot wide concrete-lined channel from the Ocean to the UPRR; acquisition of two parcels. This would also necessitate the replacement of a private bridge**.**

Relevant Objective

	Promote disaster resiliency for future development to reduce/eliminate vulnerability to hazards
	1A
	1B
	1C
	Promote disaster resiliency for existing development and people to reduce/eliminate vulnerability to hazards
	2A
	2B
	2C
x	2D
x	2E
	Enhance hazard Mitigation coordination and communication
	3A
	3B
x	3C
	3D
	3E
	3F
	3G
	3H
	3I
	3J

Applicable Hazards

	Earthquake
	Liquefaction
	Landslides and Other Earth Movements
	Expansive Soils/Land Subsidence
	Wildfire
x	Flood
	Coastal Storm Surge
	Climate-Related
	Sea Level Rise/Coastal Flooding and Erosion
	Droughts and Water Shortage

		Severe Weather and Storms	
		Extreme Heat	
		Freeze	
		Hailstorm	
		Tornado	
		Hurricane	
		Windstorm	
		Energy Shortage and Energy Resilience	
		Oil Spill	
		Dam Failure	
		Agricultural Pests and Disease	
		Epidemic/Pandemic/Vector Borne Disease	
		Hazardous Material Release	
		Radiological Incident	
		Terrorism	
		Cyber Threat	
		Aircraft Crash	
		Train Accident; Explosion and/or Chemical Release	
		Natural Gas Pipeline/Storage Facility Accidents	
		Levee Failure	
		Tsunami	
		Civil Disturbance	
		Well Stimulation/Hydraulic Fracking	
		Marine Invasive Species	

Estimated timeline to complete
TBD

Cost/Funding Source
$24,144,000/ Acquire HMA Grant, PDM Grant

Responsible Agency/Department
Santa Barbara County Public Work, Flood Control

Comments

Number#	**STAPLE/E Rating:**
2016-11	13

Action Title
San Ysidro Creek Capacity Improvements, Montecito

Action Description
Improve the capacity of the existing facilities. That will include construction of a 70-foot wide channel in the lower section and 48-foot wide channel in the upper section of the creek; acquisition of one lot and easements on the other lots.

Relevant Objective

■	Promote disaster resiliency for future development to reduce/eliminate vulnerability to hazards
	1A
	1B
	1C
■	Promote disaster resiliency for existing development and people to reduce/eliminate vulnerability to hazards
	2A
	2B
	2C
x	2D
x	2E
■	Enhance hazard Mitigation coordination and communication
	3A
	3B
x	3C
	3D
	3E
	3F
	3G
	3H
	3I
	3J

Applicable Hazards

	Earthquake
	Liquefaction
	Landslides and Other Earth Movements
	Expansive Soils/Land Subsidence
	Wildfire
x	Flood
	Coastal Storm Surge
	Climate-Related
	Sea Level Rise/Coastal Flooding and Erosion
	Droughts and Water Shortage

		Severe Weather and Storms	
		Extreme Heat	
		Freeze	
		Hailstorm	
		Tornado	
		Hurricane	
		Windstorm	
		Energy Shortage and Energy Resilience	
		Oil Spill	
		Dam Failure	
		Agricultural Pests and Disease	
		Epidemic/Pandemic/Vector Borne Disease	
		Hazardous Material Release	
		Radiological Incident	
		Terrorism	
		Cyber Threat	
		Aircraft Crash	
		Train Accident; Explosion and/or Chemical Release	
		Natural Gas Pipeline/Storage Facility Accidents	
		Levee Failure	
		Tsunami	
		Civil Disturbance	
		Well Stimulation/Hydraulic Fracking	
		Marine Invasive Species	

Estimated timeline to complete
TBD

Cost/Funding Source
$36,985,000/ Acquire HMA Grant, PDM Grant

Responsible Agency/Department
Santa Barbara County Public Works, Flood Control

Comments

Number#	**STAPLE/E Rating:**
2016-12	19

Action Title
Montecito Creek Channel Improvement, Montecito

Action Description
The Project is located along Montecito Creek from the Montecito Basin to the Casa Dorinda and will widen the existing channel in order to improve conveyance capacity.

Relevant Objective

	Promote disaster resiliency for future development to reduce/eliminate vulnerability to hazards
	1A
	1B
	1C
	Promote disaster resiliency for existing development and people to reduce/eliminate vulnerability to hazards
	2A
	2B
x	2C
x	2D
	Enhance hazard Mitigation coordination and communication
	3A
	3B
x	3C
	3D
	3E
	3F
	3G
	3H
	3I
	3J

Applicable Hazards

	Earthquake
	Liquefaction
	Landslides and Other Earth Movements
	Expansive Soils/Land Subsidence
	Wildfire
x	Flood
	Coastal Storm Surge
	Climate-Related
	Sea Level Rise/Coastal Flooding and Erosion
	Droughts and Water Shortage
	Severe Weather and Storms
	Extreme Heat

		Freeze	
		Hailstorm	
		Tornado	
		Hurricane	
		Windstorm	
		Energy Shortage and Energy Resilience	
		Oil Spill	
		Dam Failure	
		Agricultural Pests and Disease	
		Epidemic/Pandemic/Vector Borne Disease	
		Hazardous Material Release	
		Radiological Incident	
		Terrorism	
		Cyber Threat	
		Aircraft Crash	
		Train Accident; Explosion and/or Chemical Release	
		Natural Gas Pipeline/Storage Facility Accidents	
		Levee Failure	
		Tsunami	
		Civil Disturbance	
		Well Stimulation/Hydraulic Fracking	
		Marine Invasive Species	
Estimated timeline to complete TBD			
Cost/Funding Source $8,350,000/ Acquire HMA Grant, PDM Grant			
Responsible Agency/Department Santa Barbara County Public Works, Flood Control			
Comments			

Number#	**STAPLE/E Rating:**
2016-13	18

Action Title
North Avenue Storm Drain Improvements, East Side, Lompoc

Action Description
This Project is the future second phase and will construct 30” and 24” storm drain with 4 catch basins; replace the concrete sidewalk, curb and gutter. The project is located at the intersection of “H” street and North Ave.

Relevant Objective

	Promote disaster resiliency for future development to reduce/eliminate vulnerability to hazards
	1A
	1B
	1C
	Promote disaster resiliency for existing development and people to reduce/eliminate vulnerability to hazards
	2A
	2B
	2C
x	2D
	Enhance hazard Mitigation coordination and communication
	3A
	3B
x	3C
	3D
	3E
	3F
	3G
	3H
	3I
	3J

Applicable Hazards

	Earthquake
	Liquefaction
	Landslides and Other Earth Movements
	Expansive Soils/Land Subsidence
	Wildfire
x	Flood
	Coastal Storm Surge
	Climate-Related
	Sea Level Rise/Coastal Flooding and Erosion
	Droughts and Water Shortage
	Severe Weather and Storms

		Extreme Heat	
		Freeze	
		Hailstorm	
		Tornado	
		Hurricane	
		Windstorm	
		Energy Shortage and Energy Resilience	
		Oil Spill	
		Dam Failure	
		Agricultural Pests and Disease	
		Epidemic/Pandemic/Vector Borne Disease	
		Hazardous Material Release	
		Radiological Incident	
		Terrorism	
		Cyber Threat	
		Aircraft Crash	
		Train Accident; Explosion and/or Chemical Release	
		Natural Gas Pipeline/Storage Facility Accidents	
		Levee Failure	
		Tsunami	
		Civil Disturbance	
		Well Stimulation/Hydraulic Fracking	
		Marine Invasive Species	
Estimated timeline to complete 2019 (three years)			
Cost/Funding Source $582,000/ Acquire HMA Grant, PDM Grant			
Responsible Agency/Department Santa Barbara County Public Works, Flood Control			
Comments			

Number#	**STAPLE/E Rating:**
2016-14	12

Action Title
Cebada Canyon Channel Improvements, Lompoc Valley

Action Description
This Project is located in the vicinity of MCLaughlin Rd. The project will reconstruct a portion of the existing concrete lined rectangular channel.

Relevant Objective

	Promote disaster resiliency for future development to reduce/eliminate vulnerability to hazards
	1A
	1B
	1C
	Promote disaster resiliency for existing development and people to reduce/eliminate vulnerability to hazards
	2A
	2B
x	2C
x	2D
	Enhance hazard Mitigation coordination and communication
	3A
	3B
x	3C
	3D
	3E
	3F
	3G
	3H
	3I
	3J

Applicable Hazards

	Earthquake
	Liquefaction
	Landslides and Other Earth Movements
	Expansive Soils/Land Subsidence
	Wildfire
x	Flood
	Coastal Storm Surge
	Climate-Related
	Sea Level Rise/Coastal Flooding and Erosion
	Droughts and Water Shortage
	Severe Weather and Storms
	Extreme Heat

		Freeze	
		Hailstorm	
		Tornado	
		Hurricane	
		Windstorm	
		Energy Shortage and Energy Resilience	
		Oil Spill	
		Dam Failure	
		Agricultural Pests and Disease	
		Epidemic/Pandemic/Vector Borne Disease	
		Hazardous Material Release	
		Radiological Incident	
		Terrorism	
		Cyber Threat	
		Aircraft Crash	
		Train Accident; Explosion and/or Chemical Release	
		Natural Gas Pipeline/Storage Facility Accidents	
		Levee Failure	
		Tsunami	
		Civil Disturbance	
		Well Stimulation/Hydraulic Fracking	
		Marine Invasive Species	
Estimated timeline to complete TBD			
Cost/Funding Source $250,000/ Acquire HMA Grant, PDM Grant			
Responsible Agency/Department Santa Barbara County Public Work, Flood Control			
Comments			

Number#	**STAPLE/E Rating:**
2016-15	12

Action Title
Sycamore Canyon Master Drainage Plan, Santa Barbara

Action Description
This project is located along Sycamore Creek from the Pacific Ocean to the Five Points roundabout. The Master Drainage Plan will identify a Project that will widen the channel in order to improve conveyance capacity.

Relevant Objective

	Promote disaster resiliency for future development to reduce/eliminate vulnerability to hazards
x	1A
	1B
	1C
	Promote disaster resiliency for existing development and people to reduce/eliminate vulnerability to hazards
	2A
	2B
	2C
	Enhance hazard Mitigation coordination and communication
	3A
	3B
x	3C
	3D
	3E
	3F
	3G
	3H
	3I
	3J

Applicable Hazards

	Earthquake
	Liquefaction
	Landslides and Other Earth Movements
	Expansive Soils/Land Subsidence
	Wildfire
x	Flood
	Coastal Storm Surge
	Climate-Related
	Sea Level Rise/Coastal Flooding and Erosion
	Droughts and Water Shortage
	Severe Weather and Storms
	Extreme Heat

		Freeze	
		Hailstorm	
		Tornado	
		Hurricane	
		Windstorm	
		Energy Shortage and Energy Resilience	
		Oil Spill	
		Dam Failure	
		Agricultural Pests and Disease	
		Epidemic/Pandemic/Vector Borne Disease	
		Hazardous Material Release	
		Radiological Incident	
		Terrorism	
		Cyber Threat	
		Aircraft Crash	
		Train Accident; Explosion and/or Chemical Release	
		Natural Gas Pipeline/Storage Facility Accidents	
		Levee Failure	
		Tsunami	
		Civil Disturbance	
		Well Stimulation/Hydraulic Fracking	
		Marine Invasive Species	
Estimated timeline to complete TBD			
Cost/Funding Source $6,875,000 to design/construct/ Acquire HMA Grant, PDM Grant			
Responsible Agency/Department Santa Barbara County Public Works, Flood Control			
Comments			

Number#	**STAPLE/E Rating:**
2016-16	12

Action Title
Mission Canyon Master Drainage Plan, Santa Barbara

Action Description
This project will develop a Master Drainage Plan for the Mission Canyon area.

Relevant Objective

	Promote disaster resiliency for future development to reduce/eliminate vulnerability to hazards
x	1A
	1B
	1C
	Promote disaster resiliency for existing development and people to reduce/eliminate vulnerability to hazards
	2A
	2B
	2C
	Enhance hazard Mitigation coordination and communication
	3A
	3B
x	3C
	3D
	3E
	3F
	3G
	3H
	3I
	3J

Applicable Hazards

	Earthquake
	Liquefaction
	Landslides and Other Earth Movements
	Expansive Soils/Land Subsidence
	Wildfire
x	Flood
	Coastal Storm Surge
	Climate-Related
	Sea Level Rise/Coastal Flooding and Erosion
	Droughts and Water Shortage
	Severe Weather and Storms
	Extreme Heat
	Freeze
	Hailstorm

		Tornado	
		Hurricane	
		Windstorm	
		Energy Shortage and Energy Resilience	
		Oil Spill	
		Dam Failure	
		Agricultural Pests and Disease	
		Epidemic/Pandemic/Vector Borne Disease	
		Hazardous Material Release	
		Radiological Incident	
		Terrorism	
		Cyber Threat	
		Aircraft Crash	
		Train Accident; Explosion and/or Chemical Release	
		Natural Gas Pipeline/Storage Facility Accidents	
		Levee Failure	
		Tsunami	
		Civil Disturbance	
		Well Stimulation/Hydraulic Fracking	
		Marine Invasive Species	
Estimated timeline to complete 2018 (two years)			
Cost/Funding Source $150,000/ Acquire HMA Grant, PDM Grant			
Responsible Agency/Department Santa Barbara County Public Works, Flood Control			
Comments			

Number#	**STAPLE/E Rating:**
2016-17	12

Action Title
San Pedro Creek Fish Passage, Goleta

Action Description
This project will modify the existing concrete lined channel in order to accommodate fish passage in the Reach between Avenida Gorrion and Calle Real.

Relevant Objective

	Promote disaster resiliency for future development to reduce/eliminate vulnerability to hazards
	1A
	1B
	1C
	Promote disaster resiliency for existing development and people to reduce/eliminate vulnerability to hazards
	2A
	2B
	2C
	Enhance hazard Mitigation coordination and communication
	3A
	3B
x	3C
	3D
	3E
	3F
	3G
	3H
	3I
	3J

Applicable Hazards

	Earthquake
	Liquefaction
	Landslides and Other Earth Movements
	Expansive Soils/Land Subsidence
	Wildfire
x	Flood
	Coastal Storm Surge
	Climate-Related
	Sea Level Rise/Coastal Flooding and Erosion
	Droughts and Water Shortage
	Severe Weather and Storms
	Extreme Heat
	Freeze

		Hailstorm	
		Tornado	
		Hurricane	
		Windstorm	
		Energy Shortage and Energy Resilience	
		Oil Spill	
		Dam Failure	
		Agricultural Pests and Disease	
		Epidemic/Pandemic/Vector Borne Disease	
		Hazardous Material Release	
		Radiological Incident	
		Terrorism	
		Cyber Threat	
		Aircraft Crash	
		Train Accident; Explosion and/or Chemical Release	
		Natural Gas Pipeline/Storage Facility Accidents	
		Levee Failure	
		Tsunami	
		Civil Disturbance	
		Well Stimulation/Hydraulic Fracking	
		Marine Invasive Species	
Estimated timeline to complete TBD			
Cost/Funding Source $4,907,000/ Acquire HMA Grant or PDM Grant			
Responsible Agency/Department Santa Barbara County Public Work, Flood Control			
Comments			

Number#	**STAPLE/E Rating:**
2016-18	10

Action Title
Blosser Basin, Santa Maria

Action Description
This project consists of either constructing a pipeline or installing a pipe to drain the runoff from the basin.

Relevant Objective

	Promote disaster resiliency for future development to reduce/eliminate vulnerability to hazards
	1A
	1B
	1C
	Promote disaster resiliency for existing development and people to reduce/eliminate vulnerability to hazards
	2A
	2B
x	2C
x	2D
	Enhance hazard Mitigation coordination and communication
	3A
	3B
x	3C
	3D
	3E
	3F
	3G
	3H
	3I
	3J

Applicable Hazards

	Earthquake
	Liquefaction
	Landslides and Other Earth Movements
	Expansive Soils/Land Subsidence
	Wildfire
x	Flood
	Coastal Storm Surge
	Climate-Related
	Sea Level Rise/Coastal Flooding and Erosion
	Droughts and Water Shortage
	Severe Weather and Storms

		Extreme Heat	
		Freeze	
		Hailstorm	
		Tornado	
		Hurricane	
		Windstorm	
		Energy Shortage and Energy Resilience	
		Oil Spill	
		Dam Failure	
		Agricultural Pests and Disease	
		Epidemic/Pandemic/Vector Borne Disease	
		Hazardous Material Release	
		Radiological Incident	
		Terrorism	
		Cyber Threat	
		Aircraft Crash	
		Train Accident; Explosion and/or Chemical Release	
		Natural Gas Pipeline/Storage Facility Accidents	
		Levee Failure	
		Tsunami	
		Civil Disturbance	
		Well Stimulation/Hydraulic Fracking	
		Marine Invasive Species	
Estimated timeline to complete TBD			
Cost/Funding Source TBD/Acquire HMA Grant, PDM Grant			
Responsible Agency/Department Santa Barbara County Public Works, Flood Control			
Comments			

Number#	**STAPLE/E Rating:**
2016-19	10

Action Title
Bradley Channel Relining, Santa Maria

Action Description
This project will reconstruct the existing concrete lined channel between Jones St., and Main St. which will reduce the risk of future structural failure.

Relevant Objective

	Promote disaster resiliency for future development to reduce/eliminate vulnerability to hazards
	1A
	1B
	1C
	Promote disaster resiliency for existing development and people to reduce/eliminate vulnerability to hazards
	2A
	2B
x	2C
x	2D
	Enhance hazard Mitigation coordination and communication
	3A
	3B
x	3C
	3D
	3E
	3F
	3G
	3H
	3I
	3J

Applicable Hazards

	Earthquake
	Liquefaction
	Landslides and Other Earth Movements
	Expansive Soils/Land Subsidence
	Wildfire
x	Flood
	Coastal Storm Surge
	Climate-Related
	Sea Level Rise/Coastal Flooding and Erosion
	Droughts and Water Shortage
	Severe Weather and Storms
	Extreme Heat

		Freeze	
		Hailstorm	
		Tornado	
		Hurricane	
		Windstorm	
		Energy Shortage and Energy Resilience	
		Oil Spill	
		Dam Failure	
		Agricultural Pests and Disease	
		Epidemic/Pandemic/Vector Borne Disease	
		Hazardous Material Release	
		Radiological Incident	
		Terrorism	
		Cyber Threat	
		Aircraft Crash	
		Train Accident; Explosion and/or Chemical Release	
		Natural Gas Pipeline/Storage Facility Accidents	
		Levee Failure	
		Tsunami	
		Civil Disturbance	
		Well Stimulation/Hydraulic Fracking	
		Marine Invasive Species	
Estimated timeline to complete TBD			
Cost/Funding Source $2,037,000/HMA Grant, PDM Grant			
Responsible Agency/Department Santa Barbara County Public Works, Flood Control			
Comments			

Number#	**STAPLE/E Rating:**
2016-20	10

Action Title
Bradley Channel Improvements, Santa Maria

Action Description
This project consist of improving two sections of the existing channel: between HWY 101 and Route 135 and Between East Donovan Rd. and Magellan Dr. Completion of this project will minimize the flood hazard to adjacent properties.

Relevant Objective

	Promote disaster resiliency for future development to reduce/eliminate vulnerability to hazards
	1A
	1B
	1C
	Promote disaster resiliency for existing development and people to reduce/eliminate vulnerability to hazards
	2A
	2B
x	2C
x	2D
	Enhance hazard Mitigation coordination and communication
	3A
	3B
x	3C
	3D
	3E
	3F
	3G
	3H
	3I
	3J

Applicable Hazards

	Earthquake
	Liquefaction
	Landslides and Other Earth Movements
	Expansive Soils/Land Subsidence
	Wildfire
x	Flood
	Coastal Storm Surge
	Climate-Related
	Sea Level Rise/Coastal Flooding and Erosion
	Droughts and Water Shortage
	Severe Weather and Storms

		Extreme Heat	
		Freeze	
		Hailstorm	
		Tornado	
		Hurricane	
		Windstorm	
		Energy Shortage and Energy Resilience	
		Oil Spill	
		Dam Failure	
		Agricultural Pests and Disease	
		Epidemic/Pandemic/Vector Borne Disease	
		Hazardous Material Release	
		Radiological Incident	
		Terrorism	
		Cyber Threat	
		Aircraft Crash	
		Train Accident; Explosion and/or Chemical Release	
		Natural Gas Pipeline/Storage Facility Accidents	
		Levee Failure	
		Tsunami	
		Civil Disturbance	
		Well Stimulation/Hydraulic Fracking	
		Marine Invasive Species	
Estimated timeline to complete TBD			
Cost/Funding Source $2,032,000/ Acquire HMA Grant, PDM Grant			
Responsible Agency/Department Santa Barbara County Public Works, Flood Control			
Comments			

Number#	**STAPLE/E Rating:**
2016-21	16

Action Title
Maria Ygnacio East Debris Basin Modification, upper area of Goleta

Action Description
This project will modify the existing basin: will include removal of two berms currently blocking the old creek, re-grading of creek banks, native plants restoration.

Relevant Objective

■	Promote disaster resiliency for future development to reduce/eliminate vulnerability to hazards
	1A
	1B
	1C
■	Promote disaster resiliency for existing development and people to reduce/eliminate vulnerability to hazards
	2A
	2B
	2C
■	Enhance hazard Mitigation coordination and communication
	3A
	3B
x	3C
	3D
	3E
	3F
	3G
	3H
	3I
	3J

Applicable Hazards

	Earthquake
	Liquefaction
	Landslides and Other Earth Movements
	Expansive Soils/Land Subsidence
	Wildfire
x	Flood
	Coastal Storm Surge
	Climate-Related
	Sea Level Rise/Coastal Flooding and Erosion
	Droughts and Water Shortage
	Severe Weather and Storms
	Extreme Heat
	Freeze

		Hailstorm	
		Tornado	
		Hurricane	
		Windstorm	
		Energy Shortage and Energy Resilience	
		Oil Spill	
		Dam Failure	
		Agricultural Pests and Disease	
		Epidemic/Pandemic/Vector Borne Disease	
		Hazardous Material Release	
		Radiological Incident	
		Terrorism	
		Cyber Threat	
		Aircraft Crash	
		Train Accident; Explosion and/or Chemical Release	
		Natural Gas Pipeline/Storage Facility Accidents	
		Levee Failure	
		Tsunami	
		Civil Disturbance	
		Well Stimulation/Hydraulic Fracking	
		Marine Invasive Species	
Estimated timeline to complete 2018			
Cost/Funding Source $593,000/Acquire HMA Grant, PDM Grant			
Responsible Agency/Department Santa Barbara County Public Works, Flood Control			
Comments			

Number#	**STAPLE/E Rating:**
2016-22	16

Action Title
Maria Ygnacio Main Debris Basin Modification, upper area of Goleta

Action Description
This project will remove the existing debris basin dam embankment, to restore the fish passage. Also will include grading and native plants restoration.

Relevant Objective

■	Promote disaster resiliency for future development to reduce/eliminate vulnerability to hazards
	1A
	1B
	1C
■	Promote disaster resiliency for existing development and people to reduce/eliminate vulnerability to hazards
	2A
	2B
	2C
■	Enhance hazard Mitigation coordination and communication
	3A
	3B
x	3C
	3D
	3E
	3F
	3G
	3H
	3I
	3J

Applicable Hazards

	Earthquake
	Liquefaction
	Landslides and Other Earth Movements
	Expansive Soils/Land Subsidence
	Wildfire
x	Flood
	Coastal Storm Surge
	Climate-Related
	Sea Level Rise/Coastal Flooding and Erosion
	Droughts and Water Shortage
	Severe Weather and Storms
	Extreme Heat
	Freeze

		Hailstorm	
		Tornado	
		Hurricane	
		Windstorm	
		Energy Shortage and Energy Resilience	
		Oil Spill	
		Dam Failure	
		Agricultural Pests and Disease	
		Epidemic/Pandemic/Vector Borne Disease	
		Hazardous Material Release	
		Radiological Incident	
		Terrorism	
		Cyber Threat	
		Aircraft Crash	
		Train Accident; Explosion and/or Chemical Release	
		Natural Gas Pipeline/Storage Facility Accidents	
		Levee Failure	
		Tsunami	
		Civil Disturbance	
		Well Stimulation/Hydraulic Fracking	
		Marine Invasive Species	
Estimated timeline to complete 2018 (two years)			
Cost/Funding Source $885,000/Acquire HMA Grant, PDM Grant			
Responsible Agency/Department Santa Barbara County Public Works, Flood Control			
Comments			

Number#	**STAPLE/E Rating:**
2016-23	16

Action Title
San Ysidro Debris Basin Modification, Montecito area

Action Description
This project will remove or modify the existing basin, in order to improve the fish passage; will include grading and native plants restoration.

Relevant Objective

■	Promote disaster resiliency for future development to reduce/eliminate vulnerability to hazards
	1A
	1B
	1C
■	Promote disaster resiliency for existing development and people to reduce/eliminate vulnerability to hazards
	2A
	2B
	2C
■	Enhance hazard Mitigation coordination and communication
	3A
	3B
x	3C
	3D
	3E
	3F
	3G
	3H
	3I
	3J

Applicable Hazards

	Earthquake
	Liquefaction
	Landslides and Other Earth Movements
	Expansive Soils/Land Subsidence
	Wildfire
x	Flood
	Coastal Storm Surge
	Climate-Related
	Sea Level Rise/Coastal Flooding and Erosion
	Droughts and Water Shortage
	Severe Weather and Storms
	Extreme Heat
	Freeze

		Hailstorm	
		Tornado	
		Hurricane	
		Windstorm	
		Energy Shortage and Energy Resilience	
		Oil Spill	
		Dam Failure	
		Agricultural Pests and Disease	
		Epidemic/Pandemic/Vector Borne Disease	
		Hazardous Material Release	
		Radiological Incident	
		Terrorism	
		Cyber Threat	
		Aircraft Crash	
		Train Accident; Explosion and/or Chemical Release	
		Natural Gas Pipeline/Storage Facility Accidents	
		Levee Failure	
		Tsunami	
		Civil Disturbance	
		Well Stimulation/Hydraulic Fracking	
		Marine Invasive Species	
Estimated timeline to complete 2021			
Cost/Funding Source $1,490,000/Acquire HMA Grant, PDM Grant			
Responsible Agency/Department Santa Barbara County Public Works, Flood Control			
Comments			

Number#	**STAPLE/E Rating:**
2016-24	16

Action Title
Cold Springs Debris Basin Modification, Montecito area

Action Description
This project will either modify or remove the existing basin, in order to improve the fish passage; will include grading and native plants restoration.

Relevant Objective

■	Promote disaster resiliency for future development to reduce/eliminate vulnerability to hazards
	1A
	1B
	1C
■	Promote disaster resiliency for existing development and people to reduce/eliminate vulnerability to hazards
	2A
	2B
	2C
■	Enhance hazard Mitigation coordination and communication
	3A
	3B
x	3C
	3D
	3E
	3F
	3G
	3H
	3I
	3J

Applicable Hazards

	Earthquake
	Liquefaction
	Landslides and Other Earth Movements
	Expansive Soils/Land Subsidence
	Wildfire
x	Flood
	Coastal Storm Surge
	Climate-Related
	Sea Level Rise/Coastal Flooding and Erosion
	Droughts and Water Shortage
	Severe Weather and Storms
	Extreme Heat
	Freeze

		Hailstorm	
		Tornado	
		Hurricane	
		Windstorm	
		Energy Shortage and Energy Resilience	
		Oil Spill	
		Dam Failure	
		Agricultural Pests and Disease	
		Epidemic/Pandemic/Vector Borne Disease	
		Hazardous Material Release	
		Radiological Incident	
		Terrorism	
		Cyber Threat	
		Aircraft Crash	
		Train Accident; Explosion and/or Chemical Release	
		Natural Gas Pipeline/Storage Facility Accidents	
		Levee Failure	
		Tsunami	
		Civil Disturbance	
		Well Stimulation/Hydraulic Fracking	
		Marine Invasive Species	
Estimated timeline to complete 2021			
Cost/Funding Source $2,299,000/Acquire HMA Grant, PDM Grant			
Responsible Agency/Department Santa Barbara County Public Works, Flood Control			
Comments			

Number#	**STAPLE/E Rating:**
2016-25	16

Action Title
Rattlesnake Debris Basin Modification, upper area of Santa Barbara

Action Description
This project will either remove or modify the existing basin, on order to improve the fish passage; will include grading and native plants restoration.

Relevant Objective

■	Promote disaster resiliency for future development to reduce/eliminate vulnerability to hazards
	1A
	1B
	1C
■	Promote disaster resiliency for existing development and people to reduce/eliminate vulnerability to hazards
	2A
	2B
	2C
■	Enhance hazard Mitigation coordination and communication
	3A
	3B
x	3C
	3D
	3E
	3F
	3G
	3H
	3I
	3J

Applicable Hazards

	Earthquake
	Liquefaction
	Landslides and Other Earth Movements
	Expansive Soils/Land Subsidence
	Wildfire
x	Flood
	Coastal Storm Surge
	Climate-Related
	Sea Level Rise/Coastal Flooding and Erosion
	Droughts and Water Shortage
	Severe Weather and Storms
	Extreme Heat
	Freeze

		Hailstorm	
		Tornado	
		Hurricane	
		Windstorm	
		Energy Shortage and Energy Resilience	
		Oil Spill	
		Dam Failure	
		Agricultural Pests and Disease	
		Epidemic/Pandemic/Vector Borne Disease	
		Hazardous Material Release	
		Radiological Incident	
		Terrorism	
		Cyber Threat	
		Aircraft Crash	
		Train Accident; Explosion and/or Chemical Release	
		Natural Gas Pipeline/Storage Facility Accidents	
		Levee Failure	
		Tsunami	
		Civil Disturbance	
		Well Stimulation/Hydraulic Fracking	
		Marine Invasive Species	
Estimated timeline to complete 2018			
Cost/Funding Source $196,000/Acquire HMA Grant, PDM Grant			
Responsible Agency/Department Santa Barbara County Public Works, Flood Control			
Comments			

Number#	**STAPLE/E Rating:**
2016-26	14

Action Title
Faraday Storm Drain, Santa Ynez

Action Description
This project consists of acquiring easements and constructing ~1920 feet of storm drain, west of Faraday St., between Olive St. and Pine St. in Santa Ynez. This future project will reduce the flooding during rain events.

Relevant Objective

	Promote disaster resiliency for future development to reduce/eliminate vulnerability to hazards
x	1A
	1B
	1C
	Promote disaster resiliency for existing development and people to reduce/eliminate vulnerability to hazards
	2A
	2B
	2C
	Enhance hazard Mitigation coordination and communication
	3A
	3B
x	3C
	3D
	3E
	3F
	3G
	3H
	3I
	3J

Applicable Hazards

	Earthquake
	Liquefaction
	Landslides and Other Earth Movements
	Expansive Soils/Land Subsidence
	Wildfire
x	Flood
	Coastal Storm Surge
	Climate-Related
	Sea Level Rise/Coastal Flooding and Erosion
	Droughts and Water Shortage
	Severe Weather and Storms
	Extreme Heat

		Freeze	
		Hailstorm	
		Tornado	
		Hurricane	
		Windstorm	
		Energy Shortage and Energy Resilience	
		Oil Spill	
		Dam Failure	
		Agricultural Pests and Disease	
		Epidemic/Pandemic/Vector Borne Disease	
		Hazardous Material Release	
		Radiological Incident	
		Terrorism	
		Cyber Threat	
		Aircraft Crash	
		Train Accident; Explosion and/or Chemical Release	
		Natural Gas Pipeline/Storage Facility Accidents	
		Levee Failure	
		Tsunami	
		Civil Disturbance	
		Well Stimulation/Hydraulic Fracking	
		Marine Invasive Species	
Estimated timeline to complete 2019			
Cost/Funding Source $1,570,000/Acquire HMA Grant, PDM Grant			
Responsible Agency/Department Santa Barbara County Public Works, Flood Control			
Comments			

Number#	**STAPLE/E Rating:**
2016-27	16

Action Title
Unit II Channel Improvements, Santa Maria

Action Description
This project is intended to increase the hydraulic capacity of the existing channel by realigning and removing a sharp S-curve, widening of approximately 5,000 linear feet of channel. The project will require real property acquisition. The improvements will provide additional flood protection to the adjacent farm land.

Relevant Objective

	Promote disaster resiliency for future development to reduce/eliminate vulnerability to hazards
	1A
	1B
	1C
	Promote disaster resiliency for existing development and people to reduce/eliminate vulnerability to hazards
	2A
	2B
x	2C
x	2D
	Enhance hazard Mitigation coordination and communication
	3A
	3B
x	3C
	3D
	3E
	3F
	3G
	3H
	3I
	3J

Applicable Hazards

	Earthquake
	Liquefaction
	Landslides and Other Earth Movements
	Expansive Soils/Land Subsidence
	Wildfire
x	Flood
	Coastal Storm Surge
	Climate-Related
	Sea Level Rise/Coastal Flooding and Erosion
	Droughts and Water Shortage

		Severe Weather and Storms	
		Extreme Heat	
		Freeze	
		Hailstorm	
		Tornado	
		Hurricane	
		Windstorm	
		Energy Shortage and Energy Resilience	
		Oil Spill	
		Dam Failure	
		Agricultural Pests and Disease	
		Epidemic/Pandemic/Vector Borne Disease	
		Hazardous Material Release	
		Radiological Incident	
		Terrorism	
		Cyber Threat	
		Aircraft Crash	
		Train Accident; Explosion and/or Chemical Release	
		Natural Gas Pipeline/Storage Facility Accidents	
		Levee Failure	
		Tsunami	
		Civil Disturbance	
		Well Stimulation/Hydraulic Fracking	
		Marine Invasive Species	

Estimated timeline to complete
2018

Cost/Funding Source
$3,602,000/Acquire HMA Grant, PDM Grant

Responsible Agency/Department
Santa Barbara County Public Works, Flood Control

Comments

Number#	**STAPLE/E Rating:**
2016-28	17

Action Title
Airport Ditch Lining, Orcutt

Action Description
This project will replace a portion of the existing earthen-lined ditch with concrete lining or combination of storm drain/open channel. The project is located along Skyway Drive, in Santa Maria. The project will reduce erosion and deposition in downstream reaches that subsequently require cleaning.

Relevant Objective

■	Promote disaster resiliency for future development to reduce/eliminate vulnerability to hazards
	1A
	1B
	1C
■	Promote disaster resiliency for existing development and people to reduce/eliminate vulnerability to hazards
	2A
	2B
x	2C
x	2D
■	Enhance hazard Mitigation coordination and communication
	3A
	3B
x	3C
	3D
	3E
	3F
	3G
	3H
	3I
	3J

Applicable Hazards

	Earthquake
	Liquefaction
	Landslides and Other Earth Movements
	Expansive Soils/Land Subsidence
	Wildfire
x	Flood
	Coastal Storm Surge
	Climate-Related
	Sea Level Rise/Coastal Flooding and Erosion
	Droughts and Water Shortage

		Severe Weather and Storms	
		Extreme Heat	
		Freeze	
		Hailstorm	
		Tornado	
		Hurricane	
		Windstorm	
		Energy Shortage and Energy Resilience	
		Oil Spill	
		Dam Failure	
		Agricultural Pests and Disease	
		Epidemic/Pandemic/Vector Borne Disease	
		Hazardous Material Release	
		Radiological Incident	
		Terrorism	
		Cyber Threat	
		Aircraft Crash	
		Train Accident; Explosion and/or Chemical Release	
		Natural Gas Pipeline/Storage Facility Accidents	
		Levee Failure	
		Tsunami	
		Civil Disturbance	
		Well Stimulation/Hydraulic Fracking	
		Marine Invasive Species	

Estimated timeline to complete
2018

Cost/Funding Source
$1,135,000/ Acquire HMA Grant, PDM Grant

Responsible Agency/Department
Santa Barbara County Public Works, Flood Control

Comments

Number# 2016-29	**STAPLE/E Rating:** 7

Action Title
Stockpile Area – South Coast

Action Description
This project consists of obtaining land on the South Coast for use as a stockpile by Flood Control Maintenance. This area will be used to temporarily stockpile materials cleared out of channels and basins during yearly or emergency maintenance. The materials will then be disposed of by contractors when they need fill material for construction projects.

Relevant Objective

■	Promote disaster resiliency for future development to reduce/eliminate vulnerability to hazards
	1A
	1B
	1C
■	Promote disaster resiliency for existing development and people to reduce/eliminate vulnerability to hazards
	2A
	2B
	2C
■	Enhance hazard Mitigation coordination and communication
	3A
	3B
x	3C
	3D
	3E
	3F
	3G
	3H
	3I
	3J

Applicable Hazards

	Earthquake
	Liquefaction
	Landslides and Other Earth Movements
	Expansive Soils/Land Subsidence
	Wildfire
x	Flood
	Coastal Storm Surge
	Climate-Related
	Sea Level Rise/Coastal Flooding and Erosion
	Droughts and Water Shortage
	Severe Weather and Storms
	Extreme Heat

		Freeze	
		Hailstorm	
		Tornado	
		Hurricane	
		Windstorm	
		Energy Shortage and Energy Resilience	
		Oil Spill	
		Dam Failure	
		Agricultural Pests and Disease	
		Epidemic/Pandemic/Vector Borne Disease	
		Hazardous Material Release	
		Radiological Incident	
		Terrorism	
		Cyber Threat	
		Aircraft Crash	
		Train Accident; Explosion and/or Chemical Release	
		Natural Gas Pipeline/Storage Facility Accidents	
		Levee Failure	
		Tsunami	
		Civil Disturbance	
		Well Stimulation/Hydraulic Fracking	
		Marine Invasive Species	
Estimated timeline to complete TBD			
Cost/Funding Source $1,929,000/Acquire HMA Grant, PDM Grant			
Responsible Agency/Department Santa Barbara County Public Works, Flood Control			
Comments			

Number#	**STAPLE/E Rating:**
2016-30	16

Action Title
Implementation of County Energy and Climate Action Plan (ECAP)

Action Description
Implement County Energy and Climate Action Plan by: 1) Conducting annual monitoring and reporting of progress toward ECAP goals; 2) Updating baseline data for emissions, etc.; 3) Continuing to develop partnerships with community groups that support ECAP implementation

Relevant Objective

	Promote disaster resiliency for future development to reduce/eliminate vulnerability to hazards
	1A
	1B
	1C
	Promote disaster resiliency for existing development and people to reduce/eliminate vulnerability to hazards
x	2A
	2B
	2C
	Enhance hazard Mitigation coordination and communication
	3A
	3B
	3C
x	3D
	3E
	3F
x	3G
	3H
x	3I
x	3J

Applicable Hazards

	Earthquake
	Liquefaction
	Landslides and Other Earth Movements
	Expansive Soils/Land Subsidence
	Wildfire
x	Flood
x	Coastal Storm Surge
x	Climate-Related
x	Sea Level Rise/Coastal Flooding and Erosion
x	Droughts and Water Shortage
	Severe Weather and Storms
	Extreme Heat

		Freeze	
		Hailstorm	
		Tornado	
		Hurricane	
		Windstorm	
		Energy Shortage and Energy Resilience	
		Oil Spill	
		Dam Failure	
	x	Agricultural Pests and Disease	
		Epidemic/Pandemic/Vector Borne Disease	
		Hazardous Material Release	
		Radiological Incident	
		Terrorism	
		Cyber Threat	
		Aircraft Crash	
		Train Accident; Explosion and/or Chemical Release	
		Natural Gas Pipeline/Storage Facility Accidents	
		Levee Failure	
		Tsunami	
		Civil Disturbance	
		Well Stimulation/Hydraulic Fracking	
		Marine Invasive Species	
Estimated timeline to complete Ongoing			
Cost/Funding Source Unknown/ County General Fund (salaries) Acquire HMA Grant, PDM Grant			
Responsible Agency/Department Planning and Development			
Comments			

Number#	**STAPLEE#**
2016-31	20

Action Title
Critical Infrastructure Threat Assessment Identification Project

Action Description
Currently there is not a countywide agreed upon list of Critical or Essential Facilities. While there are several lists of Critical and Essential Facilities, the criteria are not standardized. Additionally, the list of Critical and Essential Facilities lack the necessary meta data (i.e., construction type, elevation level, replacement value, content cost) that would be beneficial to assessing risk to threats and hazards.
Because there is not a comprehensive list of Critical or Essential Facilities, the HMP utilized the Hazus default data. While the Hazus default data provided better insight into the earthquake and flood risk, the assumptions (i.e. structural characteristics of building) does not adequately reflect the true vulnerabilities of the facilities and/or the community. To remedy this, Santa Barbara County is proposing to create a comprehensive Critical or Essential Facilities List and utilize it in Hazus and upload the information into the secure IP Gateway portal.

Relevant Objective

	Promote disaster resiliency for future development to reduce/eliminate vulnerability to hazards
	1A
	1B
	1C
	Promote disaster resiliency for existing development and people to reduce/eliminate vulnerability to hazards
x	2A
	2B
	2C
	Enhance hazard Mitigation coordination and communication
	3A
	3B
	3C
	3D
	3E
	3F
	3G
	3H
	3I
	3J

Applicable Hazards

x	Earthquake
x	Liquefaction
x	Landslides and Other Earth Movements
x	Expansive Soils/Land Subsidence
x	Wildfire

	x	Flood	
	x	Coastal Storm Surge	
	x	Climate-Related	
	x	Sea Level Rise/Coastal Flooding and Erosion	
	x	Droughts and Water Shortage	
	x	Severe Weather and Storms	
	x	Extreme Heat	
	x	Freeze	
	x	Hailstorm	
	x	Tornado	
	x	Windstorm	
	x	Energy Shortage and Energy Resilience	
	x	Oil Spill	
	x	Dam Failure	
	x	Agricultural Pests and Disease	
	x	Epidemic/Pandemic/Vector Borne Disease	
	x	Hazardous Material Release	
	x	Radiological Incident	
	x	Terrorism	
	x	Cyber Threat	
	x	Aircraft Crash	
	x	Train Accident; Explosion and/or Chemical Release	
	x	Natural Gas Pipeline/Storage Facility Accidents	
	x	Levee Failure	
	x	Tsunami	
	x	Civil Disturbance	
	x	Well Stimulation/Hydraulic Fracking	
	x	Marine Invasive Species	
Estimated timeline to complete 2018			
Cost/Funding Source $100,000/Acquire HMA Grant, PDM Grant			
Responsible Agency/Department County Office of Emergency Management			
Comments			

Number#	**STAPLE/E Rating:**
2016-32	19

Action Title
Establish Drought Task Force

Action Description
Establish and maintain a multi-jurisdictional Drought Task Force to: 1) Assess vulnerability to drought risk; 2) Monitor drought conditions; 3)monitor water supply; 4) Plan for drought; 5) Develop related mitigation projects and programs

Relevant Objective

	Promote disaster resiliency for future development to reduce/eliminate vulnerability to hazards
	1A
	1B
	1C
	Promote disaster resiliency for existing development and people to reduce/eliminate vulnerability to hazards
x	2A
	2B
	2C
	Enhance hazard Mitigation coordination and communication
	3A
	3B
	3C
x	3D
	3E
	3F
x	3G
	3H
x	3I
x	3J

Applicable Hazards

	Earthquake
	Liquefaction
	Landslides and Other Earth Movements
	Expansive Soils/Land Subsidence
	Wildfire
	Flood
	Coastal Storm Surge
	Climate-Related
	Sea Level Rise/Coastal Flooding and Erosion
x	Droughts and Water Shortage
	Severe Weather and Storms
	Extreme Heat

		Freeze	
		Hailstorm	
		Tornado	
		Windstorm	
		Energy Shortage and Energy Resilience	
		Oil Spill	
		Dam Failure	
	x	Agricultural Pests and Disease	
		Epidemic/Pandemic/Vector Borne Disease	
		Hazardous Material Release	
		Radiological Incident	
		Terrorism	
		Cyber Threat	
		Aircraft Crash	
		Train Accident; Explosion and/or Chemical Release	
		Natural Gas Pipeline/Storage Facility Accidents	
		Levee Failure	
		Tsunami	
		Civil Disturbance	
		Well Stimulation/Hydraulic Fracking	
		Marine Invasive Species	
Estimated timeline to complete 2017			
Cost/Funding Source Unknown/ Ongoing Salaries, General Fund, Special District Budgets, Acquire HMA Grant, PDM Grant			
Responsible Agency/Department Chief Executive Office			
Comments Once Task Force is established, this will remain an on-going mitigation action.			

Number# 2016-33	**STAPLE/E Rating:** 17

Action Title:
Retrofit Water Supply Systems

Action Description
Improve water supply and delivery systems to save water through actions as: 1) Design water delivery systems to accommodate drought events; 2) Develop new or upgrade existing water delivery system into and out of Lake Cachuma.

Relevant Objective

	Promote disaster resiliency for future development to reduce/eliminate vulnerability to hazards
	1A
	1B
	1C
	Promote disaster resiliency for existing development and people to reduce/eliminate vulnerability to hazards
x	2A
	2B
	2C
	Enhance hazard Mitigation coordination and communication
	3A
	3B
	3C
	3D
	3E
	3F
x	3G
	3H
x	3I
x	3J

Applicable Hazards

	Earthquake
	Liquefaction
	Landslides and Other Earth Movements
	Expansive Soils/Land Subsidence
	Wildfire
	Flood
	Coastal Storm Surge
	Climate-Related
	Sea Level Rise/Coastal Flooding and Erosion
x	Droughts and Water Shortage
	Severe Weather and Storms
	Extreme Heat

		Freeze	
		Hailstorm	
		Tornado	
		Windstorm	
		Energy Shortage and Energy Resilience	
		Oil Spill	
		Dam Failure	
	x	Agricultural Pests and Disease	
		Epidemic/Pandemic/Vector Borne Disease	
		Hazardous Material Release	
		Radiological Incident	
		Terrorism	
		Cyber Threat	
		Aircraft Crash	
		Train Accident; Explosion and/or Chemical Release	
		Natural Gas Pipeline/Storage Facility Accidents	
		Levee Failure	
		Tsunami	
		Civil Disturbance	
		Well Stimulation/Hydraulic Fracking	
		Marine Invasive Species	
Estimated timeline to complete 2021			
Cost/Funding Source 100 million/ Acquire HMA Grant, PDM Grant			
Responsible Agency/Department Drought Task Force / Public Works			
Comments Collaboration with State Water Resources			

Number# 2016-34	**STAPLE/E Rating:** 19

Action Title:
Assess and mitigate structure ignition vulnerabilities

Action Description
Identify the most vulnerable homes and communities, based on structure characteristics that make them vulnerable to ignition during wildfires. Educate the public about the need to assess and mitigate their own vulnerabilities to home loss, including the potential for grant funding to carry out mitigation activities.

Relevant Objective

	Promote disaster resiliency for future development to reduce/eliminate vulnerability to hazards
	1A
	1B
	1C
	Promote disaster resiliency for existing development and people to reduce/eliminate vulnerability to hazards
x	2A
	2B
	2C
	Enhance hazard Mitigation coordination and communication
x	3A
	3B
	3C
x	3D
	3E
	3F
	3G
x	3H
	3I
	3J

Applicable Hazards

	Earthquake
	Liquefaction
	Landslides and Other Earth Movements
	Expansive Soils/Land Subsidence
x	Wildfire
	Flood
	Coastal Storm Surge
	Climate-Related
	Sea Level Rise/Coastal Flooding and Erosion
	Droughts and Water Shortage
	Severe Weather and Storms
	Extreme Heat

		Freeze	
		Hailstorm	
		Tornado	
		Windstorm	
		Energy Shortage and Energy Resilience	
		Oil Spill	
		Dam Failure	
		Agricultural Pests and Disease	
		Epidemic/Pandemic/Vector Borne Disease	
		Hazardous Material Release	
		Radiological Incident	
		Terrorism	
		Cyber Threat	
		Aircraft Crash	
		Train Accident; Explosion and/or Chemical Release	
		Natural Gas Pipeline/Storage Facility Accidents	
		Levee Failure	
		Tsunami	
		Civil Disturbance	
		Well Stimulation/Hydraulic Fracking	
		Marine Invasive Species	

Estimated timeline to complete
Ongoing. Continually assess structure vulnerabilities to ignition and seek support for retrofits to existing housing stock.

Cost/Funding Source
TBD/ Acquire grant via Fire Safe Council, CalFire, and/or FEMA

Responsible Agency/Department
County Fire Department

Comments
Very few resources exist to assess and mitigate structure vulnerabilities to ignition during wildfires, so this effort is critical to lowering home losses.

SECTION 8 PLAN MAINTENANCE

The County and its Departments have been continually implementing mitigation actions and monitoring their effectiveness since the last HMP update in 2011. Many deferred projects from 2004 were completed successfully, while others are on-going or newly in-progress. This section sets forth the intended process for monitoring and maintaining the 2016 Plan update.

After FEMA approval and Board adoption, the 2011 HMP was integrated into the Safety Element of the Santa Barbara County Comprehensive Plan by Board Resolution. County planning efforts and Capital Projects directed by the county were influenced by the information taken from the 2011 HMP. The 2011 HMP was also utilized and referenced to update the 2013 County Emergency Operations Plan, the County Comprehensive (General) Plan, and the recent 2016 THIRA.

The County of Santa Barbara Office of Emergency Management (OEM) will be responsible for ensuring that this plan is being monitored. County OEM will call the Mitigation Advisory Committee (MAC) and the County Planning Team to meet on an annual basis to review the mitigation actions set forth in this plan and to discuss progress. During these meetings, the MAC will develop a list of items to be updated, added, or removed in future revisions of this plan.

Major disasters affecting the County, any legal changes, and/or other events may trigger a meeting of the MAC or The Santa Barbara County Planning Team, at which point they will be responsible for determining if the plan needs be updated before the five year mark.

Department heads and other emergency preparedness staff who serve in the County's Emergency Operations Center (EOC) will focus on evaluating the HMP in light of technological, budgetary, political changes, or other significant events that may occur during the year.

In addition to holding at least one annual meeting, the MAC and County Planning Team will meet to update the HMP every five years. To ensure that this update occurs in a timely fashion, after completion of the third year following plan adoption, the MAC and County Planning Team will undertake or attempt to hire a consultant to support the following activities:

- Thoroughly analyze and update the risk of natural and human-caused hazards in the Planning Area.
- Complete a new Annual Review Questionnaire and review previous survey
- Provide a detailed review and revision of the mitigation strategy.
- Prepare a new mitigation action plan.
- Prepare an updated draft HMP and submit it to Cal OES and FEMA for preliminary review.
- Submit the updated draft HMP to the Board of Supervisors for adoption.
- Submit the updated HMP to FEMA for final approval.

Upon adoption, the 2016 HMP will be again be integrated into the Safety Element of the Santa Barbara County Comprehensive Plan by Board Resolution. This ensures that future county planning efforts and Capital Projects directed by the county are influenced by the updated Plan. The 2016 HMP will also be utilized and referenced to update the County's Emergency Operations Plan, when it is updated in 2018. The MAC and Local Planning Teams will also bring their experience from the HMP process to influence city and county wide planning efforts.

The public will continue to be involved whenever the plan is updated and as appropriate during the monitoring and evaluation process. Prior to adoption of updates, the County will provide multiple opportunities for the public to comment on the revisions. A public notice will be published prior to the meetings to announce the comment period and meeting locations.

8.1 Point of Contact

Comments or suggestions regarding this plan may be submitted at any time to Robert Lewin, Director, Office of Emergency Management, using the following information:

Robert Lewin, Director
Office of Emergency Management
4408 Cathedral Oaks Road
Santa Barbara, CA 93110
rlewin@sbcoem.org
805-681-5526

City of Buellton Annex

2017 Local Hazard Mitigation Plan

July 2017

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Appendix B Vulnerability Hazard Scenarios

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SECTION 9 CITY OF BUELLTON

9.1 INTRODUCTION

Buellton is located on US Highway 101 in the Santa Ynez Valley, 40 miles northwest of Santa Barbara and 360 feet above sea level. The City of Buellton was incorporated on February 1, 1992. Buellton enjoys a Mediterranean coastal climate with mild, dry summers and cool, wet winters. Buellton is transitioning from a crossroads commercial center for automobile travelers to a unique community offering full services to its residents and visitors. Located within commuting distance to the more populous coastal areas, Buellton is home to many commuters. It is also expected to grow, but only within its current City Limits due to an adopted Urban Growth Boundary.

9.2 PLAN PURPOSE

This annex was prepared in 2015-2016 as part of an update to the Santa Barbara County Multi-Jurisdictional Hazard Mitigation Plan. The City of Buellton participated in the County-wide Mitigation Advisory Committee, reviewed all portions of the prior Hazard Mitigation Plan pertaining to the City, and incorporated re3lavant components into this annex. This annex serves as a complete hazard mitigation planning tool for the City of Buellton. It contains updated capability assessment information, a new vulnerability assessment, and an updated/revised mitigation strategy. The methodology and process for development this annex is explained throughout the following sections. City Council Resolution No. 16-xx adopting this annex is provided as Appendix A.

9.3 PLANNING PROCESS

9.3.1 Overview and Regional Planning

The planning process implemented for updating the Santa Barbara County *Multi-Jurisdictional Hazard Mitigation Plan* (HMP) used two different planning teams. The first team is the Mitigation Advisory Committee (MAC) and the second is the Local Planning team. All eight incorporated cities (Buellton, Carpinteria, Goleta, Guadalupe, Lompoc, Santa Barbara, Santa Maria, and Solvang) joined the County of Santa Barbara in the preparation of this *Multi-Jurisdictional Hazard Mitigation Plan*. Each of the participating jurisdictions had representation on the MAC and was responsible for the administration of their Local Planning Team.

Both the MAC and the Local Planning teams focused on these underling philosophies:

- *Focus on the mitigation strategy*

  The mitigation strategy is the plan's primary purpose. All other sections contribute to and inform the mitigation strategy and specific hazard mitigation actions.

- *Process is as important as the plan itself*

In mitigation planning, as with most other planning efforts, the plan is only as good as the process and people involved in its development. The plan should also serve as the written record, or documentation, of the planning process.

- *This is the community's plan*

  To have value; the plan must represent the current needs and values of the community and be useful for local officials and stakeholders. Develop the mitigation plan in a way that best serves your community's purpose and people.

- *Intent is as important as Compliance*

  Plan reviews will focus on whether the mitigation plan meets the intent of the law and regulation; and ultimately that the plan will make the community safer from hazards.

The planning process for the Santa Barbara County HMP incorporated the following steps:

- *Plan Preparation*
  - Form/Validate planning team members
  - Establishing common project goals
  - Setting expectations and timelines
- *Plan Development*
  - Validate and revise the existing conditions/situation within planning area; the *Capabilities Assessment and Hazard Assessment Sections* in the HMP
  - Develop and review the risk to hazards (exposure and vulnerability) within the planning area; the *Vulnerability Assessment Section* in the HMP
  - Review and identify mitigation actions and projects within the planning area; the Mitigation Strategy in the HMP
- *Finalize the Plan*
  - Review and revise the plan
  - Approve the plan
  - Adopt and disseminate the plan

Throughout this process, and though other standard practices, opportunities for public involvement was offered and encouraged.

The MAC team was guided through the planning process; and as material was shared and decisions were made, it was the MAC team's responsibility to bring these findings back to their Local Planning Team. Below is a summary of the collaborative planning process of the MAC and Local Planning team.

The Mitigation Advisory Committee (MAC), formed in 2004, is a standing committee that works together throughout the year to discuss and provide input on a variety of activities. The MAC is led

by Santa Barbara County Public Works Department, Fire, and Office of Emergency Services and has representation from all of the local jurisdictions.

The MAC was utilized for the updating of the Santa Barbara County HMP. Table 9.1lists the members of the MAC.

Table 9.1 Members of the Mitigation Advisory Committee 2016

Names	Organization	MAC Member Status
Michael Dyer	Santa Barbara County – Emergency Manager	New Member
Shannon McCrone	Santa Barbara County – Emergency Services Planner	New Member
Robert Troy	Santa Barbara County – Deputy Director Emergency Management	New Member
Tylor Headrick	Santa Barbara County- GIS/Emergency Services Planner	New Member
Steve Oaks	Santa Barbara County Fire – Battalion Chief	New Member
Rob Hazard	Santa Barbara County Fire – Captain	New Member
Rudy Martel	Santa Barbara County Agricultural Commissioner	New Member
Joyce Tromp	Santa Barbara County Flood Control	New Member
Jon Frye	Santa Barbara County Flood	New Member
Tom Fayram	Santa Barbara County Public Works Deputy Director	Returning Member
Matthew Schneider	Santa Barbara County Planning and Development Deputy Director-Long Range Planning	New Member
Marc Bierdzinski	City of Buellton – City Manager/Planning Director	Returning Member
Mimi Audelo	City of Carpinteria – Program Manager	New Member
Claudia Dato	City of Goleta – Senior Project Manager (Public Safety)	Returning Member
Gary Hoving	City of Guadalupe – Public Safety Director	New Member
Kurt Latipow	City of Lompoc – Fire Chief	New Member
Yolanda McGlinchey	City of Santa Barbara – Emergency Services Manager	Returning Member
Roy Dugger	City of Santa Maria – Emergency Preparedness Coordinator	Returning Member

Bridget Elliott	City of Solvang – Associate Engineer	New Member
Jim Caesar	UCSB – Emergency Manager	Returning Member
Lindsey Stanley	Cal OES – Emergency Services Coordinator	New Member
Andrew Petrow	Consultant	New Member

MAC meetings were held from April 2015 through June 2016. Each meeting was designed to walk the MAC members through sections of the Santa Barbara County HMP and annexes. In addition to reviewing and validating material, the intent was to also educate MAC members on the planning process and purpose of each section. By taking this step it will help ensure that each MAC member could bring this knowledge back to their Local Planning Teams.

The City also meets regularly outside of the MAC process via meetings and e-mail correspondence with The County Office of Emergency Management and our neighboring jurisdiction, the City of Solvang.

9.3.2 City Local Planning Team Meetings and Outcomes

Table 9-2 lists the City of Buellton Local Planning Team (LPT). These individuals reviewed the previous Hazard Mitigation Plan (HMP) and collaborated to identify the City's critical facilities, provide relevant material (i.e., plans), validate hazard information, report on progress of city mitigation actions and provide suggestions for new mitigation actions as part of the MAC.

Table 9-2 City of Buellton Local Planning Team 2016

Name	Title
Marc Bierdzinski	City Manager/Emergency Services Manager/Planning Director
Linda Reid	City Clerk/Emergency Services Coordinator
Rose Hess	Public Works Director/City Engineer
Carolyn Galloway-Cooper	Finance Director

The City of Buellton Local Planning Team (LPT) met regularly during the planning process to discuss data needs and organize data collection. The team met on the first and third Tuesdays as part of bi-monthly staff meetings and discussed the update as needed. No sign-in sheets are used as these are regularly scheduled staff meetings.

Table 9-3 City of Buellton Internal Collaboration Meetings Summary

Meeting Dates	Summary of Discussions
2015/2016	Hazard planning discussed by management team at regular twice monthly staff meetings.

9.3.3 Public Involvement

In May 2015, an online survey prepared by County OEM in both English and Spanish was distributed county-wide to solicit public input regarding the concern for risk to natural hazard events and suggestions for how local government could minimize the risk. The City of Buellton notified residents and businesses of the opportunity to participate in the survey through posting it on the City's website and notifying key stakeholders such as city departments and CERT members via email. The City also made hard copy surveys in both English and Spanish available in City Hall. Survey results are contained in the County of Santa Barbara portion of the HMP as the City of Buellton did not prepare their own survey. Survey results are included in Appendix C.

Emergency preparedness information is also regularly distributed to the residents and businesses through a bi-monthly newsletter and via the City's website.

9.4 CAPABILITY ASSESSMENT

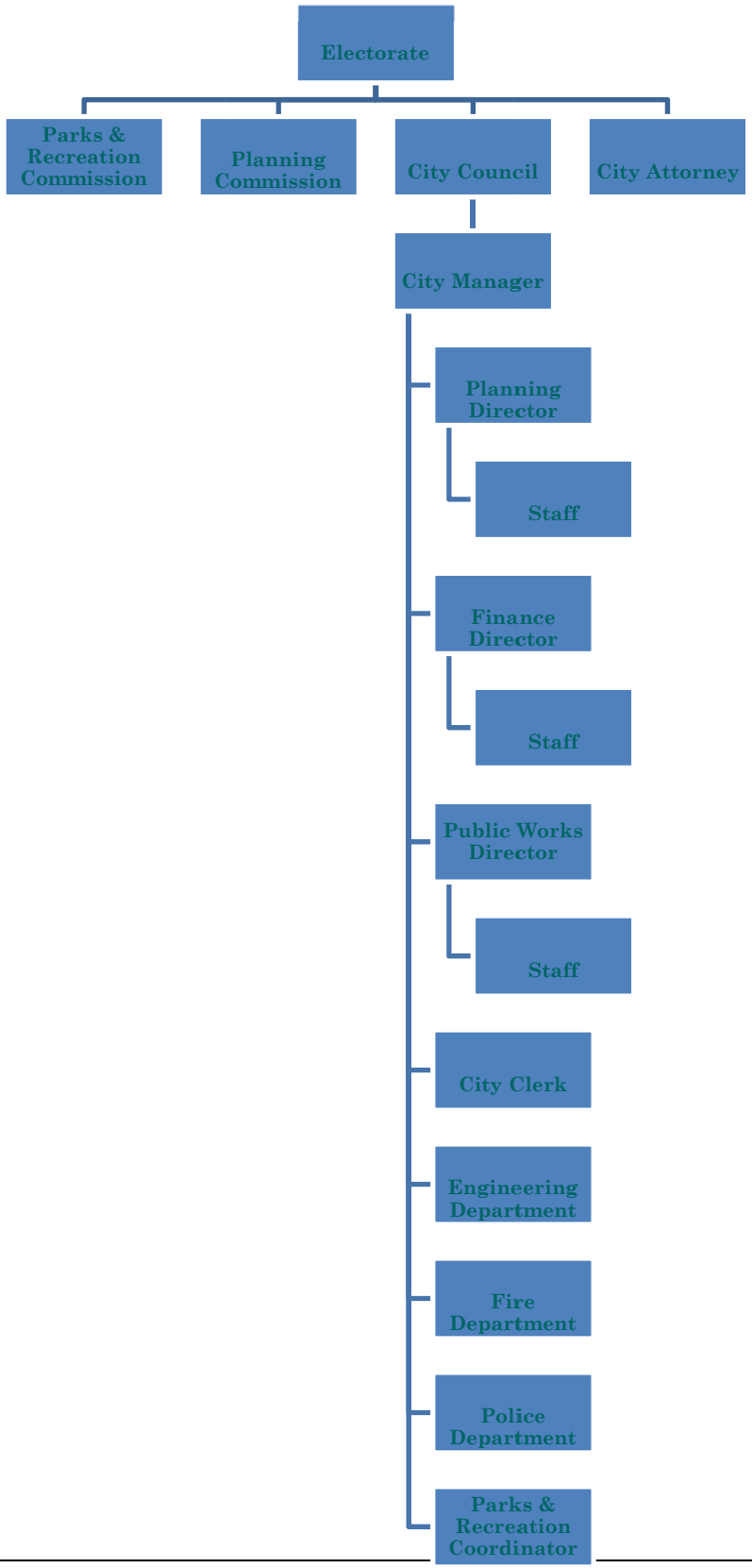
The City identified current capabilities and mechanisms available for implementing hazard mitigation activities. This section presents a discussion of the roles of key departments, administrative and technical capacity, fiscal resources, and summaries of relevant planning mechanisms, codes, and ordinances.

9.4.1 Key Departments

Buellton utilizes the Council-Manager form of local governance, which includes both elected officials and an appointed City Manager. Buellton has five council members, which includes a mayor and a vice mayor, whom are appointed each calendar year to represent Buellton. A directly elected mayor will begin with the 2016 election.

The City Council is Buellton's legislative body, setting policy, approving budgets, and setting tax rates. Members also hire the City Manager, who is responsible for the day-to-day administration of Buellton, and serves as the Council's chief advisor. The City Manager prepares a recommended budget and carries out the council's policies. While the City Manager may recommend policy decisions, he is ultimately bound by the actions of the Council. The Council appoints the City Attorney. Buellton's organizational chart is listed below.

CITY OF BUELLTON ORGANIZATIONAL CHART



Departments involved in activities related to Hazard Mitigation include:

- **Fire Protection Services** (Buellton contracts with Santa Barbara County for Fire Protection Services)
  - Administration: Develop, implement and monitor policies, procedures, budgets, fees, automatic aid agreements, mutual aid agreements, and liaison with other City departments and outside agencies.
  - Fire Prevention Bureau: Coordinate adoption of codes and ordinances, review site and building plans for fire code compliance, and develop and present public education programs.
  - Emergency Medical Services: Manage the department's paramedic and EMT programs, respond to medical emergencies and other calls for service, and participate with other community and regional health care providers to reduce public illness and injury.
  - Suppression Division: Maintain the department's personnel, apparatus, equipment and fire stations in a state of readiness to respond to the community's needs, develop and implement standard operating procedures for various types of emergency responses, respond to all types of emergencies, and train and interact with neighboring jurisdictions and regional agencies.
- **Building & Safety Department** (Buellton contracts with Santa Barbara County for Building & Safety)
  - Coordinate adoption of building, plumbing, electrical, and mechanical codes. Develop building ordinances.
  - Review site and building plans for compliance with building codes and ordinances.
  - Damage assessment of structures from multiple causes to facilitate repair and future occupancy.
- **Buellton City Manager/Planning Department**
  - Emergency Management: Coordinate Buellton's Disaster Preparedness Program, liaison with all City departments and divisions, as well as other public and private organizations, develop, coordinate and implement the EOP, and maintain the operational readiness of Buellton's Emergency Management Team, the E.O.C., and other key elements.
  - Develop and maintain Buellton's general plan, zoning ordinances and development standards.
  - Oversee Buellton's development process assuring compliance with zoning and general plan, and including environmental impact reports, design review, historic preservation, landscape review, habitat conservation, floodway prohibitions and floodplain development standards.
  - Through the code enforcement program, manages Buellton's weed abatement program along with County Fire.
- **Buellton Public Works Department**
  - Maintains Buellton's infrastructure (assets) ranging from streets to parks to buildings and vehicle fleet.

- Responds to Buellton's emergencies, includes EOC response in disasters and assisting police and fire departments with hazardous materials clean up, debris removal, traffic and perimeter control efforts, traffic accident clean up and evacuation routing.
- Operates, maintains and enhances both the water treatment/distribution and sewer collection/treatment systems within Buellton.
- Responsible for planning and implementation associated with the following plans:
  - 1.1.1 Bradbury Dam Emergency Action Plan
  - 1.1.2 Water Quality Emergency Notification Plan
  - 1.1.3 Water Division Emergency Response Plan
  - 1.1.4 Sewer Overflow Response & Prevention Plan

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

9.4.2 Administrative and Technical Capacity

The administrative and technical capabilities of Buellton, as shown in Table 9-4, summarizes the staff, personnel, and department resources available to implement the actions identified in the mitigation section of the Plan. Specific resources reviewed include those involving technical personnel such as planners/engineers with knowledge of land development and land management practices, engineers trained in construction practices related to building and infrastructure, planners and engineers with an understanding of natural or manmade hazards, floodplain managers, surveyors, personnel with GIS skills and scientists familiar with hazards in the community. Equipment and supplies maintained by the Public Works Director.

Table 9-4
Buellton's Administrative and Technical Capacity

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

9.4.3 Legal and Regulatory Capabilities

The legal and regulatory capabilities of Buellton are shown in Table 9-5, which presents the existing ordinances and codes that affect the physical or built environment of Buellton. Examples of legal and/or regulatory capabilities include building codes, zoning ordinances, subdivision ordinances, special purpose ordinances, growth management ordinances, site plan review, general plans, capital improvement plans, economic development plans, emergency response plans, and real estate disclosure plans.

Table 9-5
Buellton's Legal and Regulatory Capability

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

[1]Building Code, [2]25% slopes, flood plain, smart-growth, [3]Storm Drains, [4]General Plan.

9.4.4 GIS, Computer and Communication Technology

The City has a basic GIS system used by the Public Works and Planning Departments. Currently, parcels, zoning and flood hazards have been mapped, including water, sewer, storm drain, and citywide striping. Hazard layers created for this plan can be incorporated into that system for future planning and updates. In the event it is needed, the GIS system is fully functional and can be used to provide the State of California Office of Emergency Services with preliminary damage assessments.

Through the Santa Barbara County Sheriff's Department, Buellton has a fully functional 911 emergency telephone system, dispatch capabilities, and a reverse 911 system to issue warnings in advance of disasters. The Santa Barbara County Office of Emergency Services is also implementing new emergency notification software called Everbridge for use throughout the county.

Buellton is fully functional on the internet and has its own web site, which will be used to assist with communication necessary for implementation and future updates of this plan. Buellton also has a satellite phone for emergency communications.

9.4.5 Financial Resources

Buellton's financial worth has steadily grown over the years. The Finance Department confirms that Buellton has over 1,800 properties with a total taxable value of approximately $745,000,000.

The General Fund balance is an important element that can show Buellton's financial strengths or weaknesses. For Fiscal Year 2015-2016 (FY 15-16), Buellton's operating budget has been set at approximately $6,600,000. The revenue budget for Buellton contains more than 50 line items representing different sources, each governed by a distinct set of conditions particular to that revenue source. The largest revenue factor and the core of the resource base that enables Buellton's provision of community services is the local revenue portion of Buellton's General Fund. Buellton's revenue base is determined by different community conditions such as the current population, employment and income, economic activity within Buellton, and the growth of invested value from residential and commercial construction, business investment in plant and equipment, and demand for local real property. National, State, and regional economic conditions can also affect Buellton's revenue base by creating demand for community goods and services produced within Buellton. The primary revenue sources for the City are sales tax, property tax, and the transient occupancy tax. The majority of expenditures are for operation and maintenance and employee salaries and benefits.

Over the last few years, California's budget has diminished rapidly due to decreased tax revenues from an economic recession. The overall health of California's economy has a significant influence on local cities and counties, as local government appropriations are usually the first to have their appropriations diminished due to downturns in the economy.

Buellton's major economic drivers for its revenue base are from sales tax, transient occupancy tax, population growth, employment, construction, property values, and commercial activities. Buellton has no outstanding debt.

Buellton's long-term financial and programmatic policies to be achieved over the next few years demonstrate its dedication to protecting the life and property of Buellton residents and businesses include:

- Continued development of the storm water management system and continued qualitative drainage measures.
- Provide support in public safety to maintain current response time and professionalism, to limit injury, loss of life, and property.
- Funding of emergency preparedness training, including CERT.

Overall, Buellton has indirectly referenced mitigation and hazard reduction principles throughout many of the aforementioned documents, plans, and policies. Integrating more direct language referencing mitigation and hazard reduction will help to reinforce Buellton's commitment to these principles. The indirect references can also indicate that the responsibility for hazard reduction is shared among numerous departments within Buellton, making it a challenge to identify a particular department to take the lead in these efforts.

Table 9-6 shows specific financial and budgetary tools available to Buellton such as community development block grants; capital improvements project funding; authority to levy taxes for specific purposes; fees for water and sewer services; impact fees for developers for new development; ability to incur debt through general obligations bonds; and withholding spending in hazard-prone areas.

Table 9-6
Buellton's Fiscal Capability

Financial Resources	Accessible or Eligible to Use (Yes/No)
• Community Development Block Grants (CDBG)	Y
• Capital improvements project funding	Y
• Authority to levy taxes for specific purposes	Y – Vote required
• Fees for water and sewer service	Y
• Impact fees for developers for new developments/homes	Y
• Incur debt through general obligation bonds	Y
• Incur debt through special tax and revenue bonds	Y – Vote required
• Incur debt through private activity bonds	N
• Withhold spending in hazard-prone areas	N
• Other – SANDAG Grant	N
• Other – Other Grants	N

9.4.6 Relevant Plans, Policies, and Ordinances

Buellton has a range of guidance documents and plans for each of its departments. These documents have been used in the preparation of the mitigation strategies contained in this plan. These documents include a General Plan, Public Works Water/Sewer Plans, Capital Improvement Plans, Storm Water Management Program, Parks & Recreation Master Plan, Redevelopment Project Guidelines, and Standardized Emergency Management Plan. Buellton uses building codes, zoning ordinances, subdivision ordinances, and various planning strategies to address how and where development occurs. One of the essential ways Buellton guides its future is through policies laid out in the General Plan.

Since the last HMP was adopted, approximately 55,000 square feet of commercial space, one hotel with 99 rooms, and 270 residences were approved. All projects are subject to compliance with the following plans, policies, and ordinances to ensure compliance with City requirements and to review and mitigate hazard situations. For example, 68 of the residential units and 10,000 square feet of the commercial uses were located within the 100-year flood plain. Through the planning review process, the projects were require to follow our floodplain regulations and to file a Letter of Map Revision to remove the developed portions from the 100-year flood plain.

9.4.6.1 City of Buellton General Plan

Safety Element

The purpose of the Safety Element of the City's General Plan is to reduce deaths, injuries, property damage, and economic and social dislocation resulting from natural hazards including: flooding, mud slides and soil creep, tsunamis and seiches, land subsidence, earthquakes, avalanches, other geologic phenomena, levee or dam failure, urban and wildland fires, and building collapse. This portion of the General Plan identifies the hazards that the City must consider when making land use decisions.

Flooding is one natural hazard that the City of Buellton is susceptible to, mainly because it is located on an alluvial terrace of the Santa Ynez River. The Santa Ynez River, Zaca Creek, and Thumbelina Creek all produce 100-year storm flood damage. The greatest flood damage from these waterways occurred during heavy rainstorms in February 1993 and February 1998.

Flood damage also occurs from dam inundation. The Bradbury Dam on Lake Cachuma is located twelve miles east of Buellton. If this dam were to fail, a large portion of the City would be inundated with flood waters. The areas that would be the most affected by dam inundation would be the Thumbelina neighborhood and areas south of Highway 246.

In an effort to reduce the damages from flooding, new structures must be set back at least 200 feet from the bank of the Santa Ynez River. Structures must also be set back at least 50 feet from the top of the banks of creeks, including Zaca Creek and Thumbelina Creek, except where culverted. Development that is mapped in flood prone areas is subject to FEMA requirements and any new development must minimize flood problems that are identified by the National flood Insurance Rate Program. To prevent dam inundation, evacuations plans should be in place.

Buellton also experiences seismic and geologic hazards. The San Andreas Fault is located 50 miles northwest of the City and the Santa Ynez Fault is located approximately six miles to the south. The San Andreas would generate a very large earthquake which would cause some groundshaking in Buellton; however, the damage from such an earthquake would not be severe. A major earthquake on this fault is considered likely within the next 30 years. The likelihood of an earthquake on the Santa Ynez Fault is low by comparison. Although this fault is active, estimates place the likelihood of a major earthquake on this fault at once in several hundred to a thousand years.

The most serious direct earthquake hazard is the damage or collapse of buildings cause by ground shaking, which can cause property damage, injury, or death. It is the primary seismic concern for Buellton. The areas within or immediately adjacent to the Santa Ynez River floodplains are located on alluvial deposits, which can increase the potential for ground shaking damage and can result in greater structural damage. Certain types of construction materials perform better in earthquakes than others. Modern structures made with wooden and steel frames, or reinforced concrete blocks, will typically withstand moderate to strong earthquake ground shaking with a small threat of building failure or major damage. In comparison, buildings made with unreinforced masonry typically provide little earthquake resistance. The City of Buellton does not contain any unreinforced masonry buildings. Many of Buellton's buildings are one or two stories high and made with wood frame construction, which is considered relatively resistant to earthquake damage.

Ground shaking can also cause liquefaction, subsidence, lurch cracking, and lateral spreading. Although there is potential for these hazards to occur in Buellton, no areas of abnormally high risk have been identified within the City.

Liquefaction, when solid soils and sediment is temporarily transformed from a solid to a liquid from increased pressure, can occur in Buellton during a major earthquake. The potential for liquefaction is highest in areas with sandy, alluvial soil and shallow groundwater, such as areas of the City nearest the Santa Ynez River and Zaca Creek. A major portion of the City can be considered as having low to moderate liquefaction potential. Liquefaction hazards can be avoided with proper foundation engineering based on an analysis of the soils on a given building site.

Subsidence is the compaction of soils and alluvium caused by groundshaking. In Buellton, the potential for subsidence is greatest in areas underlain by alluvium or other soft water-saturated soils. However, no substantial subsidence problems have been identified in the City.

Lurch cracking refers to fractures, cracks and fissures produced by groundshaking. Lateral spreading is the horizontal movement of soils toward an open face of a stream bank or the side of a levee. The potential for these hazards is greatest on steep-sided alluvial soils where the groundwater table is high. In the City, this would include areas adjacent to the Santa Ynez River.

Landslides and erosion can occur in Buellton along the bank of the Santa Ynez River if structures are built close to the edge. The City requires all structures to be at least 200 feet from the bank of the river so these hazards are less likely to occur.

Policies have been developed by the City to reduce the risk of seismic hazards. All new development must adhere to the California Building Code regarding seismic safety. Geologic studies must be conducted for new development to be constructed on slopes greater than 10%, and in areas mapped by the Natural Resource Conservation Service as having moderate or high risk liquefaction, subsidence, and/or expansive soils. Similarly, evaluation reports must be conducted by engineers for all new development proposals for subdivisions or structures for human occupancy. New development must also minimize erosion hazards by incorporating features such as additional landscaped areas, parking lots with bio-infiltration systems, permeable paving designs, and storm water detention basins. The development of critical facilities is restricted in areas determined to be high risk geologic hazard zones.

Aside from flooding and seismic hazards, Buellton faces two types of fire hazards, urban and wildland fires. The outbreak and spread of wildland fires outside the City is a potential danger, particularly during the dry summer and fall months. Wildland fires can result in the loss of natural vegetation, loss of agricultural crops, and soil erosion.

Urban fires can occur in any part of the City. Over the years, development standards have become more stringent to reduce the frequency and severity of such events. Building codes require fire walls for adjacent structures and local ordinances often prohibit the use of fire-prone materials, such as shake-shingle roofs. Electrical standards have also changed to reduce the fire risk inside structures and smoke detectors are now commonly required. Urban fire hazards are greatest in areas containing older buildings that do not meet the current building code, despite the City requiring that such buildings be brought up to code. Utility facilities also present a potential urban fire hazard. Earthquakes or floods may rupture buried gas lines, while high winds or accidents could cause overhead electric lines to break. While Buellton has had urban fires, most have been relatively small

and easily contained. No catastrophic fires have been recorded in recent history, particularly since emergency response and building codes have been improved.

Hazardous materials, such as household products, asbestos, lead-based paint, and aerially-deposited lead, can be found in the City. In order to reduce the negative effects of household products, Buellton participates in a quarterly Household Hazardous Waste and Electronics Collection and Recycling Day, when such materials are accepted free of charge at the Buellton Wastewater Treatment Plant property (run by MarBorg Industries). Santa Barbara County also has a hazardous waste management plan.

In addition to hazardous material and hazardous waste hazards, Buellton is susceptible to other man-made hazards such as hazardous materials releases, highway accidents, radon hazards, chemical releases. To reduce the amount of traffic accidents, the City will work with the California Department of Transportation (Caltrans) to require all transportation of hazardous materials to follow Caltrans approved routes. To prevent chemical releases, the City implements the CalARP Prevention Program, which includes risk management measures, operating procedures, training requirements, equipment maintenance and inspection practices, and emergency planning and response methods for the water treatment facilities.

To reduce hazardous material incidents, Buellton will maintain all City water treatment facilities in accordance with the 2006 Offsite Consequence Analysis and California Accidental Release Prevention Program, including studying the possibility of using solid chlorine pellets rather than gas. The City will also respond to the unlikely event of a contaminant release from such facilities in accordance with City's emergency response procedures. Buellton will adopt a new municipal code that ensures commercial and industrial uses in mixed use projects do not pose substantial health risks to residential components. Similarly, the City will require hazardous materials assessments for soil and groundwater contamination on land adjacent to development projects. The land must be remediated if contamination is identified.

The City of Buellton has adopted California's Standardized Emergency Management System, which meets the objectives of the National Incident Management System (NIMS), a nationwide approach for federal, state, local, and tribal governments to work together more effectively and efficiently to prevent, prepare for, respond to and recover from disasters. The City adopted a resolution in 2008, designed to integrate NIMS into their emergency management system, and all City employees have taken the required NIMS courses.

Land Use Element

The Land Use Element of the General Plan suggests that the City of Buellton would like to concentrate development within the City limits and the Urban Growth Boundary line. Its Sphere of Influence is coterminous with the City Limits and Urban Growth Boundary. Therefore, growth patterns in the near future would be infill. The preference of not expanding the Sphere of Influence is mandated in the General Plan so that agricultural, watershed, and open space lands are not prematurely or unnecessarily converted to other non-agricultural or non-open space uses without public debate and a vote of the people. The protection of such lands not only ensures the continued viability of agriculture, but also contributes to flood control and protection of wildlife, environmentally sensitive areas, and irreplaceable natural resources.

The Land Use Element contains several policies that promote hazard mitigation in Buellton. New development is restricted from areas where natural conditions are likely to pose a substantial threat to public safety or produce excessive maintenance costs. To ensure all residents do not lack necessary utilities, all new development is not allowed unless adequate public services are available to serve the development. The City will also investigate the potential for changing land use designations and zoning districts for properties subject to flooding and with limited access to open space.

Housing Element

Based on the Buellton General Plan 2025, the City has an adequate water and sewer capacity to meet the expected build-out in 2025 (an approximate population of 6,100). This population increase equals an additional 500 dwelling units (2.8 persons per dwelling unit). Dry utilities, such as power and gas, should be available to all designated sites.

Development in the City of Buellton is subject to a Zoning Ordinance and the California Building Code that establishes minimum standards for all classes of construction.

One housing policy that mitigates the potential for housing damage during the event of a disaster involves the City promoting the repair, rehabilitation, and improvement of mobile homes and residential structures that are substandard or in disrepair. Blighted conditions and unsafe structures should be abated and tenants will be afforded protection in the event that they need to be displaced from their residence. Field surveys conducted at the end of 2008, and updated in 2013, suggest that the Buellton's overall housing rehabilitation needs are modest, with less than five percent of the City's housing deemed substandard.

Public Facilities and Services Element

A shortage of critical materials, such as a clean water supply, is a hazard that jurisdictions strive to avoid. In Buellton, water is supplied by the City of Buellton Public Works Department. As stated above, the City has an adequate water and sewer capacity to meet the expected build-out in 2025. The water and sewer infrastructure varies in age. Fire flows are currently. Water and Sewer Master Plans are currently being prepared to evaluate appropriate capital improvement projects for required upgrades. Both water and sewer facilities undergo regular maintenance activities to ensure the systems are operational.

Another hazard that jurisdictions strive to avoid is a utility mishap. The General Plan indicates that natural gas, electricity, and telephone are all provided within the City. All new development is required to underground all utilities. The undergrounding of utility cables can prevent a power/utility service outage in Buellton during flooding, high winds, and earthquakes.

Fire and police protection is also a concern of Buellton, as ensuring the capabilities of these departments helps aid hazard mitigation. The General Plan indicates that the Santa Barbara County Fire Department provides fire protection for the City. The City also has a mutual aid agreement with every fire protection agency in Santa Barbara County. The fire department is equipped to deal with such hazards as wildland fires, urban fires, medical emergencies, and hazardous materials incidents. The City will continue to refer development plans to the Fire Department to assure the adequacy of structural fire protection, access for firefighting, water supply, and vegetation clearance. Police services within the City of Buellton are provided by the Santa Barbara County Sheriff's Department.

9.4.6.2 Zoning and Subdivision Ordinances

The State of California has empowered all cities and counties to adopt zoning ordinances. Buellton's original Zoning Ordinance was adopted on July 22, 1993, and has been amended several times. It is codified in Title 19 of the Municipal Code. Buellton adopted a Subdivision Ordinance on November 10, 1994, reference Buellton Municipal Code Title 18.

Buellton has a five member Planning Commission, which is an advisory body to the City Council. The Commission was established under State law to provide relief in special cases where the exact application of the terms of the ordinance would be unduly restrictive and cause a hardship, in addition to generally reviewing zoning and subdivision proposals. The Planning Commission hears and decides upon the interpretation and the application of the provisions of the Zoning and Subdivision Ordinances. Although the Commission has certain discretionary powers in making its decisions, the Commission must always abide by and comply with the powers granted to it by the local Zoning and Subdivision Ordinances and the State's enabling acts. Additionally, the Planning Commission may recommend actions to the City Council and the Planning Commission's actions may be appealed to the City Council.

9.4.6.3 Building Codes

The State of California has adopted the most recent California Building Codes, which is enforced in Buellton, through its contracting agency, Santa Barbara County Building & Safety.

Buellton contracts with the County of Santa Barbara (County) and the County's Inspections Department is principally responsible for enforcing State, City, and County Codes for building residential and commercial structures, enforcing environmental codes and guidelines for maintaining existing structures. In 1999, the County Inspections Department received a rating of "four" for its building code effectiveness in residential and commercial construction from the Insurance Services Office (ISO).

The ISO is an insurer-supported organization that provides advisory insurance underwriting and rating information to insurers. The ISO uses a rating scale of 1 to 10 with 1 to 3 being the highest rating given. The County's evaluation can be used as a basis for providing rating credits to individual property insurance policies.

9.4.6.4 Floodplain Management Ordinance

Buellton has a Floodplain Ordinance requiring all habitable floors be built a minimum of two feet above the 100-year floodplain and the special flood hazard areas. However, many parts of Buellton flood due to storm water infrastructure and not because of their proximity to 100-year floodplain.

Buellton sustained flood damage in February 1993 and February 1998 following heavy rain storms. A Local Emergency was declared on February 5, 1998, following substantial storm flooding. Following the 1998 storm, Buellton had significant flooding on La Pita Place, Irelan Drive and Second Street due to an

overflowing flood control basin in the area. Thumbelina Creek overflowed its banks onto Kendale Road and there was significant foothill flooding on Via Corona Drive and Calor Drive with two feet of mud in this residential area. Buellton is working on a Drainage Master Plan that will identify areas that need improvements for flood control purposes. In addition, the City annually cleans all storm drain inlets and catch basins in the fall to ensure facilities are able to handle storm flow.

The FIRMs are developed through the NFIP and were last updated in December 2012 and made available in GIS format as Digital Flood Insurance Rate Maps. Also on file with the Santa Barbara Operational Area Office of Emergency Services, County Flood Control, and the Santa Barbara City Public Library are maps that identify floodplains, along with evacuation routes and locations of public shelters. They are used by both the public and private sector to determine flood insurance requirements and rates and to administer Buellton's Floodplain Management Ordinance (Title 17, Chapter 17.04 of the Buellton Municipal Code).

The City participates in the NFIP Program and the City uses the Floodplain Management Ordinance (Chapter 17.04) to stay in compliance with the NFIP.

Floodplain districts identified in the FIRMs include the following flood hazard zones and definitions:

- **Zone A** is the flood insurance rate zone that corresponds to the 100-year floodplains that are determined in the Flood Insurance Study (FIS) by approximate methods. Because detailed hydraulic analysis is not performed for such areas, no Base Flood Elevations or flood hazard factors are determined.
- **Zone AO** is the flood insurance rate zone that corresponds to areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; average depths of inundation are shown, but no flood hazard factors are determined.
- **Zone A1-A30** is the flood insurance rate zone that corresponds to areas of 100-year flood; base flood elevations and flood hazard factors are determined.
- **Zone B** is the flood insurance rate zone that corresponds to areas between limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths less than one (1) foot or where the contributing drainage area is less than one square mile; or areas protected by levees from the base flood.
- **Zone C** is the flood insurance rate zone that corresponds to areas of minimal flooding.

9.4.6.5 Repetitive Loss (RL) Properties

Repetitive loss properties are defined as property that is insured under the NFIP that has filed two or more claims in excess of $1,000 each within any consecutive 10-year period since 1978. The City has no identified repetitive loss properties.

9.4.6.6 City of Buellton Storm Water Management Program

In California, the State Water Resources Control Board (SWRCB) has determined that urban runoff is a leading cause of pollution through the state, with impacts on both human health and aquatic ecosystems. The SWRCB identified the City of Buellton as a small municipal separate system requiring coverage under the National Pollutant Discharge Elimination System (NPDES) *General Permit for Storm Water Discharges from Small Municipal Separate Storm Sewer Systems (MS4s)*, Water Quality Order No. 2003-0005-DWQ (General Permit). A requirement of the General Permit is development of a Storm Water Management Program (SWMP) to reduce the discharge of pollutants.

The General Permit also requires the development and implementation of Best Management Practices (BMPs) to address six Minimum Control Measures (MCMs). This includes the following: 1) Public Education and Outreach on Storm Water Impacts; 2) Public Involvement and Participation; 3) Illicit Discharge Detection and Elimination; 4) Construction Site Storm Water Runoff Control; 5) Post-Construction Storm Water Management in New Development and Redevelopment; and 6) Pollution Prevention/Good Housekeeping for Municipal Operations.

The Storm Water Management Plan has been prepared by the City of Buellton and describes the City's program necessary to comply with the General Permit. It also serves as a framework for identifying, assigning, and implementing control measures and BMPs intended to reduce the discharge of pollutants and protect downstream water quality.

Its purpose is to serve as a planning and guidance document to be used by the City's regulatory body; to define techniques and measureable goals for measuring BMP effectiveness; and to define a five-year schedule for SWMP implementation to comply with the General Permit requirements.

Following a description on the City of Buellton the document comprehensively describes the Minimum Control Measures. They comprise the most substantive section of the Storm Water Management Program:

1. *Public Outreach and Education*

This measure is intended to ensure greater public support and compliance for the storm water management program. Specifically, they teach the public the importance of protecting stormwater quality. The City has already begun and will continue to partner with other local municipalities, such as the County of Santa Barbara and the Cities of Lompoc, Santa Maria, Solvang, Goleta, Santa Barbara, and Carpentaria to develop materials and host civic events.
The City also implements BMPs, including the use of: 1) Brochures; 2) WebPages; 3) Events; 4) Educational programs for children; 5) Storm Drain Markings; 6) Stormwater Hotlines; 7) Direct Mail/Media campaigns; 8) Business outreach programs; 9) Botanical garden exhibits; 10) Public surveys; and 11) Ongoing assessments of social marketing strategies. The SWMP also includes effectiveness measures and measurable goals for each respective BMP.

2. *Public Participation and Involvement*

The goal is to foster active community support for the SWMP. The City implements BMPs, including: 1) Regular public meetings; 2) Regular coordination efforts among amongst local agencies/stakeholders; 3) Community clean-ups; 4) Water quality hotlines; 5) and Lists of interested parties. The SWMP also includes effectiveness measures and measurable goals for each respective BMP. Its purpose is to assure that the program will be supported by City residents and will provide input to guide development of the program in the future.

3. *Illicit Discharge Detection and Elimination*

The City will enhance its current system to identify and eliminate illicit discharges throughout the permit area. A map identifying "trouble spots and potential illegal dumping areas" in the City has been developed and will be updated as needed.

The City implements BMPs, including: 1) Maps of the storm drain system; 2) Storm water ordinances; 3) Education and outreach programs; 4) Education/Training of municipal employees; 5) Identification and elimination of illicit discharge sources; 6) Drain filters for commercial connections; 7) Wastewater programs; and a 8) Pet waste disposal program. The city intends to maintain ongoing efforts to control illicit discharge at current levels by implementing these BMPs. The SWMP also includes effectiveness measures and measurable goals for each respective practice.

4. *Construction Site Runoff Control*

The purpose of construction site runoff controls is to prevent soil and construction waste from entering the storm water. The City will review its current Excavation and Grading Code and standard practices for compliance with the minimum requirements – according to the USEPA. It will also require all construction projects to collect construction waste and materials on site and dispose of it in a legal and proper manner.

The City implements BMPs, including: 1) Construction Site Enforcement, Inspections; 2) Development of construction site inspection and enforcement procedures; 3) Development of procedures for review of grading/erosion control/construction site plans; 4) Discretionary projects – conditions of approval; 5) Staff training; 6) Construction workshop; 7) Construction site stormwater control ordinance; and 8) Procedures for receipt and consideration of information from the public. The SWMP also includes effectiveness measures and measurable goals for each respective BMP.

5. *Post-Construction Runoff Control*

This minimum control measure focuses on site planning and design considerations, which are most effective when addressed in the early stages of project development. The goal of the program is to integrate basic and practical storm water management techniques into new development to protect water quality.

The City adopted and is implementing/applying water quality protection policies related to hydromodification control criteria (post construction requirements – PCRs) to new development and redevelopment projects. The City has adopted/developed guidance for PCRs, including: design, monitoring, maintenance, and inspection requirements and guidance to assist developers in the selection, design, and maintenance of hydromodification control measures.

The City implements BMPs, including: 1) Review of regulations; 2) Staff training; 3) Plan review; 4) inspection of post-construction stormwater BMPs; 5) Long-term of post-construction stormwater BMPs; 6) Master drainage plan; 7) Long-term watershed protection and plan; 8) Use of low impact development in project design; 9) Adoption of hydromodification control criteria; and10) Education and outreach efforts. The SWMP also includes effectiveness measurable goals for each respective practice.

6. *Pollution Prevention Control and Goodhousekeeping for Municipal Operations*

The purpose of this minimum control measure for Municipal Operations/Good Housekeeping Practices is to assure that the City's delivery of public services occurs in a manner protective of storm water quality to the maximum extent practical and protect overall water quality. In this way the City may serve as a model to the community.

The City implements BMPs, including: 1) Training of employees on stormwater pollution prevention; 2) Street sweeping; 3) Storm drain cleaning; and 4) Trash, green waste and recycling. Data collected for each measurable goal will be compiled, reviewed and summarized as part annual report to the Regional Water Quality Control Board (RWQCB).

Monitoring and Reporting Requirements

The purpose of monitoring and reporting is to document successful implementation of the SWMP and determining the program's effectiveness at reducing pollutants to the MEP and protect water quality. The General Permit requires that annual reports be submitted annually upon approval of the City's SWMP. The City intends these annual reports to cover the fiscal year immediately prior to the reporting period.

9.4.6.7 City of Buellton Waste Water Treatment Plant

The City of Buellton is located in northern Santa Barbara County and operates a publicly owned treatment works facility whose discharge influences the Santa Ynez River. In recognition of this important asset, the city has developed an examination to determine the true operating capacity of the existing wastewater treatment plan and to plan for the future.

Its scope includes a forecast of demographic and planning development until the year 2030 and an estimation of the respective wastewater flow characteristics; an evaluation of the of the WWT's overall performance; an evaluation of the entire treatment process; and an array of recommendations for expansion or modifications to accommodate future needs.

Land Use and Population

The City of Buellton is likely to continue its growing population trend over the next 40 years. Based on the 2010 Census, its population is 4,800 persons and the average density was 2.8 persons per household. It is expected to grow by 400 persons every five years through 2035 and then by 300 persons by 2040. Based on this growth rate, the City's population in 2040 is expected to reach 7,200 persons. Since one third of the City's area is categorized as low density residential, the forecasted population increase is not expected to reach full build-out until between 2040 and 2050.

Wastewater Flows and Characteristics

Existing wastewater characteristics form the basis for defining and projecting future wastewater characteristics. The findings and observations are summarized as follows:

- Wastewater flows per capita are 88 gpcd, compared to the expected range of 70 to 80 gpcd for a California city. This may attributed to an increased number of hotels/tourism, contributions from wineries, and it may indicate the potential for water conservation measures.

Potable water is obtained from two sources: 1) State Water; and 2) local groundwater. At this time, Buellton's primary water source is groundwater. State Water is used to supplement the groundwater

on an as needed basis. The City has several water conservation programs including replacement shower heads and the Cash for Grass Initiative.

Future wastewater characteristics are planned for a 20-year horizon and use the 2027 estimated population of 6,260 people with a per capita wastewater flow of 80 gpcd. Using this scenario, organic loading is expected to increase from approximately 1,100 lb/day in 2007 to 1,500 lb/day in 2027. It is noted that projected demands for flow and organic loading are based on current loadings, which include a combination of residential and commercial/industrial sources. Should future components of commercial/industrial development occur, it is recommended that the City project organic and flow demands carefully as part of the development approval process.

Regulatory Review

Waste discharge requirements are not anticipated to change through the planning period. Nevertheless, a few items are addressed:

- Effluent nitrogen sampling suggests down-gradient impacts to water quality in the area of percolation ponds. This impacts the groundwater and should be addressed to comply with the current Waste Discharge Requirements (WDRs).

- The City should ensure that all aspects of the effluent monitoring and reporting program are in compliance with the revised monitoring program of March 2006.

- The City should consider refining their groundwater monitoring program to include off-site wells where practical and should survey wells to determine flow gradients of groundwater in and around the site.

Wastewater Treatment Plant Analysis

Based on the 2008 assessment of the wastewater treatment process –and its components- the following recommendations are included:

- *Aeration tanks*: To meet future demands for de-nitrification, it will be necessary to ensure adequate piping for the aeration system. An initial investment of $75,000 is suggested.

- *Scum Handling*: It is suggested that the budget allocate $15,000 for waste activated sludge (WAS) mixing, or $75,000 for separate dewatering/compacting if an alternative modification is chosen.

- *Standby Power*: It is inadequate to meet current and future needs and is suggested that a figure of $200,000 be included for initial improvements.

The City will be updating its WWTP Master Plan in Fiscal Year 2016/2017.

9.4.6.8 City of Buellton Emergency Operations Plan

The 2014 Emergency Operations Plan (EOP) for the City of Buellton addresses the planned response to emergency situations associated with natural disasters, technological incidents and national security emergencies that occur within or affect the City. The plan does not address normal day-to-day emergencies. The Plan:

- establishes the emergency management organization required to respond to and mitigate any significant emergency or disaster affecting the City;
- identifies the policies, responsibilities and procedures required to protect the health and safety of the city community, public and private property, and the environmental effects of natural and technological emergencies and disasters; and
- establishes the operational concepts and procedures associated with field response to emergencies, the City's Emergency Operations Center (EOC) activities, and the recovery process.

It establishes the framework for implementation of the California Standardized Emergency Management System (SEMS) and the National Incident Management System (NIMS) in the City of Buellton. The document is a concept of operations guide, intended to facilitate multi-agency and multi-jurisdictional coordination in emergency operations particularly between the City of Buellton, Special Districts, and the Santa Barbara county Operational Area.

The scope presented in the EOP applies to all elements of the City's Emergency Organization during all phases of emergency management. Its primary audience is intended for emergency management staff from the city and other interested parties (e.g. the Federal government, other State or local governments, and volunteer agencies).

The EOP is organized in three sections.

- **Part One - Basic Plan**. The overall organizational and operational concepts relative to response and recovery are described in this section. Its intended audience is the Emergency Operations Center (EOC) Management Team.
- **Part Two - Emergency Organization Functions**. It is a description of the emergency response organization and emergency action checklists. The intended audience is EOC staff.
- **Part Three – Supporting documents to the City's Emergency Operations Plan**. These documents identify both SEMS and NIMS compliance information.

Hazard mitigation is discussed in *Part One- Basic Plan* and includes a series of programs and best management practices to efficiently minimize the risks to natural hazards. They are:

1) Enhance public awareness and understanding;
2) Create a decision tool for management;
3) Promote compliance with State and Federal program requirements;
4) Enhance local policies for hazard mitigation capability;
5) Provide inter-jurisdictional coordination of mitigation-related programming;
6) Achieve regulatory compliance.

Through use of these practices and the acknowledgement of Federal and State Hazard Mitigation Programs, the City of Buellton is cognizant of the resources available and the method by which to leverage them -- before, during, and after an event.

9.4.6.9 SEMS Multi-Hazard Functional Plan

In early September 2004, Buellton submitted its Standardized Emergency Management System (SEMS) Multi-Hazard Functional Plan to the State of California for approval. The Plan discusses mitigation in the form of training and exercises, which are essential at all levels of government to make emergency operations personnel operationally ready. All emergency plans should include provision for training. The objective is to train and educate public officials, emergency response personnel and the public. The best method for training staff to manage emergency operations is through exercises. Exercises are conducted on a regular basis to maintain the readiness of operational procedures. Exercises provide personnel with an opportunity to become thoroughly familiar with the procedures, facilities and systems which will actually be used in emergency situations. There are several forms of exercises:

- Tabletop exercises provide a convenient and low-cost method designed to evaluate policy, plans and procedures and resolve coordination and responsibilities. Such exercises are a good way to see if policies and procedures exist to handle certain issues.
- Functional exercises are designed to test and evaluate the capability of an individual function such as evacuation, medical, communications or public information.
- Full-scale exercises simulate an actual emergency. They typically involve complete emergency management staff and are designed to evaluate the operational capability of the emergency management system.

The SEMS Multi-Hazard Functional Plan will be updated to reflect the current hazard risk assessment and mitigation activities identified in this hazard mitigation plan annex.

9.4.7 Expand and Improve

The City regularly reviews and updates the plans, programs, codes, and policies discussed in this section through public processes including workshops and public meetings. The community is encouraged to participate in all updates relating to emergency preparedness. It is important to note that during the LHMP update planning process these plans, programs, codes, and policies were evaluated to determine their effectiveness in risk education and reduction efforts, as well as, its usefulness to implement mitigation measures. Any shortfalls or areas where the plans, programs, codes, and policies could be improved or expanded were identified and captured under annual review, the annual planning process and Mitigation Actions chapter of this plan. If no mitigation actions were identified, then it can be assumed that the planning team determined that no shortfalls or areas for improvement are needed.

9.5 HAZARD ASSESSMENT

The City of Buellton had their LPG review the hazard listings developed by the MAC. The listing was modified by the LPG based on the hazards that impact the City. After reviewing the County's MAC listing, the LPG for the City of Buellton determined that flooding, wildfire, earthquakes, landslides, dam failure, and climate change (associated with wildfire and flooding) are the major hazards that affect the critical facilities within the City. Table 9-7 provides the hazard ranking for the City of Buellton. Rankings were determined by the LPG based on knowledge of the area. The full description of these hazards county-wide is contained in the County portion of the document. Since the City's incorporation in 1992, no significant disaster events for these hazard types have occurred within the City of Buellton.

The LPG determined, based on the LPT's knowledge of the City, that the following hazards, while some may exist, do not pose a threat to the critical facilities within the City of Buellton and have not been analyzed in this annex: expansive soils/land subsidence, tsunami, sea level rise/coastal flooding, severe weather and storms, extreme heat, freeze, hailstorm, tornado, windstorm, agriculture pests and disease, marine invasive species, epidemic/pandemic/vector borne disease, levee failure, hazardous material release, energy shortage and energy resiliency, natural gas pipeline/storage, oil spill, radiological accident, terrorism, cyber threats, commercial/military aircraft crash, civil disturbance, train accident, and well stimulation/hydraulic fracking. Most of these additional hazards are being addressed in the more comprehensive THIRA document.

Table 9-7
City of Buellton - Hazard Ranking and Planning Consideration 2016

Hazard Type and Ranking	Planning Consideration Based on Hazard Level
Flooding	Significant
Wildfire	Significant
Earthquake	Significant
Landslide	Moderate
Dam Failure	Limited
Climate Change	Moderate

9.5.1 Flood

The City of Buellton ranked the flooding hazard as being a significant risk to the City. Coastal Storm Surge is not a concern to the City of Buellton as it is located inland from the coast.

On July 22, 1993, Buellton adopted a Floodplain Ordinance, (Ordinance No. 17.04). Buellton's Floodplain Ordinance requires all new buildings be built at least 200 feet from the top of bank of the Santa Ynez River and all new buildings are constructed 2 feet above the flood zone. When new projects go through Buellton's approval process, the Planning Commission, City Council, and City Engineer ensure the wastewater treatment plant is protected from flooding inundation.

No significant flooding events have occurred in the City of Buellton within the last 5 years due to storm drain improvements and cleaning.

9.5.2 Wildfire

The City of Buellton ranked the wildfire hazard as being a significant risk to the City.

Buellton contracts with Santa Barbara County for Fire Protection Services. All high fire zones within Buellton are mapped. The Fire Department, as well as Santa Barbara County Building & Safety requires that all commercial development over 5,000 square feet install indoor sprinklers and use fire resistant building materials. Within the unincorporated areas surrounding Buellton, the Fire Department has a vegetative management program that annually inspects all lots in early spring and advises property owners that all brush must be removed by July 1. Within the City Limits, the Buellton Code Enforcement Officer and County Fire undertake a weed abatement program in the Spring.

No wildfire events have impacted the City of Buellton.

9.5.3 Earthquake

The City of Buellton ranked the earthquake hazard as being a significant risk to the City.

Santa Barbara County Officials have indicated that Buellton is located in Seismic Zone 4, which is the highest potential status for earthquake activity in the state of California. Buellton is aware that its fault lines and liquefaction zones are mapped. The City, in conjunction with County Building and Safety, has examined all structures within the City limits and determined that Buellton has no un-reinforced masonry buildings located within Buellton. All of Buellton's water reservoirs are located underground and following the 6.5 San Simeon Earthquake in December 2003, Buellton's Public Works Department determined that all water reservoirs were unaffected and continued to operate normally. Reservoirs 1 and 2 have been completely re-constructed and upgraded as of 2015/2016.

No earthquake events that have affected the City have occurred.

9.5.4 Landslide

The City of Buellton ranked the landslide as being a moderate risk to the City.

Buellton has never had a hazard involving landslides. The identified critical facilities are not located within areas susceptible to landslides.

Coastal Erosion is not a concern to the City of Buellton as it is located inland from the coast.

9.5.5 Dam Failure

The City of Buellton ranked the dam failure hazard as being a limited risk to the City.

Buellton lies approximately 15 miles west of the Bradbury Dam and sits along the Santa Ynez River. If the dam were to fail, Buellton could sustain substantial flooding via the Santa Ynez River. It has been established that the Bradbury Dam has been mapped for inundation. No dam inundation impacts have occurred within the City.

9.5.6 Climate Change

The City of Buellton is not located along the coast so sea level rise associated with climate change would not occur. However, storms with increased severity could exacerbate flooding impacts within the City as well as increase fire hazards. Drought is also associated with climate change, however, drought does not pose a threat to the operation of the City's critical facilities.

9.6 VULNERABILITY ASSESSMENT

The City of Buellton identified 10 critical facilities to be included in the Vulnerability Assessment portion of this plan. These facilities primarily included utilities, government, and educational structures. Of the data that was available, it was shown that these buildings are worth approximately $2 million in structure value. However, dollar values for four of the ten facilities that are not owned by the City of Buellton can be found in the County portion of the HMP. They are provided in this annex for information and planning purposes.

The results of the facilities shown to be exposed to each hazard are shown in the table below:

Hazard Type	Specific Risk	Count or (Average)	% of Critical Facilities Impacted	Exposure*
Flood/Climate				
	FEMA Flood Zone	1	10%	$1,060,000
	Flood Overlay Zone	1	10%	$1,060,000
Fire/Climate				
	Fire Severity Zone	1	10%	$28,321
	WUI	10	100%	$1,895,021
	Fire Threat	8	80%	$835,021
Dam Inundation		5	50%	$1,606,474
Landslide Incidence		0	0%	$0
Earthquake				
	Groundwater/Liquefaction Severity	7	70%	$1,606,474
	Peak Ground Acceleration	(1.73)	N/A	N/A

*- Exposure is based on a combination of building structure value and contents value. In all cases some of the impacted structures had incomplete values for structure, contents, or both.

By using the hazard layers determined to be the best available data for Santa Barbara County, a large majority of the Buellton critical facilities evaluated are at least moderately exposed to the following threats:

- Wildland Urban Interface
- Fire Threat
- Landslide Incidence
- Groundwater/Liquefaction Severity

A full description of the threats in the table above is provided in the County HMP. As the City continues to assess its vulnerability the collection of better data will help to improve the risk assessment process in order to direct planning and mitigation decisions.

Table 9-8 presents the 10 identified critical facilities and available values. The Map ID number for each critical facility corresponds to those found on the following maps showing the location of the critical facilities in relation to the County's profiled hazards. Using a GIS and the data shown in these maps, it was determined which critical facilities are exposed to which hazards by whether or not they fall within the mapped hazard area. The results of the exposure analysis are included below with the corresponding maps.

Table 9-8 Buellton Critical Facilities

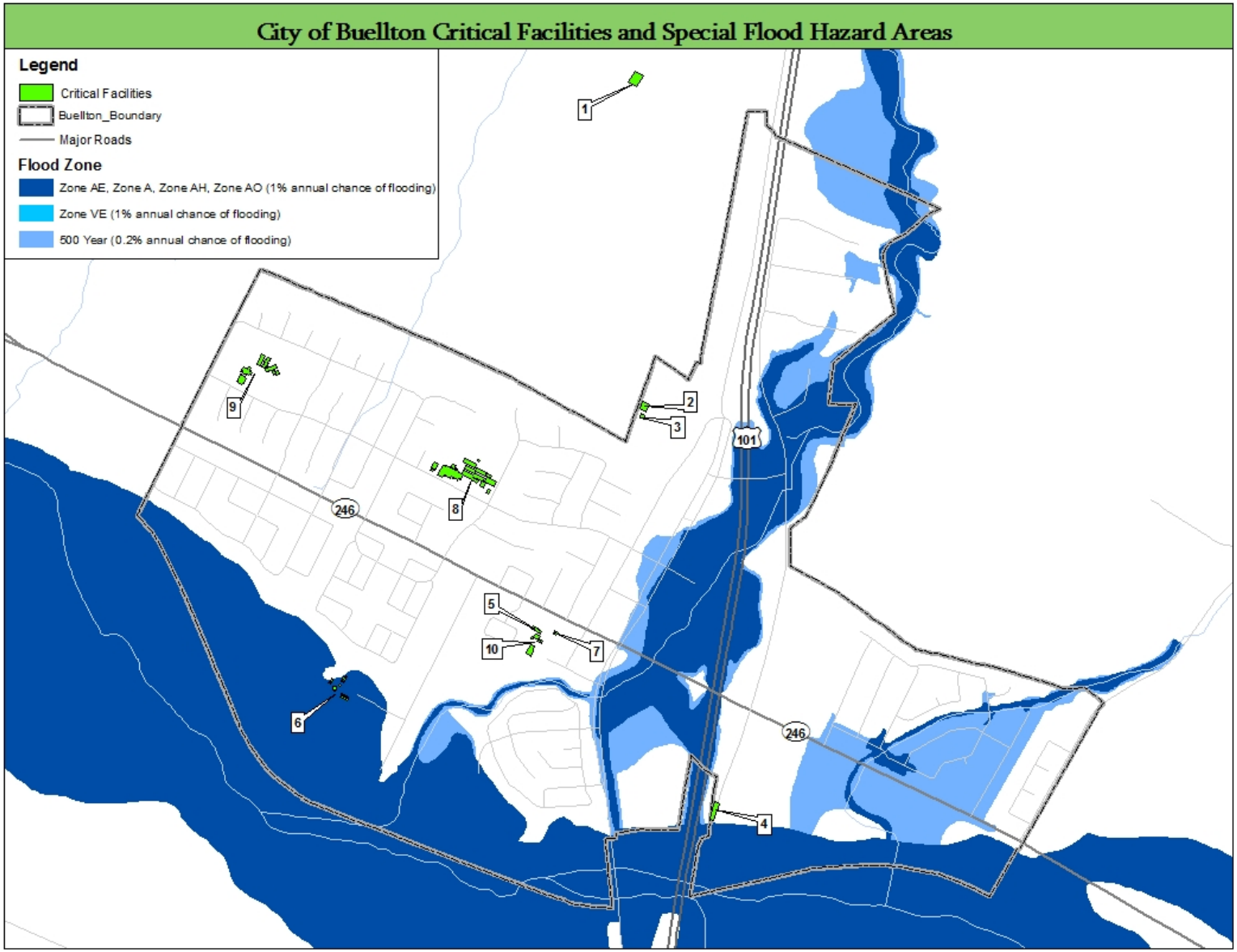
Map ID	Critical Facility	Bldg Value	Capacity
1	Reservoir 1	$28,321	850000
2	Reservoir 2	$83,510	300000
3	Reservoir 3	$176,716	100000
4	McMurray Road Water Treatment Facility	$318,427	
5	Highway 246 Water Treatment Facility	$228,047	
6	Buellton Wastewater Treatment Facility	$1,060,000	
7	SB County Sheriff Buellton Sub-Station	n/a (1)	
8	Jonata School	n/a (1)	
9	Oak Valley School	n/a (1)	
10	SB County Fire Station 31	n/a (1)	

(1) Not City facilities

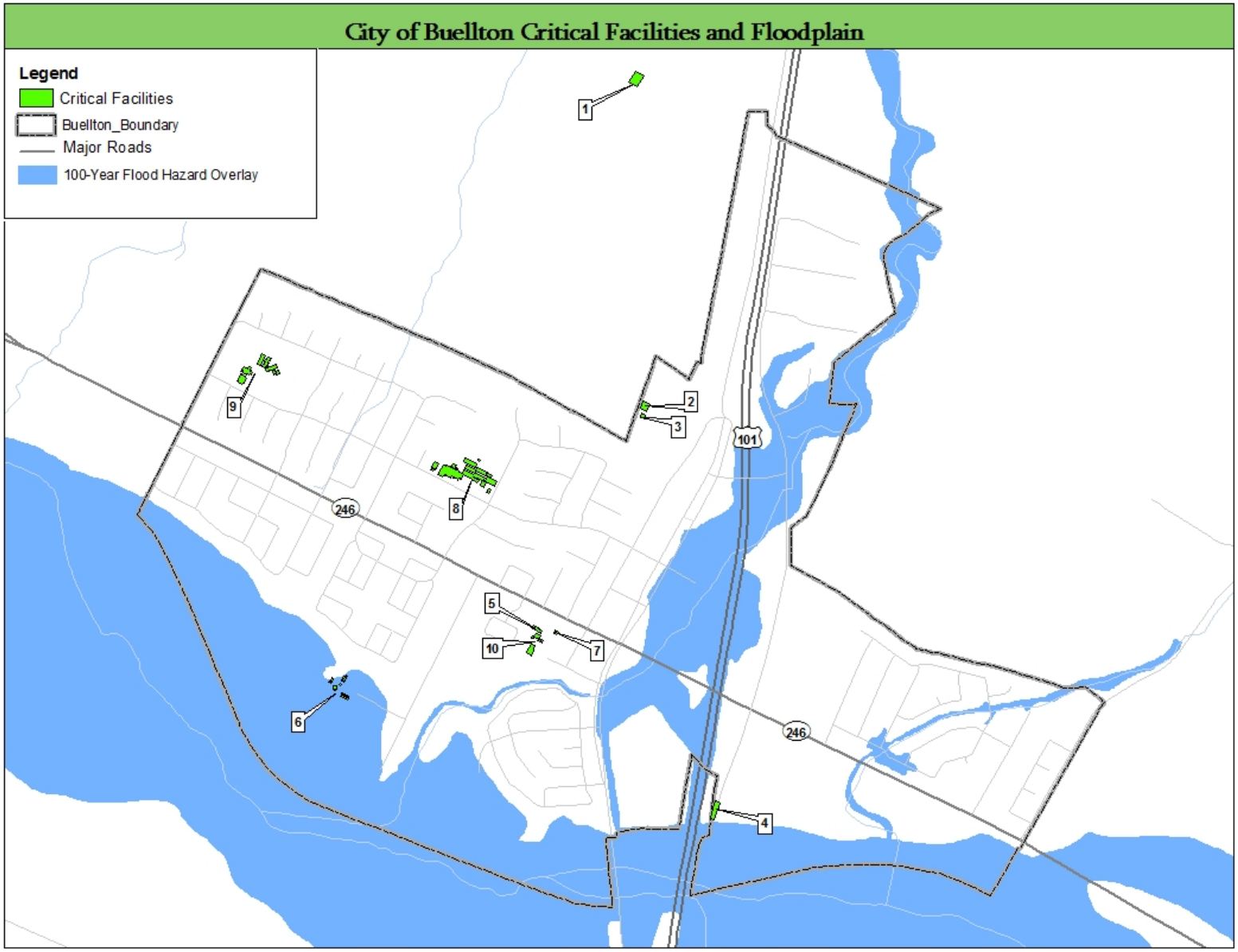
9.6.1 Flood/Climate Vulnerability

				Flood Hazard	
Map ID	**Critical Facility**	**Bldg Value**	**Capacity**	**FEMA Flood Zone**	**Flood Overlay Zone**
1	Reservoir 1	$28,321	850000	Outside Floodplain	Outside Flood Overlay Zone
2	Reservoir 2	$83,510	300000	Outside Floodplain	Outside Flood Overlay Zone
3	Reservoir 3	$176,716	100000	Outside Floodplain	Outside Flood Overlay Zone
4	McMurray Road Water Treatment Facility	$318,427		Outside Floodplain	Outside Flood Overlay Zone
5	Highway 246 Water Treatment Facility	$228,047		Outside Floodplain	Outside Flood Overlay Zone
6	Buellton Wastewater Treatment Facility	$1,060,000		100 Year	100 Year Flood Hazard Overlay
7	SB County Sheriff Buellton Sub-Station			Outside Floodplain	Outside Flood Overlay Zone
8	Jonata School			Outside Floodplain	Outside Flood Overlay Zone
9	Oak Valley School			Outside Floodplain	Outside Flood Overlay Zone
10	SB County Fire Station 31			Outside Floodplain	Outside Flood Overlay Zone
		Exposure		**$1,060,000**	

No new critical facilities have been constructed within the City's identified flood zones. No change to the vulnerability of the WWTP.



Source: Flood Insurance Rate Map (FIRM) Boundaries, Santa Barbara County GIS available at http://www.countyofsb.org/itd/gis/default.aspx?id=2802, September 15, 2009, prepared by FEMA

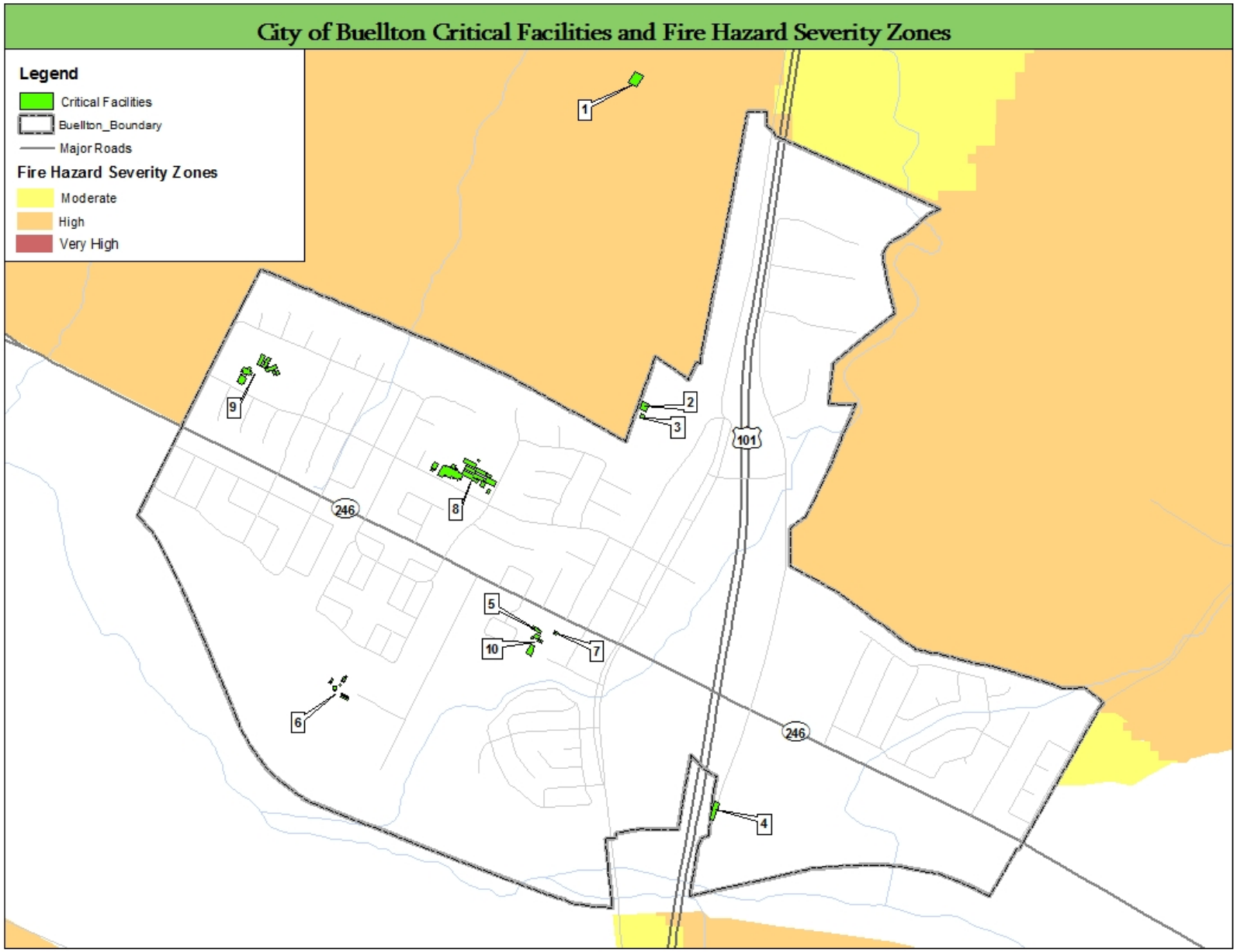


Source: Overlay – Flood Hazard, Santa Barbara County GIS, available at http://www.countyofsb.org/itd/gis/default.aspx?id=2802, November 23, 2010

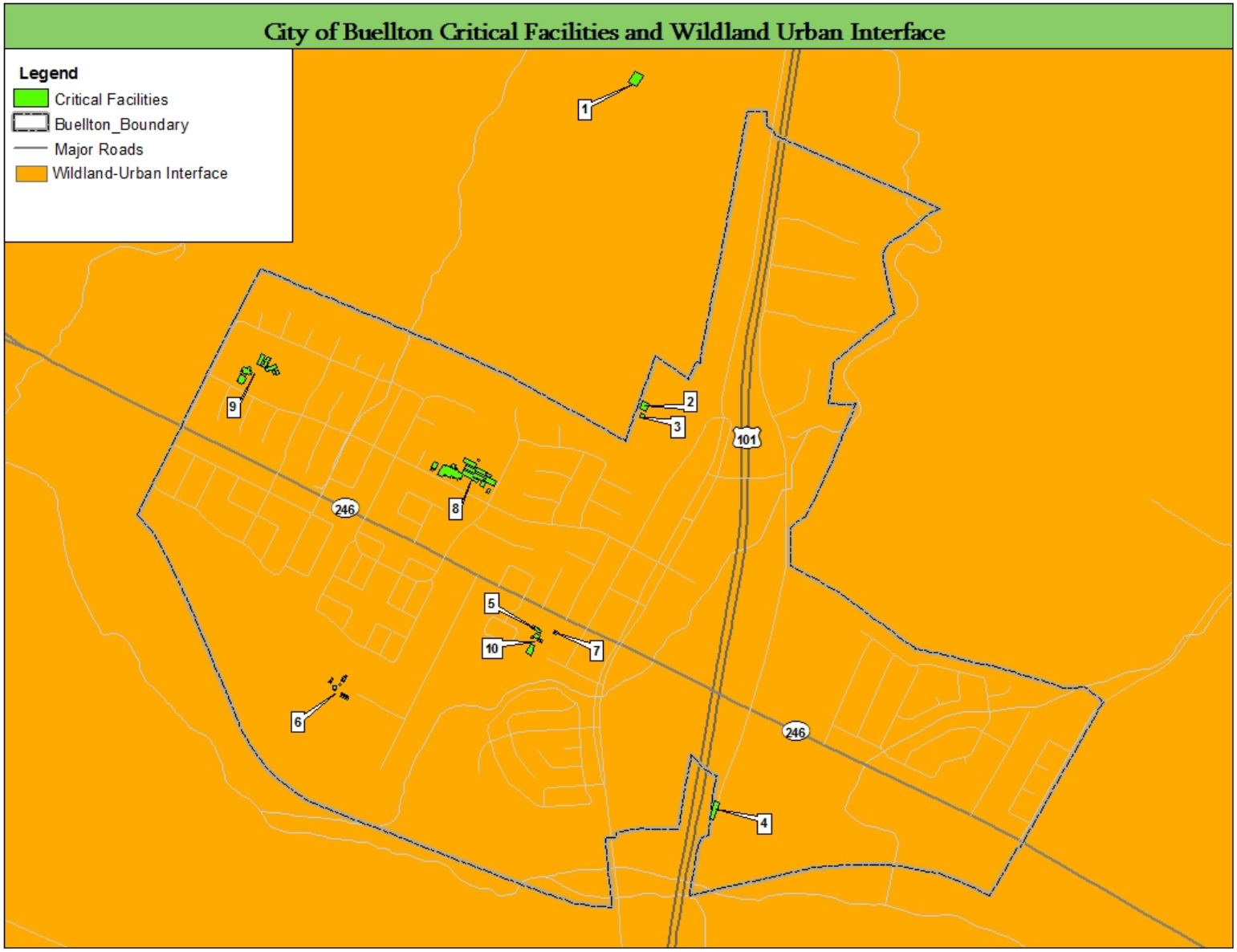
9.6.2 Wildfire/Climate Vulnerability

The data shown below is developed on a statewide basis and does not consider the placement of local neighborhoods within the geography. Santa Barbara County Fire has synthesized the data at a more local level to convey communities at risk. These are presented in the County section of the wildfire hazard profile. Buellton has been designated as a WUI community at risk. No changes to the critical facilities listed or their vulnerability to wildfire.

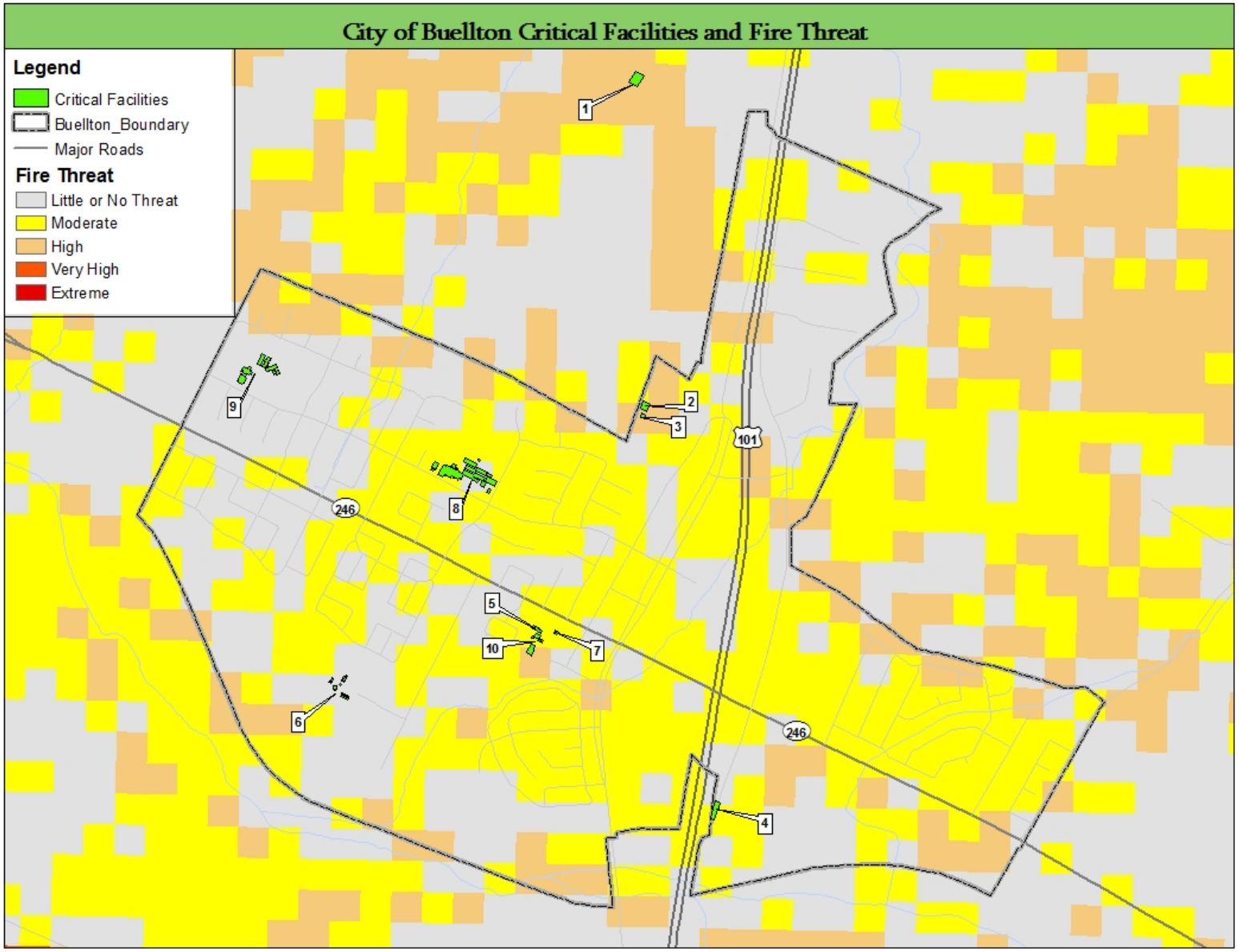
		Fire Hazard		
Map ID	**Critical Facility**	**Fire Severity Zone**	**WUI Zone**	**Fire Threat**
1	Reservoir 1	High Fire Severity	Within WUI Zone	High
2	Reservoir 2	Outside Fire Severity Zone	Within WUI Zone	High
3	Reservoir 3	Outside Fire Severity Zone	Within WUI Zone	High
4	McMurray Road Water Treatment Facility	Outside Fire Severity Zone	Within WUI Zone	Moderate
5	Highway 246 Water Treatment Facility	Outside Fire Severity Zone	Within WUI Zone	Moderate
6	Buellton Wastewater Treatment Facility	Outside Fire Severity Zone	Within WUI Zone	Little or No Threat
7	SB County Sheriff Buellton Sub-Station	Outside Fire Severity Zone	Within WUI Zone	Moderate
8	Jonata School	Outside Fire Severity Zone	Within WUI Zone	Moderate
9	Oak Valley School	Outside Fire Severity Zone	Within WUI Zone	Little or No Threat
10	SB County Fire Station 31	Outside Fire Severity Zone	Within WUI Zone	High/Moderate
	Exposure	**$28,321**	**$1,895,021**	**$835,021**



Source: County of Santa Barbara Fire GIS



Source: Wildland Urban Interface (WUI) Fire Threat, Fire and Resource Assessment Program (FRAP) available at http://frap.cdf.ca.gov/data/frapgisdata/select.asp?theme=5, 2003

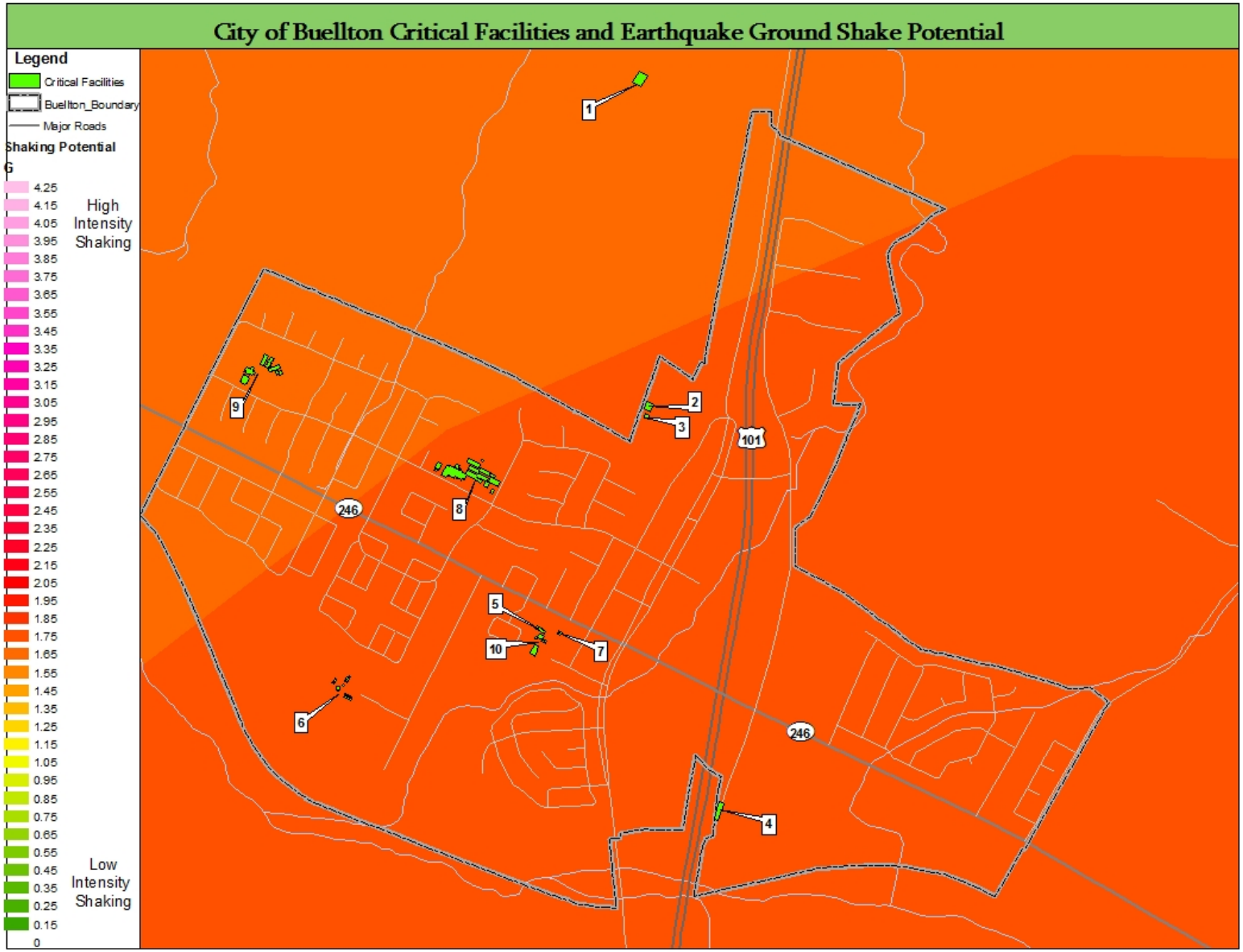


Source: Fire Threat, Fire and Resource Assessment Program (FRAP) available at http://frap.cdf.ca.gov/data/frapgisdata/select.asp?theme=5, 2004

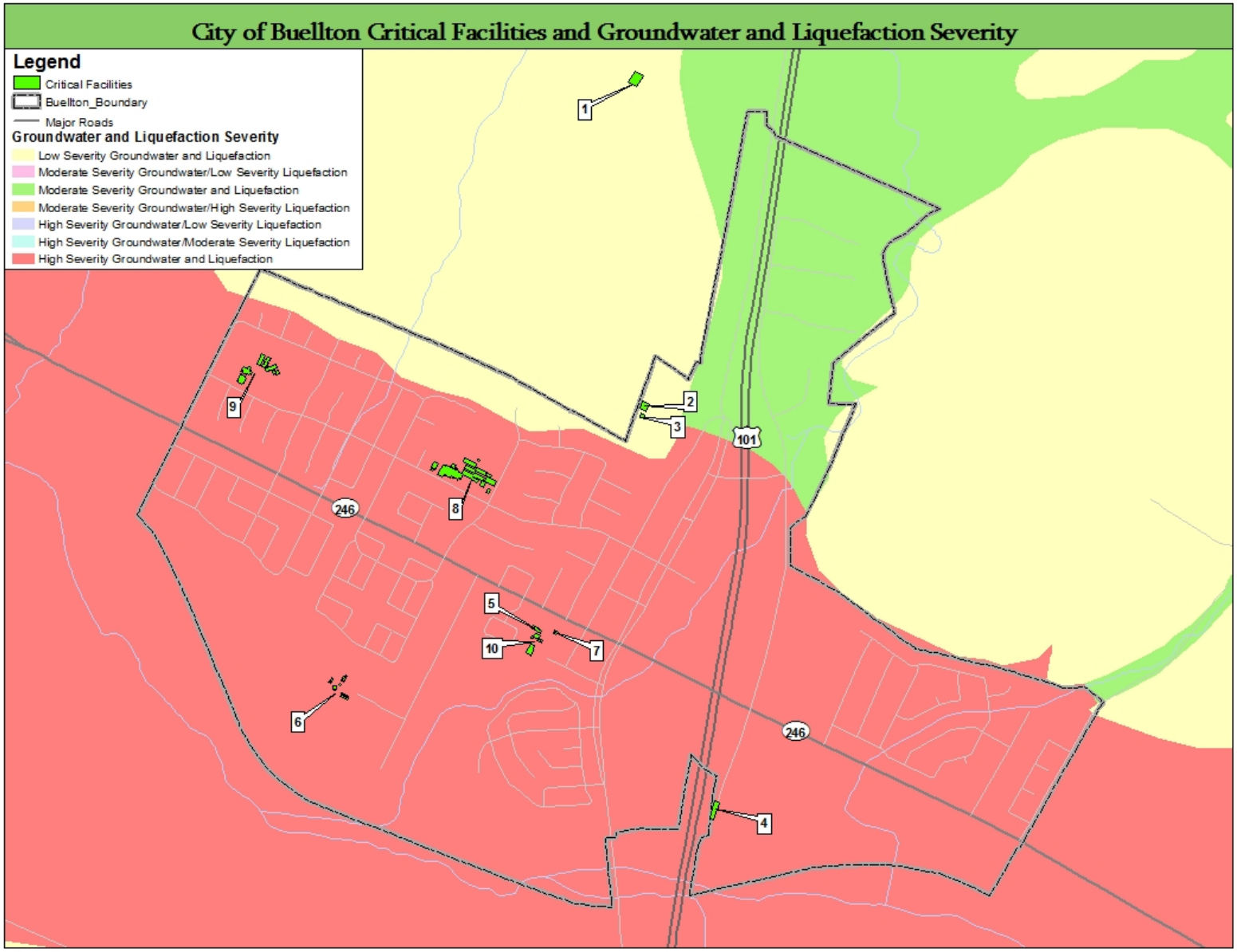
9.6.3 Earthquake Vulnerability

The City of Buellton recognizes that the groundwater/liquefaction data shown below is developed on a statewide basis and does not consider local geography. Although, the mapping shows several critical facilities in a severe liquefaction area, when examined locally, these facilities are not highly susceptible to liquefaction and would be in a low to moderate risk area per the City's General Plan. However, in the interest of public safety, Buellton is considering the facilities noted above to remain in the high category for mitigation planning purposes. No changes to the critical facilities listed or their vulnerability to earthquakes.

Map ID	Critical Facility	Bldg Value	Capacity	Groundwater/Liquefaction	Peak Ground Acceleration
1	Reservoir 1	$28,321	850000	Low/Low	1.65
2	Reservoir 2	$83,510	300000	Low/Low	1.75
3	Reservoir 3	$176,716	100000	Low/Low	1.75
4	McMurray Road Water Treatment Facility	$318,427		High/High	1.75
5	Highway 246 Water Treatment Facility	$228,047		High/High	1.75
6	Buellton Wastewater Treatment Facility	$1,060,000		High/High	1.75
7	SB County Sheriff Buellton Sub-Station			High/High	1.75
8	Jonata School			High/High	1.75
9	Oak Valley School			High/High	1.65
10	SB County Fire Station 31			High/High	1.75
	Exposure	**$1,606,474**			**1.73**



Source: Seismic Shaking Hazard, Obtained from California Geological Survey, for more information: http://www.conservation.ca.gov/cgs/rghm/psha/Pages/index.aspx, 2002



Source: Groundwater Liquefaction, Santa Barbara County GIS, available at http://www.countyofsb.org/itd/gis/default.aspx?id=2802, July 15, 2010, originally prepared by Moore and Taber in 1974

9.6.4 Landslide Vulnerability

The Landslide Incidence and Susceptibility data shown below and used for this exposure analysis was developed on a national scale. Although it shows most of the Buellton critical facilities within a landslide incidence area, local geography indicates otherwise. If mapped at a more local scale, it would be clear that these facilities are not near sloping topography. Therefore, Buellton has determined that no critical facilities are susceptible to landslide hazards. No changes to the critical facilities listed or their vulnerability to landslides.

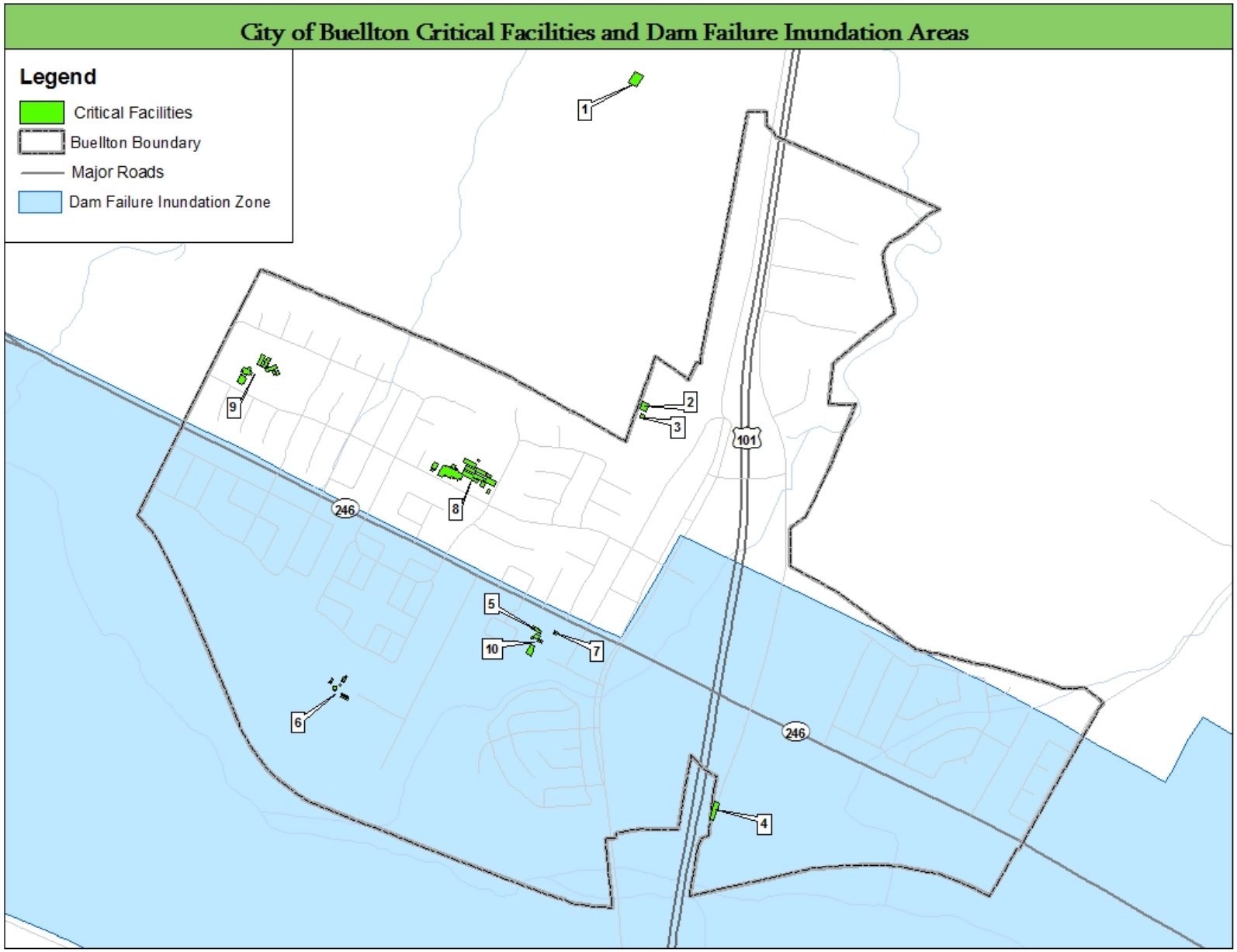
Map ID	Critical Facility	Bldg Value	Capacity	Landslide Incidence
1	Reservoir 1	$28,321	850000	Low
2	Reservoir 2	$83,510	300000	Low
3	Reservoir 3	$176,716	100000	Low
4	McMurray Road Water Treatment Facility	$318,427		Low
5	Highway 246 Water Treatment Facility	$228,047		Low
6	Buellton Wastewater Treatment Facility	$1,060,000		Low
7	SB County Sheriff Buellton Sub-Station			Low
8	Jonata School			Low
9	Oak Valley School			Low
10	SB County Fire Station 31			Low
	Exposure	**$0**		

Source: Landslide Incidence and Susceptibility in the Conterminous US, National Atlas available at http://www.nationalatlas.gov/atlasftp.html#lsoverp, September 2002, Prepared by USGS

9.6.5 Dam Failure Vulnerability

Map ID	Critical Facility	Bldg Value	Capacity	Dam Inundation Zone
1	Reservoir 1	$28,321	850000	Outside Dam Inundation Zone
2	Reservoir 2	$83,510	300000	Outside Dam Inundation Zone
3	Reservoir 3	$176,716	100000	Outside Dam Inundation Zone
4	McMurray Road Water Treatment Facility	$318,427		Bradbury Dam Inundation Zone
5	Highway 246 Water Treatment Facility	$228,047		Bradbury Dam Inundation Zone
6	Buellton Wastewater Treatment Facility	$1,060,000		Bradbury Dam Inundation Zone
7	SB County Sheriff Buellton Sub-Station			Bradbury Dam Inundation Zone
8	Jonata School			Outside Dam Inundation Zone
9	Oak Valley School			Outside Dam Inundation Zone
10	SB County Fire Station 31			Bradbury Dam Inundation Zone
	Exposure	**$1,606,474**		

No changes to the critical facilities listed or their vulnerability to dam unundation.



Source: Santa Barbara County Flood Control and Water Conservation District

9.6.6 Hazard Scenarios

To assess potential impacts on infrastructure and the population in the County and incorporated cities, earthquake and flood scenarios have been analyzed using Hazus1, FEMA's geographic information system (GIS) based, standardized, multi-hazard earthquake, flood and hurricane loss estimation methodology and software. The latest version of Hazus (Hazus 3.0, released in November, 2015) has been used to conduct the county-wide earthquake and flood risk assessments. Results of these assessments can be found in Appendix B.

9.7 MITIGATION STRATEGY

9.7.1 Mitigation Priorities

After review of the hazard identification and risk assessment and capabilities assessment, the LPG conducted meetings in 2015 and 2016 to discuss the results of the hazard identification and risk assessments, review mitigation goals and alternatives based on the priority areas and hazard types, discuss community strengths and weaknesses, and begin developing the mitigation strategy. The following strengths, weaknesses and priorities were identified.

General Observations — Strengths

- Several policies exist that have hazard mitigation elements or effects such as development and building code regulations, the Floodplain Ordinance, the Zoning Ordinance, the General Plan, and other codes and plans discussed in more detail in this section.
- The General Plan has been updated in 2005/2007 with updated policies and program for hazard mitigation.
- A revised Housing Element was adopted 2014.
- Existing codes will ensure that new development (including tear down and rebuild projects) will be built to modern standards, including the Floodplain Ordinance, which exceeds minimum standards. With the current trend of replacing existing substandard buildings with new ones, through attrition a safer community will be constructed.
- Housing improvement funds and programs exist, furthering the strength of the preceding statement.
- GIS, communication technology and trained staff are available to implement a mitigation program.
- Better mapping of floodplains and other hazard areas are now available.
- The Bradbury Dam has been mapped for inundation.
- Area fault lines and liquefaction zones have been mapped.
- All flooding areas have been mapped.
- All high fire areas have been mapped.
- Buellton has no unreinforced masonry buildings within the City limits.
- The County Fire Department has a vegetative program whereby all lots are inspected in the spring and property owners are required to cut vegetation by July 1 for unincorporated areas surrounding the City. Buellton's Code Enforcement Program and County Fire handle weed abatement within the City Limits in the Spring.
- The City, in conjunction with County Fire, conduct Community Emergency Response Team (CERT) training for its citizens and has funded additional CERT classes each year.
- Ranch Club Mobile Home Park has developed an internal CERT team.

General Observations — Weaknesses

- Because Buellton is located next to the Santa Ynez River, just down-stream of the Bradbury Dam, Buellton could sustain substantial flooding in the event of a dam failure.

- Buellton is surrounded by mountains with steep terrain that is covered with brush and trees. During fire season, Buellton is susceptible to wildfire damage.
- Buellton is located in Seismic Zone 4, which is the highest potential status for earthquake activity in the state of California.
- Evacuation remains an issue, particularly as Buellton and surrounding localities grow. Tourist swell in the summer combined with possible disruption caused by flooding or landslides of major egress and access points is a principal concern.

General Observations — Priorities

During the presentation of findings for the hazard identification and risk assessment and capabilities assessment, the LPG provided preliminary input and ideas for mitigation strategies. In formulating goals, the following priorities were identified:

- Top priorities for Buellton are public safety, public education, and reducing potential economic impacts of disasters.
- Experiences from past disasters should be built upon.
- Outreach and training should be a major component, to include Community Emergency Response Team Training (CERT) and early warning & evacuation plans.
- Create defensible space around high fire areas by strategically managing vegetation to decrease the fuel available for fires adjacent to the structures. This is relatively inexpensive, accomplished quickly and is effective as long as the vegetation is managed.
- Recent disasters have resulted from flooding. Buellton would benefit from completing a Drainage Master Plan that would list existing facilities and proposed upgrades.
- Buellton should develop and maintain a disaster warehouse or additional CERT trailers for storage of emergency supplies.

The goals and objectives were developed by considering the risk assessment findings, localized hazard identification and loss/exposure estimates, and an analysis of the jurisdiction's current capabilities assessment. These preliminary goals, objectives and actions were developed to represent a vision of long-term hazard reduction or enhancement of capabilities. To help in further development of these goals and objectives, the LPT compiled and reviewed current jurisdictional sources including Buellton's planning documents, codes, and ordinances and specifically discussed hazard-related goals, objectives and actions as they related to the overall Plan.

Goal 1: Promote disaster-resistant future development.
Objective 1.A: Facilitate the development or updating of the City's General Plan and zoning ordinances to limit (or ensure safe) development in hazard areas.
Objective 1.B: Facilitate the adoption of building codes and development regulations that protect existing assets and require disaster resistant design for new development in hazard areas.
Objective 1.C: Facilitate consistent enforcement of the general plan, zoning ordinances, and building and fire codes
Objective 1.D: Address identified data limitations regarding the lack of information about new development and build-out potential in

high hazard areas.
Objective 1.E: Educate the professional community on design and construction techniques that will minimize damage from the identified hazards
Notes: This goal focuses on the programmatic/policy approaches to reducing risk to future new development. Building and fire codes are updated on a regular basis in California. The City contracts with County Building and Safety for building code implementation and County Fire for fire code implementation.
Goal 2: Build and support capacity and commitment for existing assets, including people, critical facilities/infrastructure, and public facilities, to become less vulnerable to hazards.
Objective 2.A: Increase awareness and knowledge of hazard mitigation principles and practice among local government officials.
Objective 2.B: Provide technical assistance to local governments to implement their mitigation plans.
Objective 2.C: Address data limitations identified in Hazard Profiling and Risk Assessment
Objective 2.D: Decrease the vulnerability of public infrastructure including facilities, roadways, and utilities.
Objective 2.E: Protect existing structures with the highest relative vulnerability to the effects of identified hazards through structural mitigation projects.
Notes: This goal focuses on the programmatic and structural approaches to reducing risk to existing development. The term "local government" is used to refer to city, county, and special districts.
Goal 3: Enhance hazard mitigation coordination and communication.
Objective 3.A: Educate the public to increase awareness of hazards, potential impact, and opportunities for mitigation actions.
Objective 3.B: Monitor and publicize the effectiveness of mitigation actions implemented countywide.
Objective 3.C: Participate in initiatives that have mutual hazard mitigation benefits for the County, cities, state, tribal, and federal governments.
Objective 3.D: Encourage other organizations, within the public, private, and non-profit sectors, to incorporate hazard mitigation activities into their existing programs and plans.
Objective 3.E: Continue partnerships between the state, local, and tribal governments to identify, prioritize, and implement mitigation actions.
Objective 3.F: Continuously improve the County's capability and efficiency at administering pre- and post-disaster mitigation programs, including providing technical support to cities and special districts.
Objective 3.G: Support a coordinated permitting activities process and consistent enforcement.

Note: This goal focuses on communication and coordination required for successful mitigation of risk.

9.7.2 Mitigation Progress

The City's Local Planning Group reviewed the mitigation actions listed in the 2011 plan to determine the status of each action. The following table includes only the actions that have been completed or were underway as of January 2016.

Ultimately, all of these projects will be completed and are no longer necessary for consideration by the LPG regarding implementation approaches. Mitigation actions identified for future implementation are presented in the following section.

Table 9-9 Completed and In-Progress Mitigation Actions

2011 Plan Action #	Mitigation Action Description	Status	Completion Date	Comments
2011-1	Continue to implement hazard mitigation training for all residents to include Community Emergency Response Training (CERT).	In progress	Ongoing	CERT training continues to be provided in conjunction with County Fire.
2011-2	Complete Citywide Drainage Study and Drainage Master Plan to minimize flooding hazards	In progress	Ongoing	Studies conducted on a case-by-case basis
2011-3	Disseminate Effective Emergency Notifications and Communications to the Public	In progress	Ongoing	Worked with County OEM and County Sheriff on notification protocols; maintain emergency preparedness information on City's Website
2011-4	Disaster Early Warning and Evacuation Plan in the event of a major earthquake and/or dam failure	In progress	Ongoing	County Sheriff is working on County-wide plan that includes Buellton

9.7.3 Mitigation Approach

The City's critical facilities listed in Table 9-8 have been in their current location since the 1950s and the City of Buellton assumed control over them when the City incorporated in 1992. The critical facilities have constantly been improved since the 1950s and are not in need of structural improvements to safeguard them from the identified hazards in the City. Therefore, future mitigation actions focus on operational preparedness Citywide.

Table 9-10 Mitigation Actions for Future Implementation

Action #	Mitigation Action Description	Status	Completion Date	Comments/Priority
2016-1	Continue to develop operational preparedness on a City-wide level via Community Emergency Response Training (CERT) and the purchase of a second CERT trailer	Ongoing	Ongoing	CERT training continues to be provided in conjunction with County Fire and the City's Emergency Consultant. Second CERT trailer purchased – Priority 1 Funded through the General Fund
2016-2	Complete Citywide Drainage Study and Drainage Master Plan to minimize flooding hazards	Ongoing	2018	Complete remaining flood zone area – Priority 1 Funded through the General Fund
2016-3	Disseminate Effective Emergency Notifications and Communications to the Public	Ongoing	Ongoing	Worked with County OEM and County Sheriff on notification protocols; maintain emergency preparedness information on City's Website; implement the Everbridge notification system – Priority 1 Funded through the General Fund
2016-4	Disaster Early Warning and Evacuation Plan in the event of a major earthquake and/or dam failure	Ongoing	Ongoing	County Sheriff is working on County-wide plan that includes Buellton – Priority 2 Funded through the General Fund

9.7.4 Implementation Plan

Mitigation Action # 2016 – 1

Project Description: As an operational preparedness objective, continue to implement hazard mitigation training City-wide to include Community Emergency Response Training (CERT). Purchase a second CERT trailer.		
Applicable Hazards		
Significant	**Moderate**	**Limited**
☒ Flooding /Climate ☒ Wildfire/Climate ☒ Earthquake	☒ Landslide	☒ Dam Failure
Existing and Potential Resources: City's Emergency Coordinator, City budget line item for CERT courses and CERT trailer, County Fire Department		
Responsible Department: City Manager's Office		
Target Completion Date: Ongoing		
Additional Comments / Status Report: Goal is to have at least one CERT course held each year in Buellton – last CERT class held in March 2016, next one in March 2017. Second CERT trailer purchased. These are part of the City's Emergency Management Plan.		

Mitigation Action # 2016 – 2
Project Description: Complete Citywide Drainage Study and Drainage Master Plan to minimize flooding hazards
Applicable Hazards

Significant	Moderate	Limited
☒ Flooding ☐ Wildfire ☐ Earthquake	☐ Landslide	☒ Dam Failure
Existing and Potential Resources: City Engineer and Public Works Department staff, City budget line item for completion of studies		
Responsible Department: City Engineer		
Target Completion Date: 2017/2018		
Additional Comments / Status Report: Two out of five flood zones areas remain to be completed. Part of the City's Capital Improvement Plan and Floodplain Ordinance.		

Mitigation Action # 2016 – 3		
Project Description: Disseminate Effective Emergency Notifications and Communications to the Public		
Applicable Hazards		
Significant	**Moderate**	**Limited**
☒ Flooding ☒ Wildfire ☒ Earthquake	☐ Landslide	☒ Dam Failure

Existing and Potential Resources: County OEM, County Sheriff, City staff
Responsible Department: Planning Department, County OEM, County Sheriff
Target Completion Date: Ongoing
Additional Comments / Status Report: Working with County OEM to implement the Everbridge emergency notification system. Part of the City's Emergency Management Plan.

Mitigation Action # 2016 – 4		
Project Description: Disaster Early Warning and Evacuation Plan in the event of a major earthquake and/or dam failure		
Applicable Hazards		
Significant	**Moderate**	**Limited**
☒ Flooding ☐ Wildfire ☒ Earthquake	☐ Landslide	☒ Dam Failure
Existing and Potential Resources: County OEM and County Sheriff		
Responsible Department: County OEM and County Sheriff		
Target Completion Date: Ongoing. Part of County planning process.		

Additional Comments / Status Report:

9.8 PLAN MAINTENANCE

9.8.1 Monitoring, evaluating, updating the plan

Since the last Hazard Mitigation Plan was adopted in 2011, the City uses the plan when reviewing projects and policies in the City of Buellton. The project team discusses emergency hazard mitigation at its twice monthly staff meetings as needed. The City of Buellton was very successful in implementing the 2011 mitigation actions as noted in Table 9-9. Numerous mitigation actions set forth in the 2011 plan are ongoing by the time of this Update. The current plan will be incorporated into the City's Safety Element of the General Plan.

The City of Buellton City Manager will be responsible for ensuring that this annex is monitored on a yearly basis. The City will continue to participate in the countywide Mitigation Advisory Committee and attend the annual meeting organized by the County Office of Emergency Management to discuss items to be updated/added in future revisions of this plan.

Major disasters affecting Buellton's community, legal changes, notices from Santa Barbara County (lead agency for the County-wide Plan), and other significant events may trigger revisions to this plan or a convening of the Local Planning Group. The City of Buellton's local planning group, in collaboration with Santa Barbara County, will determine how often and when the plan should be updated. In order to remain eligible for mitigation grant funding from FEMA, the City is committed to revising the plan at a minimum of every five years.

The City will contact the county four years after this plan is approved to ensure that the county plans to undertake the plan update process. The jurisdictions within Santa Barbara County should continue to work together on updating this multi-jurisdictional plan.

The public will continue to be involved whenever the plan is updated and as appropriate during the monitoring and evaluation process. Prior to adoption of updates, the City will provide the opportunity for the public to comment on the updates. A public notice will be published prior to the meeting to announce the comment period and meeting logistics. Moreover, the City will engage stakeholders in community emergency planning.

9.8.2 Point of Contact

Comments or suggestions regarding this plan may be submitted at any time to Marc Bierdzinski, City Manager/Emergency Services Manager.

Contact information:
City of Buellton
City Manager
P.O. Box 1819
Buellton, CA 93427
marcb@cityofbuellton.com
Phone: 805-688-5177
Fax: 805-686-0086

Appendix A

City Council Resolution No. 17-13

RESOLUTION NO. 17-13

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF BUELLTON, CALIFORNIA, ADOPTING THE 2017 CITY OF BUELLTON ANNEX TO THE SANTA BARBARA COUNTY LOCAL HAZARD MITIGATION PLAN

BE IT RESOLVED by the City Council of the City of Buellton as follows:

SECTION 1:

a. The Federal Disaster Mitigation Act of 2000 (Act), as described in 44 CFR Section 201.6, mandates local governments to submit and maintain a Federal Emergency Management Agency (FEMA) approved local hazard mitigation plan (LHMP).

b. The City of Buellton has participated in a county-wide multi-jurisdictional LHMP with Santa Barbara County as the lead agency.

c. The Multi-Jurisdictional LHMP identifies each jurisdiction's risk assessment and mitigation strategies to reduce the impacts of natural disasters on the public and local governments.

d. Identification of hazards in the City assists with response planning, exercise development, public education and awareness, and other emergency management functions.

e. FEMA has approved the Santa Barbara County Multi-Jurisdictional LHMP and has given preliminary approval to Buellton's Annex.

f. The Act requires the local Annex to the LHMP to be formally adopted by the City Council and provided to FEMA for formal approval.

SECTION 2: All proceedings having been duly taken as required by law, and upon review of the information provided in the staff report, consideration of the testimony given at the public hearing, as well as other pertinent information, the City Council finds the following:

A. Record. Prior to rendering a decision on the Project, the City Council considered the following:

1. All public testimony, both written and oral, received in conjunction with that certain public meeting conducted by the City Council on July 27, 2017 ("City Council Public Meeting").

2. All oral, written and visual materials presented by City staff in conjunction with that certain City Council Public Meeting.

3. The following informational documents, which by reference, are incorporated herein:

   a. The staff report dated July 27, 2017 (the "Staff Report").

b. The July 2017 City of Buellton LHMP Annex.

B. Public Review. On the basis of evidence hereinafter listed, the following administrative procedures and public participation requirements were followed:

1. The Agenda for the Public Meeting was posted in two conspicuous public places on July 21, 2017.

2. In May 2015, an online survey in both English and Spanish was distributed county-wide to solicit public input on the LHMP. The City of Buellton notified residents and businesses of the survey through posting on the City's website and e-mails to stakeholder groups. Hard copies were also made available in City Hall.

3. Two community town hall meetings were held on July 15, 2016, in Goleta and Solvang.

4. The Draft LHMP for all jurisdictions was made available for public review from July 14, 2016, through July 27, 2016.

C. Environmental Review. This project is exempt from the California Environmental Quality Act because it can be seen with certainty that there is no possibility that the activity in question may have a significant effect on the environment (CEQA Guidelines Section 15061(b)(3)).

SECTION 3: Based on the findings set forth in Sections 1 and 2, the City Council hereby:

a. Approves and adopts the 2017 Buellton Annex of the LHMP.

SECTION 4: The City Clerk shall certify as to the adoption of this Resolution.

PASSED, APPROVED and ADOPTED this 27th day of July 2017.

Holly Sierra
Mayor

Linda Reid
City Clerk

I, Linda Reid, City Clerk of the City of Buellton, do hereby certify that the foregoing Resolution No. 17-13 was duly adopted by the City Council of the City of Buellton at the regular meeting held on the 27th day of July 2017 by the following vote of the Council:

AYES:	5	Council Members King, Mercado, Reif, Vice Mayor Andrisek, and Mayor Sierra
NOES:	0	
ABSENT:	0	
ABSTAIN:	0	

Linda Reid
City Clerk

Appendix B

Vulnerability Hazard Scenarios

Hazus Software and Inventory Data

To assess potential impacts on infrastructure and the population in the County and incorporated cities, earthquake and flood scenarios have been analyzed using Hazus[1], FEMA's geographic information system (GIS) based, standardized, multi-hazard earthquake, flood and hurricane loss estimation methodology and software. The latest version of Hazus (Hazus 3.0, released in November, 2015) has been used to conduct the county-wide earthquake and flood risk assessments. Hazus' standard configuration allows for "out-of-the-box" regional or community-wide loss assessment using default ("Level 1") building inventory databases, aggregated to the census tract (earthquake) or census block (flood) level. A summary of Hazus' default building inventory data for Santa Barbara County, and the City of Buellton are given in **Table 1** (by general occupancy) and **Table 2** (by general building type). The distribution of buildings across the various construction classes given in **Table 2** is estimated using Hazus' default relationships (e.g., x percent of offices may be built of concrete frame, y% of offices may be built of reinforced masonry, etc.). The actual distribution of building across these construction types may be different. For example, the California Seismic Safety Commission (CSSC) published results of unreinforced masonry building surveys (CSSC, 2006), which indicate that the 23 URM buildings in Unincorporated Santa Barbara County have been retrofitted (vs. 185 URM buildings predicted by the default database). No URM buildings are located within the Buellton City Limits.

Table 3 provides a summary of the default data for police stations, fire stations and public schools contained in the Hazus essential facilities database for Santa Barbara County, and the City of Buellton. (The default fire station database was missing a significant number of facilities for Santa Barbara County, which have been manually added to the default database). **Table 3** also indicates the construction type and design level assumed by Hazus for these facilities; all are assumed to be wood frame of either High or Moderate code design level. A more accurate risk assessment could be conducted if additional facility information was collected, such as structural system, number of stories, year of construction/seismic code used for design, building square footage, building replacement value, and content replacement value. It should be noted that the Hazus default database represents each school campus with a single building record of an assumed construction type. In reality, most public schools are multi-building campuses, built over a period of years (i.e., buildings may be designed to different seismic codes). To improve the risk assessment for public schools, information on each individual building would need to be collected.

[1] For more information on Hazus, see: http://www.fema.gov/hazus

Table 1: Hazus 3.0 Default Building Inventory Data for Santa Barbara County and the City of Buellton, by General Occupancy

Jurisdiction	General Occupancy	Building Replacement Value ($1,000)	Contents Replacement Value ($1,000)	Building Square Footage (1,000 Sq. Ft.)	Estimated Building Count
Santa Barbara County	Residential	$34,724,716	$17,364,871	231,312	116,304
	Commercial	$6,387,442	$6,837,941	38,617	7,325
	Industrial	$1,307,134	$1,815,947	9,609	1,934
	Other	$1,805,563	$1,905,059	11,455	1,810
	Total	**$44,224,855**	**$27,923,818**	**290,993**	**127,373**
City of Buellton	Residential	$741,749	$370,948	5,023	2,825
	Commercial	$112.199	$114,197	703	153
	Industrial	$94,129	$136,999	637	55
	Other	$39,064	$40,562	266	55
	Total	**$987,061**	**$662,706**	**6,629**	**3,088**
	% of County Total	2.2%	2.4%	2.3%	2.4%

Table 2: Hazus 3.0 Default Building Inventory Data for Santa Barbara County and the City of Buellton, by General Building Type

Jurisdiction	General Building Type	Building Replacement Value ($1,000)	Building Replacement Value (%)	Estimated Building Count	% of Building Count
Santa Barbara County	Concrete	$2,492,739	5.6%	2,396	2%
	Manufactured Housing	$415,023	0.9%	7,669	6%
	Precast Concrete	$1,556,413	3.5%	2,005	2%
	Reinforced Masonry	$3,088,459	7.0%	3,858	3%
	Steel	$2,461,502	5.6%	2,614	2%
	Unreinforced Masonry	$614,394	1.4%	727	1%
	Wood Frame (Other)	$1,733,790	3.9%	2,001	2%
	Wood Frame (Single-family)	$31,862,522	72.0%	106,108	83%
	TOTAL	**$44,224,842**		**127,378**	
City of Buellton	Concrete	$42,887	4.3%	42	1%
	Manufactured Housing	$25,874	2.6%	483	16%
	Precast Concrete	$41,661	4.2%	44	1%
	Reinforced Masonry	$70,027	5.9%	91	4%
	Steel	$72,861	7.4%	60	2%
	Unreinforced Masonry	$0	1.2%	0	0%
	Wood Frame (Other)	$33,594	3.4%	42	1%
	Wood Frame (Single-family)	$700,157	70.9%	2,327	75%
	TOTAL	**$987,061**		**44,841**	
	% of County Total	**2.2%**		**35.2%**	

Table 3: Hazus 3.0 Default Essential Facilities Data for Santa Barbara County and the City of Buellton

Essential Facility Type	Hazus Default Structural Class and Design Level	Santa Barbara County	City of Buellton
Fire Stations*	W1 (Wood Frame ≤ 5,000 Sq.Ft.), Moderate Code Design Level	41	1
Police Stations	W1 (Wood Frame ≤ 5,000 Sq.Ft.), Moderate Code Design Level	16	1
Public Schools	W1 (Wood Frame ≤ 5,000 Sq.Ft.), High Code Design Level	123	2

* For the current assessment, the default fire station data has been revised to include missing stations.

Hazus earthquake risk assessment

Two earthquake scenarios developed by the United States Geological Survey (USGS), as shown in **Figure 1**, were selected to assess the range of impacts across the county. County-level maps of ground shaking for the same scenarios are shown in **Figures 2 and 3.**

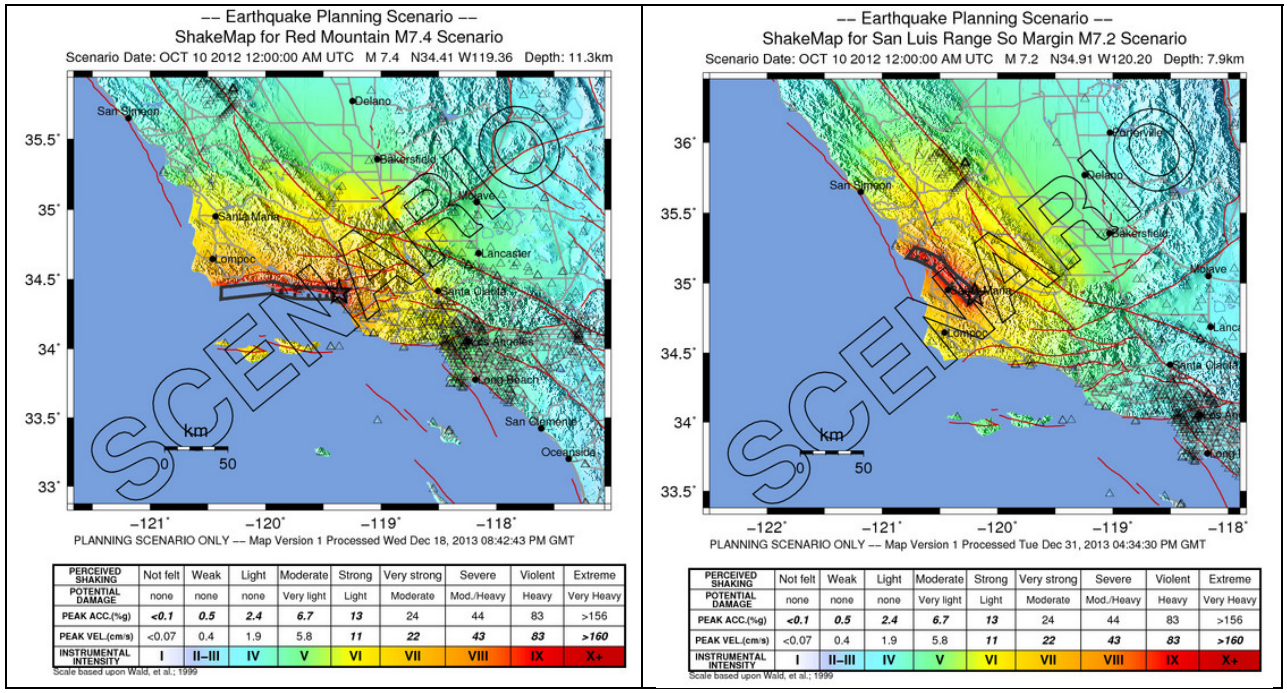


Figure 1: Scenario 1 (Left) – M7.4 Earthquake on the Red Mountain Fault (Source: USGS, http://earthquake.usgs.gov/earthquakes/shakemap/sc/shake/red_mountain_m7.4_se/) and Scenario 2 (Right) M7.2 Earthquake on the San Luis Range Fault, South Margin (Source: USGS, http://earthquake.usgs.gov/earthquakes/shakemap/sc/shake/san_luis_range_so_margin_m7.2_se/)

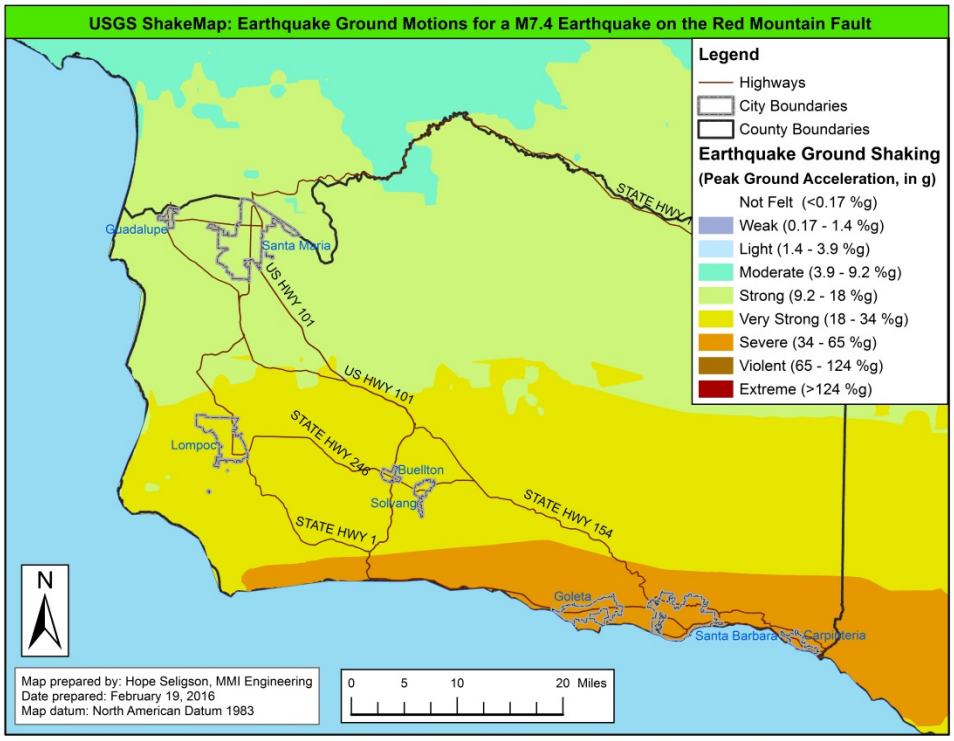


Figure 2: USGS ShakeMap Ground Motions for Santa Barbara County for a M7.4 Earthquake on the Red Mountain Fault (Scenario 1)

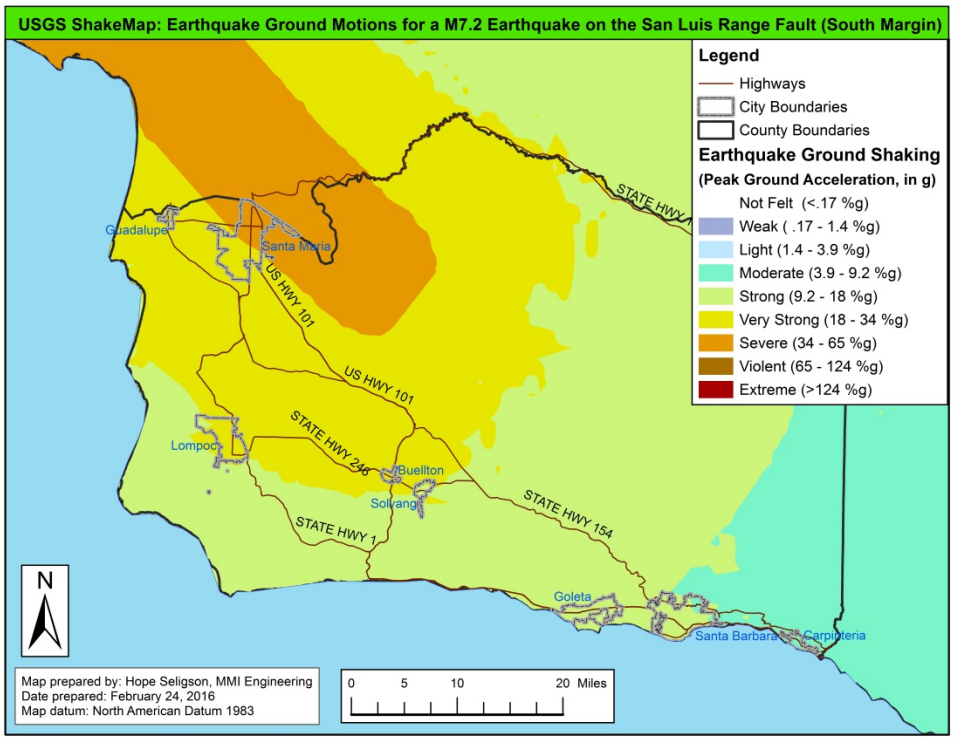


Figure 3: USGS ShakeMap Ground Motions for Santa Barbara County for a M7.2 Earthquake on the San Luis Range Fault, South Margin (Scenario 2)

As noted above, the latest version of Hazus (Hazus 3.0, released in November, 2015) was used to conduct county-wide earthquake risk assessments. Hazus results, computed at the census tract level, were aggregated to produce city-level impact summaries. An overview of the county-wide results for both scenarios is provided in **Table 4**, along with the sub-set of results that represent the City of Buellton. As shown, the M7.4 Red Mountain Fault earthquake scenario (which impacts the southern part of the county) generates less building damage and loss in the City of Buellton than the M7.2 San Luis Range Fault earthquake scenario (which impacts the northern part of the County).

Table 5 provides a breakdown of estimated building damage (building count by Hazus damage state) by general building type, allowing for an understanding of the distribution of predicted damage in the modeled scenarios.

Functionality of essential facilities included in the Hazus default database (with additional fire station facilities added) in the two scenario earthquakes is summarized in **Table 6** for Santa Barbara County and the City of Buellton.

Table 4: Estimated Impacts for Two Earthquake Scenario Events Affecting Santa Barbara County

		Santa Barbara County		City of Buellton	
	Scenario	M7.4 Red Mountain	M7.2 San Luis Range South Margin	M7.4 Red Mountain	M7.2 San Luis Range South Margin
Direct Economic Losses for Buildings ($1,000)					
	Total Building Exposure Value	**44,224,855**		**987,061**	
Capital Stock Losses	Cost of Structural Damage	434,128	92,238	405	1,888
	Cost of Non-Structural Damage	1,782,698	431,791	3,942	10,477
	Total Building Damage (Str. + Non-Str.)	**2,216,826**	**524,029**	**4,348**	**12,366**
	Building Loss Ratio %	5.0%	1.2%	0.4%	1.3%
	Cost of Contents Damage	688,049	176,643	2,221	4,989
	Inventory Loss	15,507	3,463	137	272
Income Losses	Relocation Loss	186,261	39,827	94	604
	Capital-Related Loss	129,318	23,692	55	350
	Rental Income Loss	116,283	21,160	60	333
	Wage Losses	157,673	31,615	62	400
	Total Direct Economic Loss	**3,509,917**	**820,429**	**6,977**	**19,313**
	% Of Countywide Loss	**100.0%**	**100.0%**	**0.2%**	**2.4%**
Casualties					
Day Casualties	**Casualties - 2 pm**				
	Level 1 - minor injuries, basic first aid	1,163	288	0	2
	Level 2 - hospital treat & release	297	63	0	0
	Level 3 - injuries requiring hospitalization	47	9	0	0
	Level 4 - fatalities	**87**	**17**	**0**	**0**
	Total Casualties	**1,594**	**377**	**0**	**2**
Night Casualties	**Casualties - 2 am**				
	Level 1 - minor injuries, basic first aid	467	138	0	2
	Level 2 - hospital treat & release	94	20	0	0
	Level 3 - injuries requiring hospitalization	11	2	0	0
	Level 4 - fatalities	**21**	**3**	**0**	**0**
	Total Casualties	**593**	**163**	**0**	**2**
Shelter					
Shelter	Displaced Households	2,485	355	0	0
	People Requiring Short-term Shelter	1,719	367	0	0
Debris (thousands of tons)					
Debris	Brick, Wood & Other (Light) Debris	240	61	0.3	1.2
	Concrete & Steel (Heavy) Debris	592	99	0.2	1.2
	Total Debris	**832**	**160**	**0.5**	**2.4**

Table 5: Estimated Building Damage (Building Count by General Building type, by Damage State) for Two Earthquake Scenario Events Affecting Santa Barbara County

		Santa Barbara County		City of Buellton	
		M7.4 Red Mountain	M7.2 San Luis Range South Margin	M7.4 Red Mountain	M7.2 San Luis Range South Margin
Concrete	None	1,035	1,922	38	28
	Slight	502	258	3	10
	Moderate	479	140	0	4
	Extensive	255	59	0	0
	Complete	125	18	0	0
	TOTAL	**2,396**	**2,397**	**41**	**42**
Manuf. Housing	None	3,266	3,767	342	131
	Slight	1,044	1,320	105	200
	Moderate	991	1,560	34	138
	Extensive	1,705	841	1	14
	Complete	665	184	0	0
	TOTAL	**7,671**	**7,672**	**482**	**483**
Precast Concrete	None	795	1,524	39	27
	Slight	320	242	4	12
	Moderate	541	178	1	5
	Extensive	265	48	0	0
	Complete	80	10	0	0
	TOTAL	**2,001**	**2,002**	**44**	**44**
Reinforced Masonry	None	1,978	3,231	85	70
	Slight	672	330	5	15
	Moderate	815	222	0	5
	Extensive	300	64	0	1
	Complete	93	12	0	0
	TOTAL	**3,858**	**3,859**	**90**	**90**
Steel	None	977	1,985	52	36
	Slight	322	260	7	15
	Moderate	605	241	2	8
	Extensive	534	101	0	1
	Complete	170	22	0	0
	TOTAL	**2,608**	**2,609**	**61**	**60**
Unreinforced Masonry	None	259	534	0	0
	Slight	110	99	0	0
	Moderate	154	63	0	0
	Extensive	119	23	0	0
	Complete	84	8	0	0
	TOTAL	**726**	**727**	**0**	**0**

Table 5 (Continued): Estimated Building Damage (Building Count by General Building type, by Damage State) for Two Earthquake Scenario Events Affecting Santa Barbara County

		Santa Barbara County		Unincorporated County	
		M7.4 Red Mountain	M7.2 San Luis Range South Margin	M7.4 Red Mountain	M7.2 San Luis Range South Margin
Wood Frame (Other)	None	888	1,604	39	29
	Slight	521	257	3	11
	Moderate	419	111	0	2
	Extensive	139	25	0	0
	Complete	32	4	0	0
	TOTAL	**1,999**	**2,001**	**42**	**42**
Wood Frame (Single-family)	None	64,022	86,952	2,218	1,859
	Slight	34,839	17,301	109	457
	Moderate	7,180	1,846	1	12
	Extensive	68	12	0	0
	Complete	1	0	0	0
	TOTAL	**106,110**	**106,111**	**2,328**	**2,328**
ALL BUILDING TYPES	None	73,220	101,519	2,813	2,180
	Slight	38,330	20,067	236	720
	Moderate	11,184	4,361	38	174
	Extensive	3,385	1,173	1	15
	Complete	1,250	258	0	0
	TOTAL	**127,369**	**127,378**	**3,088**	**3,089**

Table 6: Predicted Essential Facility Functionality in Two Earthquake Scenario Events Affecting Santa Barbara County

		Santa Barbara County		City of Buellton Fire Station 31 Buellton Sheriff Station 2 Schools	
Essential Facility Type	Functionality	M7.4 Red Mountain	M7.2 San Luis Range South Margin	M7.4 Red Mountain	M7.2 San Luis Range South Margin
Fire Stations	Functionality < 50 % on Day 1	20	5	0	0
	Functionality 50 - 75% on Day 1	1	6	0	0
	Functionality >75% Day 1	20	30	1	1
Police Stations	Functionality < 50 % on Day 1	6	2	0	0
	Functionality 50 - 75% on Day 1	1	2	0	0
	Functionality >75% Day 1	9	12	1	1
Public Schools	Functionality < 50 % on Day 1	54	18	0	0
	Functionality 50 - 75% on Day 1	1	17	0	0

	Functionality >75% Day 1	68	88	2	2

Hazus flood risk assessment

Hazus 3.0 was used to develop a flood depth grid for the 1-percent annual chance (100-year) flood, using Hazus' built-in, basic (i.e., Level 1) flood depth estimation methodology. The Hazus flood hazard assessment methodology uses available information and local river and floodplain characteristics, such as frequency, discharge and ground elevation to estimate flood elevation, and ultimately flood depth. Digital elevation model (DEM) data with 30-meter resolution, available from the USGS' National Elevation Dataset (see: http://nationalmap.gov/elevation.html) has been utilized in the current assessment.

It should be noted that the flood depth grid generated by Hazus ***is not*** equivalent to regulatory floodplain data contained in FEMA's Digital Flood Insurance Rate Maps (DFIRMs), which are the result of extensive, detailed engineering study. The Hazus-generated flood depth grid is a hypothetical representation of a potential flooding scenario, intended for non-regulatory uses. Further, it should also be noted that the DEM data used in the default analysis do not reflect the presence of channels and levees. A more detailed assessment would utilize higher resolution DEM data, such as LIDAR-based DEM data, and/or would require GIS-based revisions to the DEM to better reflect local flood control structures. Given that the Hazus Level 1 approach does not consider the presence of levees, Hazus loss and damage estimates produced for areas with levees (e.g., along the Santa Maria River) should be considered "worst-case" flood losses, reflecting potential flood damage that could occur in the event that the levees fail. Hazus-estimated flood depths across Santa Barbara County are provided in **Figure 4**.

An overview of the county-wide Hazus results for the 100-year flood scenario is provided in **Table 7**, along with the sub-set of results that represent the City of Buellton. **Table 8** provides a breakdown of estimated building damage (building count by percent damage range) by general occupancy. As shown, most of the flood-damaged buildings are single family homes. Functionality of essential facilities included in the Hazus default database (with additional fire station facilities added) in the flood scenario is summarized in **Table 9** for Santa Barbara County and the City of Buellton.

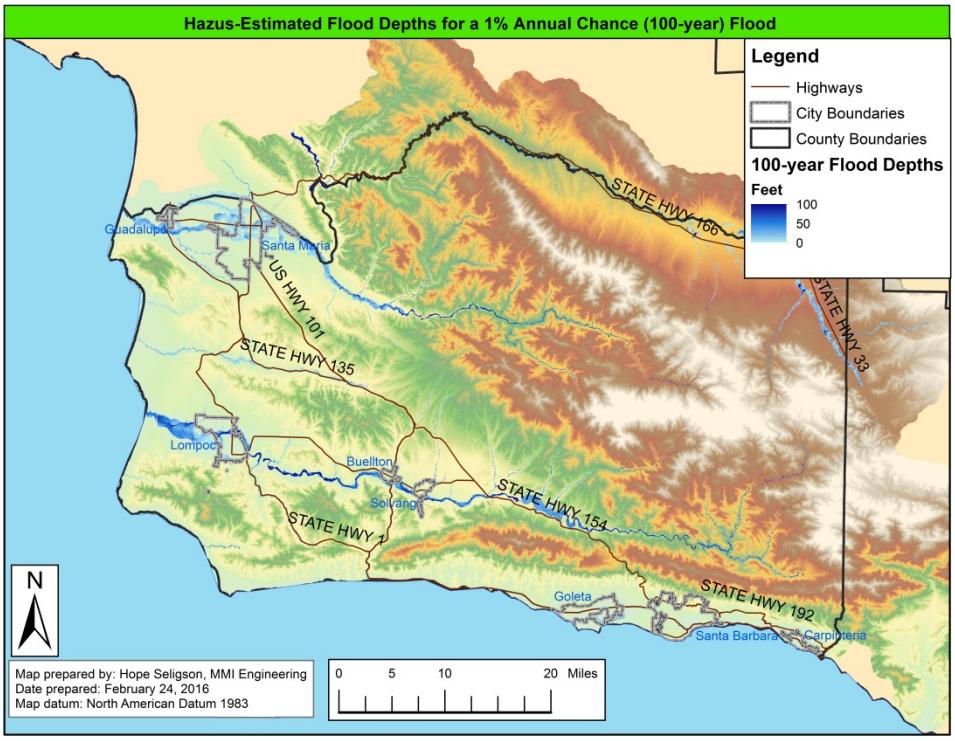


Figure 4: Hazus-Estimated Flood Depths for a 1-percent Annual Chance (100-year) Flood

Table 7: Hazus-Estimated Impacts for the 1-Percent Annual Chance (100-Year) Flood Scenario Affecting Santa Barbara County

		Santa Barbara County	City of Buellton
Direct Economic Losses for Buildings ($1,000)			
	Total Building Exposure Value	**44,224,855**	**987,061**
Capital Stock Losses	Total Building Damage	549,710	27,032
	Building Loss Ratio %	1.2%	2.7%
	Cost of Contents Damage	566,373	33,043
	Inventory Loss	9,022	1,883
Income Losses	Relocation Loss	1,624	36
	Capital-Related Loss	1,736	35
	Rental Income Loss	472	13
	Wage Losses	2,880	193
	Total Direct Economic Loss	**1,131,817**	**62,235**
	% Of Countywide Loss	100.0%	5.5%
Shelter			
Shelter	Displaced Population	57,963	977
	Number of People Requiring Short-term Shelter	54,248	704
Debris (thousands of tons)			
Debris	Finishes	41.3	1.5
	Structures	7.8	2.2
	Foundations	7.7	2.2
	Total Debris	**56.7**	**5.8**

Table 8: Estimated Building Damage (Building Count by General Occupancy, by Percent Damage Range) for a 1-percent Annual Chance (100-year) Flood Scenario Affecting Santa Barbara County

		Santa Barbara County	City of Buellton
Building Damage Count in Flooded Census Blocks by Occupancy			
Single Family Homes	None	2,344	43
	1 - 10%	1,775	30
	11 - 20%	2,472	39
	21 - 30%	867	14
	31 - 40%	662	9
	41 - 50%	276	6
	Substantial Damage	196	12
	TOTAL	**8,592**	**153**
Manufactured Housing	None	208	6
	1 - 10%	14	1
	11 - 20%	29	1
	21 - 30%	31	1
	31 - 40%	0	0
	41 - 50%	19	2
	Substantial Damage	76	25
	TOTAL	**377**	**36**
Other Residential	None	70	0
	1 - 10%	8	0
	11 - 20%	23	0
	21 - 30%	8	0
	31 - 40%	0	0
	41 - 50%	0	0
	Substantial Damage	0	0
	TOTAL	**109**	**0**
Commercial	None	16	0
	1 - 10%	42	0
	11 - 20%	47	0
	21 - 30%	4	0
	31 - 40%	0	0
	41 - 50%	0	0
	Substantial Damage	0	0
	TOTAL	**109**	**0**

Table 8 (Continued): Estimated Building Damage (Building Count by General Occupancy, by Percent Damage Range) for a 1-percent Annual Chance (100-year) Flood Scenario Affecting Santa Barbara County

		Santa Barbara County	City of Buellton
Building Damage Count in Flooded Census Blocks by Occupancy			
Industrial	None	0	0
	1 - 10%	1	0
	11 - 20%	4	0
	21 - 30%	0	0
	31 - 40%	0	0
	41 - 50%	0	0
	Substantial Damage	1	0
	TOTAL	**6**	**0**
Other Occupancies	None	4	0
	1 - 10%	6	0
	11 - 20%	1	0
	21 - 30%	0	0
	31 - 40%	0	0
	41 - 50%	0	0
	Substantial Damage	1	1
	TOTAL	**12**	**1**
ALL OCCUPANCIES	None	2,642	49
	1 - 10%	1,846	31
	11 - 20%	2,576	40
	21 - 30%	910	15
	31 - 40%	662	9
	41 - 50%	295	8
	Substantial Damage	274	38
	TOTAL	**9,205**	**190**

Table 9: Predicted Essential Facility Functionality for a 1-percent Annual Chance (100-year) Flood Scenario Affecting Santa Barbara County

Essential Facility Type	Functionality	Santa Barbara County	City of Buellton Fire Station 31 Buellton Sheriff Sta 2 Schools
Fire Stations	# facilities located within flooded areas	5	0
	# facilities with Moderate or Greater Damage	2	0
	# facilities expected to be non-functional on Day 1	4	0
Police Stations	# facilities located within flooded areas	2	0
	# facilities with Moderate or Greater Damage	2	0
	# facilities expected to be non-functional on Day 1	2	0
Public Schools	# facilities located within flooded areas	12	0
	# facilities with Moderate or Greater Damage	2	0
	# facilities expected to be non-functional on Day 1	5	0

Appendix C

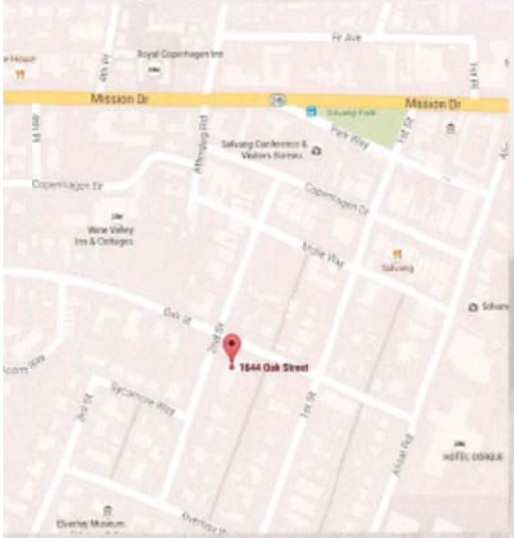
Public Notice from City's Website

Santa Barbara County Multi-Jurisdictional Hazard Mitigation Plan Community Town Hall

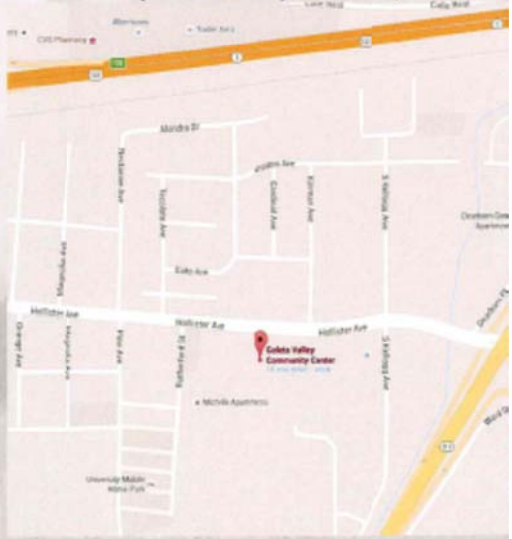
Friday July 15, 2016

Learn about the 2016 Multi-Jurisdictional Hazard Mitigation Plan and update process.

Solvang City Hall 10 am-11am



Goleta Valley Community Center 1pm-2pm



Become a part of the update process and learn about the Public Review Session that opens on **July 14 at noon and closes on July 27 at 9pm.**

City of Carpinteria

Hazard Mitigation Plan
Annex to Santa Barbara County
Multi-Jurisdictional Hazard Mitigation plan
July 2017

CITY OF CARPINTERIA

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Section 10 CITY OF CARPINTERIA

10.1 INTRODUCTION

The City of Carpinteria is a vibrant but easy going, family oriented small town with an economically and ethnically diverse population, working together for the common good of all residents and visitors. Carpinteria is located in South Santa Barbara County with proximity to strategic business centers and an idyllic seaside location. It is approximately 12 miles southeast of the city of Santa Barbara and 80 miles from Los Angeles. It covers a land area of 2.6 square miles, and an ocean area of 4.7 miles. The City's average temperatures range from 45 to 72 degrees with more than 275 days of sunny weather per year. Average yearly rainfall is 17.9 inches.

With a less than 10% increase since the 2010 census, the population of Carpinteria is just under 14,000 The City's unemployment rate has declined since December 2010 and was at 4.4% as of December 2015. The industries employing the largest number of workers in the City are educational services, health care and social assistance, followed by professional, scientific, management, and administrative and waste management services. Prominent service industries that support tourist activities include recreation and amusement, hotels and lodging, and local transportation services.

The Carpinteria Unified School District administers nine schools in Carpinteria and one in Summerland, serving approximately 2300 students in grades k-12. Cate School, a private high school, is located just outside the City's boundaries.

The community maintains a balance between effective growth and open space through sensitive, area-wide planning which ensures that the small town, rural identity of Carpinteria will flourish. The Land Use Element establishes the type and intensity of land uses and guides growth and development in the City. The Land Use Element is the basis of the Land Use Plan of the City's Local Coastal Program (California Coastal Act of 1976, §30108.5). The City encourages greater density and intensity development to take place along main transportation corridors and development that is compatible with surrounding land uses and protective of coastal resources unique to the area.

The requests for building permits have remained steady since 2011 with a small drop in 2014. During the 4th Quarter of 2015, the office vacancy rate was 1.3%, industrial 2.5%, and residential rental market had no vacancies.

10.2 PLAN PURPOSE AND AUTHORITY

Authority to create this Plan is derived from the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Public Law 93-288), as amended by the Disaster Mitigation Act of 2000 (DMA 2000). The requirements and procedures for mitigation plans are found in the Code of Federal Regulations (CFR) at Title 44, Chapter 1, Part 201 and the associated Interim Final Rule changes. The federal law and associated rule changes and regulations establish planning and funding criteria for states and local communities.

- *Enhance Public Awareness and Understanding* – to help residents of Carpinteria better understand the natural hazards that threaten safety and welfare; economic vitality; and the operational capability of critical infrastructure;
- *Create a Decision Tool for Management* – to provide information that managers and leaders of local government, business and industry, community associations, and other key institutions and organizations need to take action to address vulnerabilities to future disasters;
- *Promote Compliance with State and Federal Program Requirements* – to ensure that Carpinteria can take full advantage of state and federal grant programs, policies, and regulations that encourage or mandate that local governments develop comprehensive hazard mitigation plans;
- *Enhance Local Policies for Hazard Mitigation Capability* – to provide the policy basis for mitigation actions that should be promulgated by participating jurisdictions to create a more disaster-resistant future; and
- Provide *Inter-Jurisdictional Coordination of Mitigation-Related Programming* – to ensure that proposals for mitigation initiatives are reviewed and coordinated among the participating jurisdictions within the County.
- Achieve *Regulatory Compliance* – To qualify for certain forms of federal aid for pre- and post-disaster funding, local jurisdictions must comply with the federal DMA 2000 and its implementing regulations (44 CFR Section 201.6). DMA 2000 intends for hazard mitigation plans to remain relevant and current. Therefore, Local plans (including Santa Barbara County's) are updated every five years. This means that the Hazard Mitigation Plan for Carpinteria uses a "five-year planning horizon". It is designed to carry the City through the next five years, after which its assumptions, goals, and objectives will be revisited and the Plan resubmitted for approval.

On the following pages is the resolution that adopted the 2017 Plan.

RESOLUTION NO. 5747

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF CARPINTERIA APPROVING AND ADOPTING THE 2017 HAZARD MITIGATION PLAN FOR THE CITY OF CARPINTERIA, PURSUANT TO THE DISASTER MITIGATION ACT OF 2000

WHEREAS, the Federal Disaster Mitigation Act of 2000, as described in 44 CFR Section 201.6 mandates local governments to submit and maintain a Federal Emergency Management Agency (FEMA) approved local hazard mitigation plan; and

WHEREAS, The City of Carpinteria has participated in a county-wide multijurisdictional planning process with Santa Barbara County as the lead agency; and

WHEREAS, the Hazard Mitigation Plan identifies the City's risk assessment and mitigation strategies to reduce the impacts of natural disasters on the public and local government; and

WHEREAS, Identification of hazards in the City assists with response planning, exercise development, public education, and awareness, and other emergency management functions; and

WHEREAS, this Resolution enables the City of Carpinteria to qualify for additional mitigation funding after a disaster; and

WHEREAS, The Hazard Mitigation Plan will be incorporated into the Safety Element of the General Plan with the next Safety Element update, in accordance with California Government Code Sections 8685.9, 65302, and 65302.6; and

WHEREAS, The Federal Disaster Mitigation Act of 2000 requires the Hazard Mitigation Plan to be formally adopted by the City Council and provided to FEMA for formal approval.

NOW, THEREFORE, BE IT RESOLVED as follows:

SECTION 1. The above recitals are true and correct.

SECTION 2. The City Council approves and adopts the 2017 update to the City of Carpinteria Hazard Mitigation Plan in accordance with the Disaster Mitigation Act of 2000.

SECTION 3. The City Council resolves to incorporate the updated Hazard Mitigation Plan by reference into the Safety Element of the General Plan with the next Safety Element update in accordance with the requirements of Government Code Sections 8685.9, 65302, and 65302.6.

SECTION 4. This Resolution is effective upon its adoption.

PASSED, APPROVED AND ADOPTED on Sept. 11, 2017, by the following vote:

AYES: COUNCILMEMBER(S):

NOES: COUNCILMEMBER(S):

ABSENT: COUNCILMEMBER(S):

ABSTAIN: COUNCILMEMBER(S):

Fred Shaw
Mayor, City of Carpinteria

ATTEST:

Gidget Gonzales
City Clerk, City of Carpinteria

I hereby certify that the foregoing resolution was adopted at a regular meeting of the City Council of the City of Carpinteria held on Sept. 11, 2017.

Gidget Gonzales
City Clerk, City of Carpinteria

APPROVED AS TO FORM:

for
Peter Brown, on behalf of Brownstein Hyatt Farber Schreck, LLP acting as City Attorney of the City of Carpinteria

10.3 PLANNING PROCESS

10.3.1 Overview

The planning process implemented for updating the Santa Barbara County *Multi-Jurisdictional Hazard Mitigation Plan* (HMP) utilized two (2) different planning teams. The first team is the Mitigation Advisory Committee (MAC) and the second is the Local Planning team. All eight (8) incorporated cities (City of Buellton, City of Carpinteria, City of Goleta, City of Guadalupe, City of Lompoc, City of Santa Barbara, City of Santa Maria, and City of Solvang) joined the County of Santa Barbara in the preparation of this *Multi-Jurisdictional Hazard Mitigation Plan*. Each of the participating jurisdictions had representation on the MAC and was responsible for the administration of their Local Planning Team.

The planning process followed the concepts and principles outlined in the Comprehensive Preparedness Guide (CPG) 101. Both the MAC and the Local Planning teams focused on these underling philosophies:

- *Focus on the mitigation strategy*
  The mitigation strategy is the plan's primary purpose. All other sections contribute to and inform the mitigation strategy and specific hazard mitigation actions.
- *Process is as important as the plan itself*
  In mitigation planning, as with most other planning efforts, the plan is only as good as the process and people involved in its development. The plan should also serve as the written record, or documentation, of the planning process.
- *This is the community's plan*
  To have value; the plan must represent the current needs and values of the community and be useful for local officials and stakeholders. Develop the mitigation plan in a way that best serves your community's purpose and people.
- *Intent is as important as Compliance*
  Plan reviews will focus on whether the mitigation plan meets the intent of the law and regulation; and ultimately that the plan will make the community safer from hazards.

The planning process for the Santa Barbara County *Multi-jurisdictional Hazard Mitigation Plan (*HMP) incorporated the following steps:

- *Plan Preparation*
  - Form/Validate planning team members
  - Establishing common project goals
  - Setting expectations and timelines
- *Plan Development*
  - Validate and revise the existing conditions/situation within planning area; the *Capabilities Assessment and Hazard Assessment Sections* in the HMP
  - Develop and review the risk to hazards (exposure and vulnerability) within the planning area; the *Vulnerability Assessment Section* in the HMP

- Review and identify mitigation actions and projects within the planning area; the Mitigation Strategy in the HMP

- *Finalize the Plan*
  - Review and revise the plan
  - Approve the plan
  - Adopt and disseminate the plan

Throughout this process, and though other standard practices, opportunities for public involvement was offered and encouraged. More details about public engagement is provided under Section 3.3.4.

The MAC team was guided through the planning process; and as material was shared and decisions were made, it was the MAC team's responsibility to bring these findings back to their Local Planning Team. Below is a summary of the collaborative planning process of the MAC and Local Planning team.

10.3.2 Mitigation Advisory Committee (MAC)

10.3.2.1 MAC Members

The Mitigation Advisory Committee (MAC), formed in 2004, is a standing committee that works together throughout the year to discuss and provide input on a variety of activities. The MAC is led by Santa Barbara County Public Works Department and Santa Barbara County Fire, Office of Emergency Services and has representation from all of the local jurisdictions.

The MAC was utilized for the updating of the Santa Barbara County *Multi-Jurisdictional Hazard Mitigation Plan.* To assist with this effort Santa Barbara County Fire, Office of Emergency Services hired a consultant to support and assist each jurisdiction to update their Local Hazard Mitigation Plan; contained as an annex in the Santa Barbara County *Multi-Jurisdictional Hazard Mitigation Plan*. The table below (**Table 10.1**) lists the members of the MAC.

Table 10.1: Members of the Mitigation Advisory Committee 2016

Names	Organization	MAC Member Status
Michael Dyer	Santa Barbara County – Emergency Manager	New Member
Shannon McCrone	Santa Barbara County – Emergency Services Planner	New Member
Robert Troy	Santa Barbara County – Deputy Director Emergency Management	New Member
Tylor Headrick	Santa Barbara County- GIS/Emergency Services Planner	New Member
Steve Oaks	Santa Barbara County Fire – Battalion Chief	New Member
Rob Hazard	Santa Barbara County Fire – Captain	New Member
Rudy Martel	Santa Barbara County Agricultural Commissioner	New Member
Joyce Tromp	Santa Barbara County Flood Control	New Member
Jon Frye	Santa Barbara County Flood	New Member
Tom Fayram	Santa Barbara County Public Works Deputy Director	Returning Member

Matthew Schneider	Santa Barbara County Planning and Development Deputy Director-Long Range Planning	New Member
Marc Bierdzinski	City of Buellton – City Manager/Planning Director	Returning Member
Mimi Audelo	City of Carpinteria – Program Manager	New Member
Claudia Dato	City of Goleta – Senior Project Manager (Public Safety)	Returning Member
Gary Hoving	City of Guadalupe – Public Safety Director	New Member
Kurt Latipow	City of Lompoc – Fire Chief	New Member
Yolanda McGlinchey	City of Santa Barbara – Emergency Services Manager	Returning Member
Roy Dugger	City of Santa Maria – Emergency Preparedness Coordinator	Returning Member
Bridget Elliott	City of Solvang – Associate Engineer	New Member
Jim Caesar	UCSB – Emergency Manager	Returning Member
Lindsey Stanley	Cal OES – Emergency Services Coordinator	New Member
Andrew Petrow	Consultant	New Member

10.3.2.2 Overview of MAC Meetings

The MAC meetings were arranged and scheduled to follow the planning process steps outlined in Section 3.1. Each meeting was designed to walk the MAC members through sections of the Santa Barbara County *Multi-Jurisdictional Hazard Mitigation Plan* and annexes. In addition to reviewing and validating material, the intent was to also educate MAC members on the planning process and purpose of each section. By taking this step it will help ensure that each MAC member could bring this knowledge back to their Local Planning Teams. The table below (**Table 10.2**) provides a list and the main purpose of each of the MAC meetings.

Table 10.2: Mitigation Advisory Committee (MAC) Meetings Summary

Date	Purpose
April 2015	**Kick Off (in person)** • Reviewed and discussed the hazards in the Plan; including initial ranking. • Each jurisdiction was asked to review their previous goals and objectives with a local planning team.
December 2015	**MAC Meeting (in person)** • Recap of previous MAC meeting • Goal of the project • Understanding of HMP update requirements • Validation of team members • Proposed Planning Process • Review of Capabilities Assessment Section
January 2016	**MAC Meeting (conference call)** • Recap of previous MAC meeting • Review of Capabilities Assessment Section

Date	Purpose
	• Discussion of public outreach efforts • Preparation for next MAC meeting
February 2016	**MAC Meeting (in person)** • Recap of previous MAC meeting • Review of Hazard Assessment Section • Presentation of Vulnerability Assessment results • Discussion of public outreach efforts • Preparation for next MAC meeting
March 2016	**MAC Meeting (conference call)** • Recap of previous MAC meeting • Review of Capabilities Assessment and Vulnerability Assessment Sections • Preparation for next MAC meeting
April 2016	**MAC Meeting (in person)** • Recap of previous MAC meeting • Initial discussion of mitigation projects and actions
May 2016	**MAC Meeting (conference call)** • Recap of previous MAC meeting • Discussion of mitigation actions and projects • Discussion of update process • Preparation for next MAC meeting
June 2016	**MAC Meeting (in person)** • Recap of previous MAC meeting • Discussion of mitigation actions and projects • Discussion of update process

10.3.3 City Local Planning Team

10.3.3.1 Local Planning Team Planning Process

A Local Planning Team was created to review and arrive at a consensus relating to the implementation of the Carpinteria Annex of the Santa Barbara County Multi-jurisdictional HMP. The team was created from key management and supervisory staff. The Local Planning Team is integrated into the development review process within the City of Carpinteria. As a small entity, the same core group of designated staff members have multiple responsibilities with a focus on their respective disciplines. Team members are responsible for sharing information for incorporation into the HMP, as well as, ensuring lessons learned from the HMP update process were incorporated into other plans and planning efforts (i.e., General Plan, Capital Improvement Plans).

As mentioned above, the City of Carpinteria participated in the Mitigation Advisory Committee (MAC). Information and discussion topics raised at the MAC meetings were brought to the City's LPT for discussion of relevance within the City limits and for this annex.

10.3.3.2 Local Planning Team Members

Table 10.3 lists the City of Carpinteria LPT. These individuals collaborated to identify the City's critical facilities, provide relevant plans, report on progress of city mitigation actions and provide suggestions for new mitigation actions.

Table 10.3: City's Local Planning Team 2016

Name	Title
Steve Goggia	Community Development Director
Matt Roberts	Director of Parks & Recreation
Kevin Silk	Assistant to the City Manager
Charlie Ebeling	Public Works Director
Dave Durflinger	City Manager
Mimi Audelo	Program Manager

10.3.3.3 Overview of Local Planning Team Meeting

The City of Carpinteria LPT met regularly during the planning process to discuss data needs and organize data collection. A summary of these internal meetings is presented in the **Table 10.4** below. Meeting documentation is included in Section 8, Attachment A: Meeting Documentation.

Table 10.4: City of Carpinteria Internal Collaboration Meetings Summary

Meeting Dates	Summary of Discussions
February 10, 2016	Initial meeting of Local Planning Team to review: • Current Hazard Mitigation Plan • Plan update process from MAC • Old projects
March 21, 2016	• Review MAC meeting • Update risk assessment hazards • New projects • Timeline
May 31, 2016	• Review Public Works Projects • Discuss Hazards
June 21, 2016	• Update on MAC meetings • Discuss infill and development

See Appendix A for meeting logs

10.3.4 Public Outreach

The goal is to facilitate public participation and involvement in the development, implementation and periodic review process. The benefits include but are not limited to improving and increasing public

knowledge, increasing public interest in local issues, potentially providing the community with more volunteers.

During the 2016 update process, the public was invited to participate in the update process by reviewing the current plan and submitting comments. Copies of the plan could be found on the City's web page, at City Hall and at the Carpinteria Library. The public was once again invited to review the updated plan and submit comments.

Participation invitations were made through announcements on the City's web page, television scroll, newspaper ads, the City's newsletter, CERT meetings, emergency preparedness presentations, and various City email databases. Public participation and comments were welcomed throughout the process.

During the update process, only one inquiry was received. A gentleman wanted a copy of the plan, one was provided and no comments were received.

There were two (2) different Public Outreach campaigns used during the Santa Barbara County Multijurisdictional Hazard Mitigation Plan update process: the first informing the Community of HMP Update, and the second educating the Community of hazards. The second campaign (educating of the Community of hazards) is an ongoing campaign that was leveraged during the Santa Barbara County Multijurisdictional Hazard Mitigation Plan update process. Below is a summary of the campaigns:

10.3.4.1 Informing the Community of the HMP Update process

In July 2015, Santa Barbara County Office of Emergency Management issued a press release (in Spanish and English) announcing the commencement of the hazard mitigation planning process. This announcement invited the public to notify the County of their interest to participate in the planning process or submit comments.

Additionally, as part of the Public Outreach effort, Santa Barbara County Office of Emergency Management participated in a Radio interview and held two workshops to present the updates and solicit input from the public. Final drafts of the Santa Barbara County Multijurisdictional Hazard Mitigation Plan were also made available to the public through the Aware and Prepare Website and hard copies were available in select Public Libraries. Input from the public was presented to both the MAC and Santa Barbara County Local Planning Team for consideration of incorporation into the HMP.

10.3.4.2 Ongoing Public Outreach

The City of Carpinteria utilizes several platforms to educate the public about hazards in the community, relevant programs to safeguard and protect themselves from disaster, and actions they can take to prepare themselves for events. Below is a list of the different platforms used and a summary of the some of the programs:

- City of Carpinteria Website
- County Aware and Prepare Website
- Meetings/Workshops
- Public Service Announcements- radio and television
- Community Emergency Response Team Training (CERT)

- Defensible Space Education
- Evacuation training for Schools and Communities
- Drought Education
- Flood emergency awareness

The City posts the Hazard Mitigation Plan on its website inviting continuous review and comment from the community.

10.4 CAPABILITY ASSESSMENT

The City of Carpinteria LPT identified current capabilities and mechanisms available for supporting mitigation actions and implementing hazard mitigation activities. This section presents a discussion of the roles of key departments, administrative and technical capacity, fiscal resources, and summaries of relevant planning mechanisms, codes, and ordinances.

It is important to note that during the LHMP update planning process these plans, programs, codes, and policies were evaluated to determine their effectiveness in risk education and reduction efforts, as well as, its usefulness to implement mitigation measures. Any shortfalls or areas where the plans, programs, codes, and policies could be improved or expanded were identified and captured under annual review, the annual planning process and Mitigation Actions chapter of this plan. If no mitigation actions were identified, then it can be assumed that the planning team determined that no shortfalls or areas for improvement are needed.

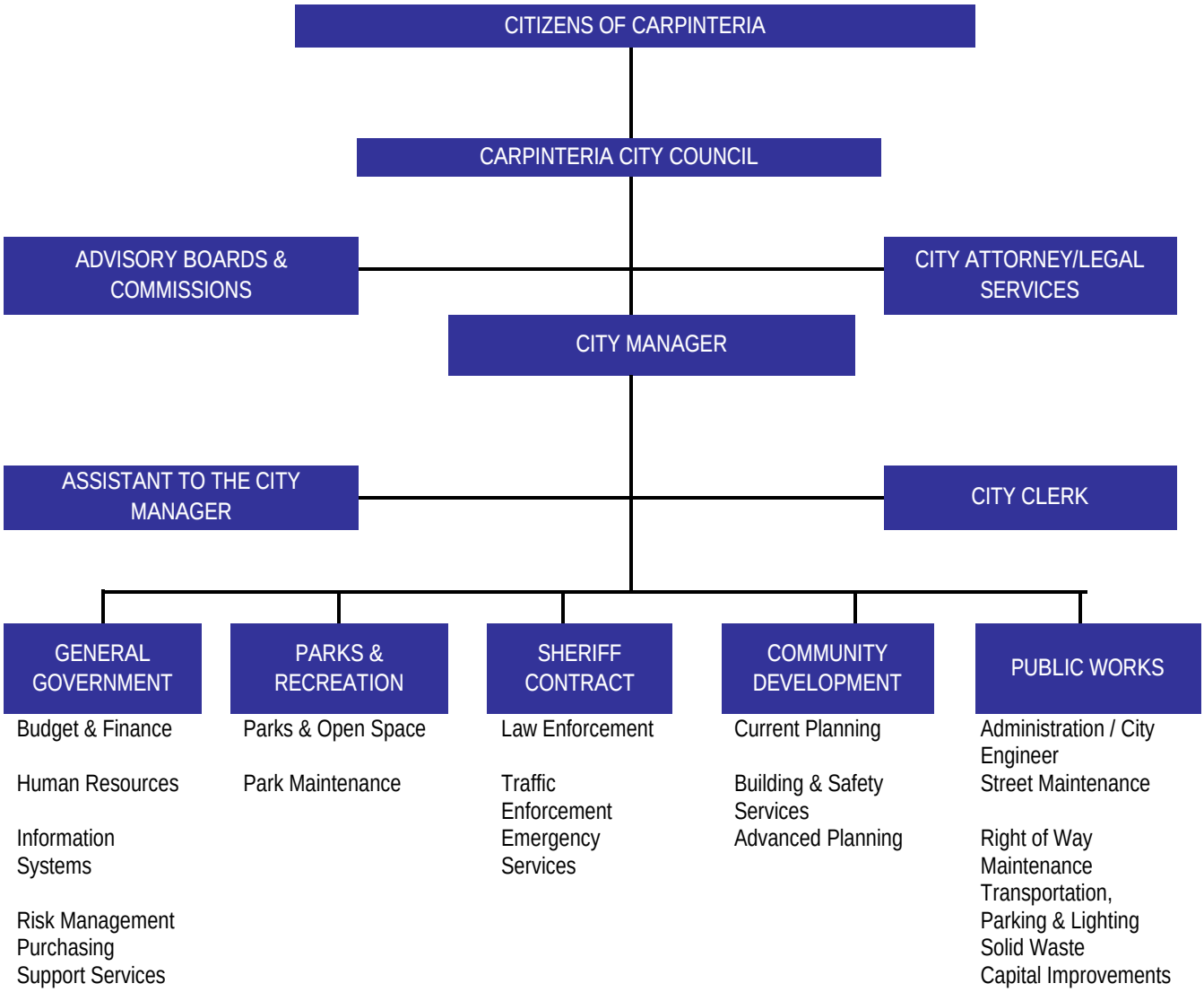
10.4.1 Key Departments

The City of Carpinteria utilizes the Council-Manager form of local governance, which includes both elected officials and an appointed City Manager. Carpinteria has five council members, which includes a mayor and a mayor pro-tem, whom are appointed to represent the entire City of Carpinteria.

The City of Carpinteria employs thirty three (33) full time staff. The tourist season dictates the number of part-time staff, averaging sixty per year. The City has a robust volunteer program with approximately 150 volunteers participating in community and beach clean-up projects, docents, and the HOST Visitors Center. Over 220 community members have been Community Emergency Response Team (CERT) trained.

Governance:

The City Council is Carpinteria's legislative body, providing vision, setting and adopting policies, regulations, ordinances, and resolutions, approving budgets, and setting tax rates. Members also hire the City Manager, who is responsible for the day-to-day administration of the City, and serves as the Council's chief advisor. The City Manager prepares a recommended budget, recruits and hires most of the City's staff, and carries out the council's policy. While the City Manager may recommend policy decisions, he is ultimately bound by the actions of the Council. The Council also hires the City Attorney. The City of Carpinteria’s organizational chart is listed below.



City Administration:

City Manager

Provides leadership and supervision that, in turn, implements the policies and decisions of the City Council; thereby ensuring the delivery of services to the community.

The City Manager serves as the OES Director. The City Manager's office will be responsible for the implementation of emergency management (including mitigation) programs for the City. Currently Police Services are provided through a contract with the Santa Barbara County Sheriff's Department and Fire Services are provided by Carpinteria-Summerland Fire District. The City Manager oversees those contracts.

City Community Development Department:

Building & Safety Department:

- Enforces adoption of building, plumbing, electrical, seismic, and mechanical/structural codes.
- Develops building ordinances.
- Reviews site and building plans for compliance with building codes and ordinances.
- Damage assessment of structures from multiple causes to facilitate repair and future occupancy.

Planning Department:

- Develop and maintain plans and permits, City General Plan/Local Coastal Land Use Plan, zoning ordinances and development standards.
- Oversight of City development process assuring compliance with zoning and general plan, and including environmental impact reports, design review, historic preservation, landscape review, habitat conservation, floodway prohibitions and floodplain development standards.

City of Carpinteria Public Works Department:

Maintains City infrastructure (assets), ranging from streets to parks to buildings and vehicle fleet. Responsible for planning and implementation associated with the following City plans:

- Storm Water Management Plan
- Floodplain Management Ordinance
- Inter-Regional Water Management Plan

Engineering Division

City of Carpinteria does civil engineering work both in-house and by contract with civil engineering consulting firms.

- Reviews engineering on private and public grading, storm drain systems, street infrastructure to assure compliance with Federal, State and Local standard specifications and plans.
- Develops engineering ordinances and policies that help protect and preserve City infrastructure.
- Evaluates all circulation elements for projected traffic impacts.
- Determines needed infrastructure including street and storm drain improvements.
- Provides response personnel for evaluation of damaged infrastructure and rescue situations.
- Responds as part of the City's EOC Team and coordinates other response agencies assisting with damage assessment.

Police Department:

Carpinteria contracts with Santa Barbara County Sheriff's Department for Police Services. In addition to normal services, the Sheriff's Department also develops and implements emergency response plans and policies, focusing on evacuation procedures and traffic control and including training for the Carpinteria Community Emergency Response Team (CERT).

Fire Department:

Carpinteria contracts with Carpinteria-Summerland Fire District to provide Fire Protection.

- Administration*:* Develop, implement and monitor policies, procedures, budgets, fees, automatic aid agreements, mutual aid agreements, and liaison with other City departments and outside agencies.
- Fire Prevention Bureau: Coordinate adoption of codes and ordinances, review site and building plans for fire code compliance, develop and present public education programs and manage the City's weed abatement program.
- Suppression Division: Maintain the department's personnel, apparatus, equipment and fire stations in a state of readiness to respond to the community's needs, develop and implement standard operating procedures for various types of emergency responses, respond to all types of emergencies, and train and interact with neighboring jurisdictions and regional agencies.
- Develops and implements emergency response plans and policies, focusing on evacuation procedures and traffic control, including training for the Carpinteria Community Emergency Response Team (CERT).

10.4.2 Legal and Regulatory Capabilities

The legal and regulatory capabilities of Carpinteria are shown in **Table 10.5**, which presents the existing ordinances and codes that affect the physical or built environment of Carpinteria. Examples of legal and/or regulatory capabilities can include: the City's building codes, zoning ordinances, subdivision ordinances, special purpose ordinances, growth management ordinances, site plan review, general plans, capital improvement plans, economic development plans, emergency response plans, and real estate disclosure plans.

Table 10.5: City of Carpinteria: Legal and Regulatory Capability

Regulatory Tools (ordinances, codes, plans)	Local Authority (Y/N)	Does State Prohibit (Y/N)
A. Building code	Y	N
B. Zoning ordinance	Y	N
C. Subdivision ordinance or regulations	Y	N
D. Special purpose ordinances (floodplain management, storm water management, hillside or steep slope ordinances, wildfire ordinances, hazard setback requirements)	Y	N
E. Growth management ordinances (also called "smart growth" or anti-sprawl programs)	Y	N
F. Site plan review requirements	Y	N
G. General or comprehensive plan	Y	N

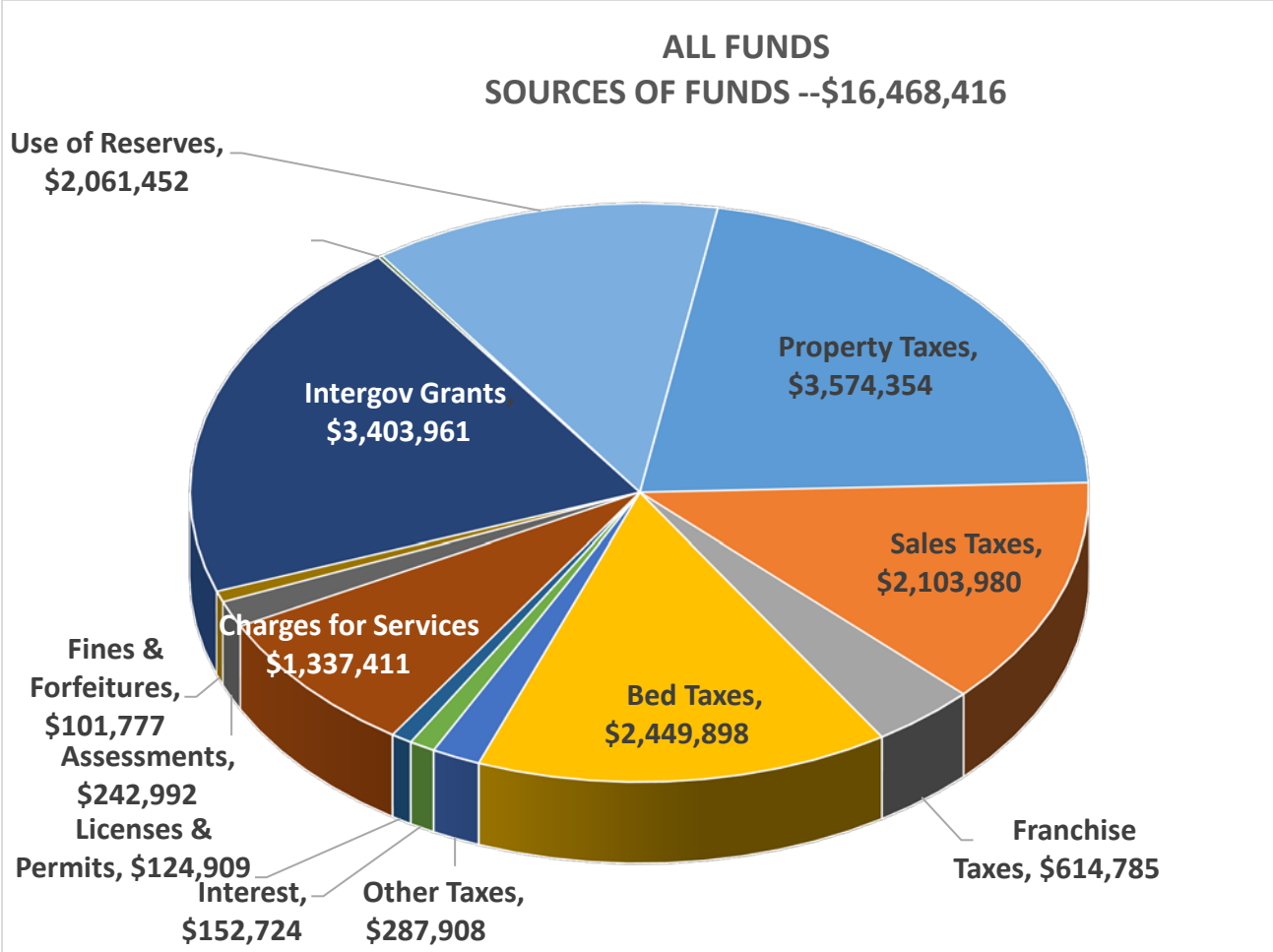
H. A capital improvements plan	Y	N
I. An economic development plan	Y	N
J. An emergency response plan	Y	N
K. A post-disaster recovery plan	Y	N
L. A post-disaster recovery ordinance	N	N
M. Real estate disclosure requirements	Y	N

10.4.3 Fiscal Resources

The 2016-17 fiscal year budget of approximately $16.4 million, includes over $4.7 million in grant, dedicated reserve and fund balance spending for capital and major maintenance projects; a reflection of a growing demand for maintenance and replacement of the City infrastructure and the City's interest in addressing those needs in a timely and strategic manner in order to minimize costs. **Figure 10.1** shows the City’s All Funds Budget.

The General Fund Budget also includes: General government administration services, public safety, planning and environmental and public works services. The general fund balance is an important indicator of the financial strength of the jurisdiction.

Figure 10.1: City of Carpinteria All Funds Budget 2016-2017



10.4.4 Relevant Plans, Policies, Programs and Ordinances

The City of Carpinteria has a range of guidance documents and plans for each of its departments. These include a general plan, capital improvement plans, emergency management plans, Local Coastal Program (LCP), and flood response guidelines. The City uses building codes, fire codes, zoning ordinances, subdivision ordinances, and various planning strategies to address how and where development occurs. One of the essential ways the City guides its future is through policies laid out in the General Plan. The following plans were reviewed by the LPT and relevant information was incorporated into the HMP.

City of Carpinteria General Plan

The 2003 Carpinteria General Plan is the primary planning policy document for the City. The content of the General Plan is arranged to achieve the community goal, which is to preserve the essential character of the beach town, its family-oriented residential neighborhoods, its unique visual

and natural resources and its open, rural surroundings while enhancing recreation, cultural, and economic opportunities for its citizens.

The Carpinteria General Plan is organized into seven elements:

- Land Use
- Community Design
- Circulation
- Open Space
- Recreation & Conservation
- Safety; Noise
- Public Facilities & Services

Within each General Plan Element, a description is provided followed by the implementation measures undertaken in response to the respective objectives, goals and policies.

The Land Use Element is the basis of the Land Use Plan of the City's Local Coastal Program (California Coastal Act of 1976, §30108.5). The Land Use Element establishes the type and density of land uses and guides growth and development by presenting a plan that reflects the community's desire to maintain and enhance an enjoyable, balanced quality of life. This basic tenet is expressed in the community's
Goal: To preserve the essential character of this small beach town, it's family-oriented residential neighborhoods, its unique visual and natural resources and its open, rural surroundings, while enhancing recreational, cultural and economic opportunities for residents.
Other goals include the following:

- Adopt and amend as necessary a Sphere of influence thot serves to establish the basis for annexation of certain Land contiguous to City limits;

- Create flexible land use and zoning standards for general commercial and industrial parcels that allow opportunities for residential use to expand, as determined appropriate by the City, in response to changing needs relative to the jobs/housing balance locally and in the region, and as incentive toward the development of affordable housing;
- Maintain availability of agriculture, coastal-dependent industry and visitor-serving commercial development including hotels/motels, restaurants and commercial recreation uses;

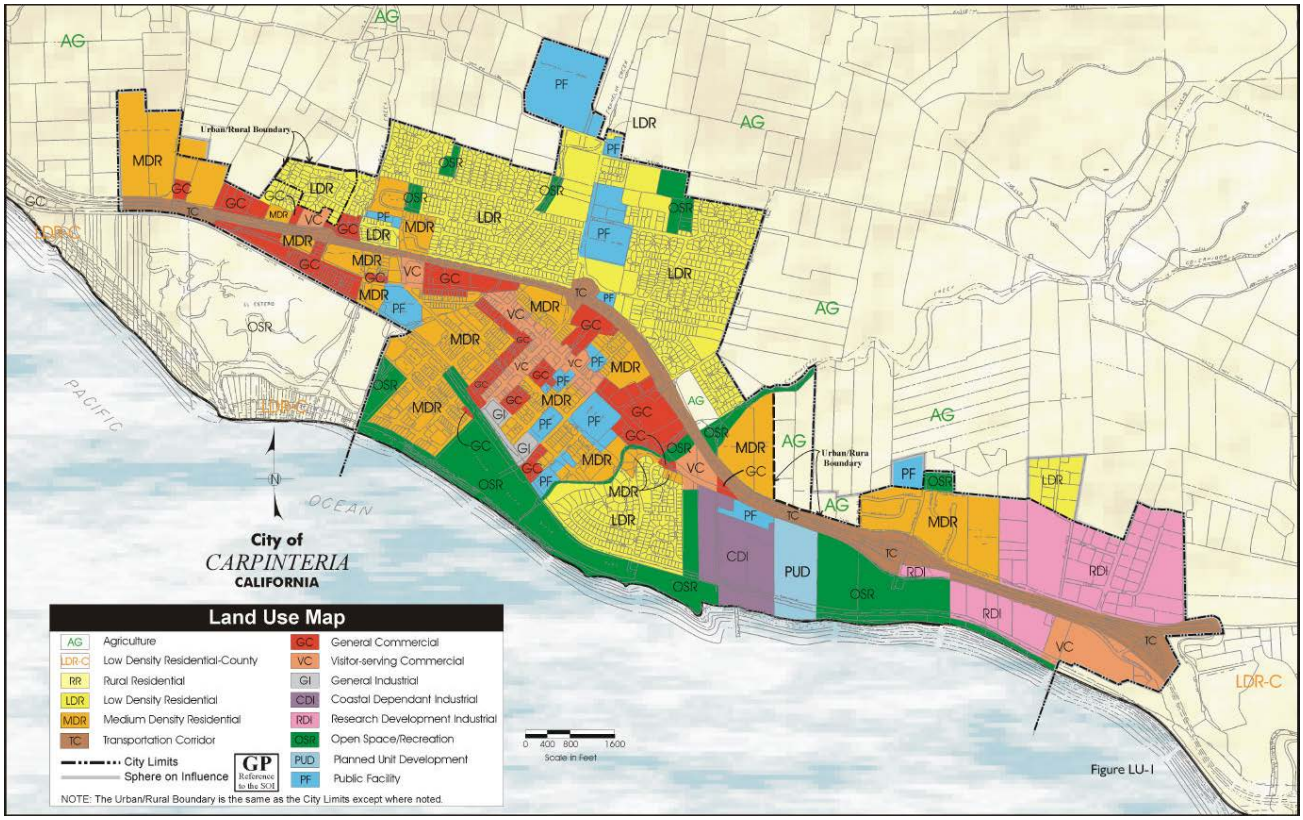
- Influence land use decision-making, use and development patterns in the unincorporated Carpinteria Valley to be supportive of the California Coastal Act and City objectives to preserve unique coastal resources by establishing open-field agricultural use as the predominant use in the unincorporated Valley;

- Preserve the small beach town character of the built environment of Carpinteria, encouraging compatible revitalization and avoiding sprawl development at the City's edge;

- Protect the natural environment within and surrounding Carpinteria; and establish the basis for orderly, well-planned urban development while protecting coastal resources and providing for greater access and recreational opportunities for the public.

The City's small size is a result of surrounding land use constraints that have limited its ability to expand. Local land use policies support the protection of coastal agriculture and the geographically distinct rural character of the Carpinteria Valley. These geographic and policy protected areas prevent sprawl and constrain the City to 2.6 square miles of land as seen in **Figure 10.2**. The Pacific Ocean is to the south of the City, a mountain range and prime agricultural lands protected under the California Coastal Act are to the north. To the east is the County of Ventura and to the west are federally protected wetlands as well as Coastal Act protected agricultural lands located in the County of Santa Barbara.

Figure 10.2: City of Carpinteria Land Use Map



One land use objective that correlates with hazard mitigation is to reduce the density or intensity of a particular parcel if warranted by conditions such as topography, geologic, or flood hazards, habitat areas, or steep slopes. The Plan suggests that this can be achieved by establishing an environmentally sensitive overlay district in the City's Zoning Ordinance. The overlay district would have to include density and parcel size criteria for determining the appropriate intensity of these areas.

Specific to hazard mitigation, the *Safety Element* identifies known public safety hazards including seismic and other geologic hazards, flood hazards, slope stability, soil hazards and fire hazards. The City has established an emergency plan which includes the Standardized Emergency Management System (SEMS) and multi-hazard function plan.

Specific to seismically induced hazards, the City seeks to minimize the potential risks and reduce the loss of life, property and the economic and social dislocations resulting from fault surface rupture in the planning area. In response, all buildings requiring a building permit are analyzed by the City's Building inspector; once reviewed, a recommendation is made based on case-study standards. With respect to coastal installations, the City requires a wave action uprush study to demonstrate that the structure will withstand high surf. Its receipt during the early planning process is then used to guide development review. In addition, Carpinteria's soil hazards maps identify areas of highly expansive and soil settlement areas.

To counteract slope stability hazards, Carpinteria aims to minimize the potential risks and reduce the loss of life, property and economic and social dislocations. In response, the City has zoned and designated most of the bluff areas as open space, and has required that all developed areas at risk of bluff failure be protected from bluff retreat over a 100-year term.

For areas at risk of soil hydro-compaction and subsidence, the City requires that all new development comply with geotechnical recommendations related to construction in areas identified as having high potential to soil settlement.

Flood hazards are identified according to Federal Emergency Management Administration (FEMA) Flood Insurance Rate Maps (FIRMs) and the 100-year flood plain. These maps indicate that U.S. 101 would be overtopped by a 100-year flood plain; as a result City staff are working with Caltrans and the Santa Barbara County Association of Governments to minimize this risk. The Santa Barbara County Flood Control District also performs routine maintenance, removing sediments and clearing objects from creeks within the City, allowing water to flow safely while controlling flooding. Furthermore, Public Works crew complete a full inspection and clean drain pipes, ditches and culverts annually. The Downtown and Beach Neighborhood proposes new underground storm drains which are currently in the City's Capital Improvement Plan. In conjunction to these projects, a Storm Drain Master Plan was completed in 2008. This is an update to its previous plan and takes into account the adoption of new laws, regulations, permits, policies and practices. Its goal is to identify drainage system areas that will need to be addressed over a 20-year planning period.

Fire hazards are a constant threat due to dry, warm weather throughout the year. The City works closely with fire district personnel to minimize the risk of urban and wildland fires. Furthermore, the City requires review and approval of all new structures by the Carpinteria-Summerland Fire Protection District.

Lastly, the risk of exposing hazardous materials is minimized through a series of policies concerning the use, storage, transportation, and disposal of hazardous materials. Underground or aboveground storage tanks are consistent with County of Santa Barbara and Regional Water Quality Control Board policies aimed at preventing the hazardous discharge or runoff of hazardous materials.

Through the identification of various natural and manmade hazards, the City of Carpinteria aims to minimize the respective risks. This is primarily achieved through the implementation of policies to strengthen structures; public outreach programs that communicate the inherent risks; and an effort to secure emergency response during and immediately after an event.

To mitigate potential hazardous materials incidents, the City should enforce policies, such as the Santa Barbara County and State Regional Water Quality Control Board policies, that ensure that the use, storage, transportation and disposal of hazardous materials does not result in hazardous

discharge or runoff. Hazardous materials or wastes stored in closed containers at a facility should not be within 50 feet of an adjacent property. New residences should not be located adjacent to known handlers of acutely hazardous materials. Further, prior to development of any site identified as having been used for the storage of hazardous materials, the city shall require the developer to submit documentation to demonstrate that testing has been conducted to determine the existence and extent of soil and/or groundwater contamination and that, based on the results, an appropriate clean-up program is established and completed. The City, through the State Department of Agriculture, will identify active agricultural fields handling acutely hazardous pesticides and will ensure appropriate land use and urban development be located adjacent to these fields. Structures should not be closer than 300 feet from the Carpinteria Oil and Gas Processing Facility and structures located between 300 and 1,000 feet from the facility should be constructed using safety glass. Habitable structures should not be located close to gas pipelines, railroad right-of-ways, oils wells, or other corridors that have the potential for hazardous materials leaks.

City of Carpinteria Emergency Operations Plan

This Emergency Operation Plan addresses the City of Carpinteria's planned response to extraordinary emergency situations associated with natural disasters, technological incidents, and national security emergencies. The document is divided into three parts:

- **Part I – Basic Plan.** Overall organizational and operational concepts relative to response and recovery, as well as an overview of potential hazards. The intended audience is the Emergency Operations Center (EOC) Management Team.

- **Part II – Emergency Organization Functions.** Description of the emergency response organization and emergency action checklists. The intended audience is the EOC Management Team.

- **Part III – Legal Documents.** Supporting and legal documents pursuant to SEMS/NIMS and other state statues and documentation to the Carpinteria Emergency Operation Plan. The intended audience is all SEMS/NIMS emergency management staff.

With regards to hazards mitigation, the document cites that SECTION 409 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1988 would be enacted following a presidentially declared Emergency or Major Disaster. It also assigns hazard mitigation responsibilities to various elements of federal, state and local government in California. The City, in preparation with the County of Santa Barbara, has prepared a Regional Hazard Mitigation Plan. Furthermore, SECTION 2.40.110 directs the city council to adopt "The City of Carpinteria Standardized Emergency Management Systems Multi-Hazard Functional Plan (SEMS MHFP)" which would establish the formation of the emergency services organization.

Following a major disaster, recovery actions would occur in two general phases: Short-Term and Long-Term Recovery; the former is executed by the Emergency Operations Center, while in the latter phase it is transitioned to the City Departments responsible for the various activities.

The major objectives of *Short-Term Recovery* operations include: hazard assessment, rapid debris removal and cleanup, coordinated restoration of essential services, attention to high impact areas, medical and mental health services, and abatement of hazardous structures. In contrast, the major objectives of *Long-Term Recovery* operations include: development of a recovery team, economic

and resource stabilization, hazard mitigation, restoration and reconstruction of public facilities, coordinated delivery of long-term social and health services, recovery of disaster response costs, and post-event assessments.

The EOP discusses at length the Hazard Mitigation Grant Program (HMGP), which may be leveraged following a Presidentially-declared disaster.

The EOP also includes an organizational matrix which would be used to designate responsibilities to various City department and agencies. Checklists are provided for care and shelter needs, which would be administered by the Department of Social Services; additional checklists are provided to assist those with disabilities and other special needs, to inspect buildings for re-occupancy of key facilities, and to ensure the maintenance and restoration of utilities and critical infrastructure.

To enhance the capability for the City to respond to emergencies, a *Planning/Intelligence* section is provided. Its responsibility is to collect, evaluate, display and disseminate incident information and resource status. This Section functions as the primary support for decision-making to the overall emergency organization. It also provides anticipatory appraisals and develops plans necessary to cope with changing field events. During an incident, other department heads would advise the Planning/Intelligence Section Coordinator on various courses of action from their departmental level perspective.

The *Logistics Section's* primary responsibility is to ensure the acquisition, transportation and mobilization of resources to support the response effort at the disaster sites, public shelters, EOCs, etc. This Section provides all necessary personnel, supplies and equipment procurement support. Its objectives include the collection of information to determine needs and prepare for expected operations, the coordination of logistical support with the EOC Director, and the preparation of reports required for identifying the activities performed by the Logistics Section.

Another section in the EOP discusses the role of the Finance/Administration's responsibility to maintain the financial systems necessary to keep the City functioning during a disaster. These systems include payroll, payments, revenue collection, claim processing, and cost recovery documentation. The Finance/Administration Section acts in a support role in all disasters/emergencies to ensure that all required records are preserved for future use and that documentation is properly archived for State OES and FEMA filing requirements.

The City of Carpinteria will continue to review this hazard mitigation plan when determining updates to the Capital Improvement Plan, so that new/ongoing projects may take into consideration hazard mitigation measures.

City of Carpinteria Storm Water Management Plan

In the State of California, the State Water Resources Control Board (SWRCB) and the various Regional Water Resource Control Boards (RWRCBs) implement mandates of the Federal Clean Water Act and the National Pollutant Discharge Elimination System (NPDES) permit program. During one of their studies, the SWRCB determined that urban runoff is a leading cause of pollution through the state and a contributor to pollutants of concern (POC), such as nutrients, pathogens, hydrocarbons, metals, trash and pesticides to waterways. In compliance with various federal and state requirements, the City as a municipality and operator of a separate storm water sewer system

(MS4) has prepared the Storm Water Management Plan (SWMP) to guard against the detrimental effects on human health and surrounding ecosystems.

The goal of the SWMP is to protect the health of the public, the environment, and water quality from the impacts of storm water runoff. It outlines a program comprised of guiding principles, strategies, and procedures for the protection of water quality and reduction of pollutant discharges to the maximum extent practical.

The SWMP was developed in order to achieve MEP standards. This process includes a thorough identification and the selection and implementation of best management practices including:

- Public Education and Outreach on Storm Water Impacts
- Illicit Discharge and Detection and Elimination
- Construction Site Runoff Control
- Post-Construction Storm Water Management in New Development and Redevelopment
- Pollution Prevention/Good Housekeeping for Municipal Operation

In summary, though these new standards reflect the compliance of water quality standards by the City of Carpinteria, its effects are also translated into a reduction of flood risk. This is evidenced through storm water drainage maintenance and repair, public outreach efforts on pollution and overall storm water events, and the development of new pre- and post- construction regulations.

National Flood Insurance Program

The City of Carpinteria is an active member of the National Flood Insurance Program (NFIP). The program is administered by the County Public Works-Flood Control District. As stated by FEMA, “The NFIP aims to reduce the impact of flooding on private and public structures. It does so by providing affordable insurance to property owners and by encouraging communities to adopt and enforce floodplain management regulations. These efforts help mitigate the effects of flooding on new and improved structures. Overall, the program reduces the socio-economic impact of disasters by promoting the purchase and retention of general risk insurance, but also of flood insurance, specifically.

As part of the NFIP are the FEMA Flood Insurance Rates Maps (FIRMs) which identify areas in the County which are vulnerable to flooding. The flood zones identified on the FIRMs are areas susceptible to 100-year and 500-year flood events. A 100-year and 500-year storm event is when storms have a 1% or 0.2% annual chance of occurrence. Another measure of the probability of occurrence of a 100-year storm is there is at least a 26% chance of a 100-year storm during the life of a 30-year mortgage. An estimated seven structures are located within these 100-year floodplain areas.

The information in the Flood Insurance Study and resultant FIRMs is based on historic, meteorological, hydrologic, hydraulic and topographic data, as well as open-space conditions, flood control works, and development within the study area. Other information included on the maps includes Special Flood Hazard Areas (SFHA), Base Flood Elevations, and insurance risk zones. FIRMs are used to determine the BFE at specific sites or if a specific property is located in a floodplain or SFHA in order to administer floodplain management regulations, determine potential locations for new development, and make flood insurance determinations.

In 2012, The City adopted Ordinance No. 658 modifying chapters 14.40 and 15.50 of the City of Carpinteria Municipal Code pertaining to flood damage protection regulations and updating regulations complying with the NFIP. This ordinance states that the City Engineer is the designated Floodplain Administrator. The Development Department is the lead department coordinating NFIP compliance. All potential development projects located within floodplains shall be referred to the City's Floodplain Administrator and must follow an established development review process.

Repetitive Loss (RL) Properties

Repetitive loss properties are defined as property that is insured under the NFIP that has filed two or more claims in excess of $1,000 each within any consecutive 10-year period since 1978. Currently, there are no repetitive loss structures in the City of Carpinteria.

10.4.5 Previous Occurrences

There have been no significant events affecting the City of Carpinteria over the last six years.

10.5 HAZARD ASSESSMENT

10.5.1 Overview

The purpose of this section is to review, update and/or validate the identified and profiled hazards in the 2011 City of Carpinteria Multi-Hazard Mitigation Plan (HMP). The intent is to confirm the list of hazards facing the city and determine if the current information and material is accurate. The importance of this is to ensure that all hazards are being considered and decisions are based on the most up-to-date information. Another purpose of this section is to screen the hazards; providing an understanding of the significance by ranking higher priority hazards in the community.

To assist with this effort two (2) groups were utilized: the Mitigation Advisory Committee (MAC) and the City Local Planning Team (LPT). The MAC group assessed information at the county-level, while the local planning team assessed information as it related to their jurisdiction.

As part of the process both groups leveraged other planning efforts and documents, including various City plans, the State of California Multi-Hazard Mitigation Plan, the Santa Barbara County Comprehensive Plan Seismic Safety and Safety Element, and the Santa Barbara County 2016 HMP.

10.5.2 Mitigation Advisory Committee Hazard Assessment

Utilizing the information and material from the State of California Multi-Hazard Mitigation Plan, the Santa Barbara County Comprehensive Plan Seismic Safety and Safety Element, and the Santa Barbara County 2011 HMP, the Santa Barbara County Mitigation Advisory Committee (MAC) reviewed and revised: 1) the list of hazards in the geographic area, 2) the information and material presented for each hazard, and, 3) the prioritization of the hazards. The following sections provide a summary of the work.

10.5.2.1 Hazard Identification

Based on the review of the City of Carpinteria 2011 HMP and incorporating information from other documents (i.e., the California State Multi-Hazard Mitigation Plan) and local experience and knowledge, the City LPT identified the following hazards as being relevant to Carpinteria (**Table 10.6**).

Table 10.6: Relevant Hazards in the City of Carpinteria

City Hazards
Earthquake
Flood/Sea Level Rise/Coastal Flooding
Wildfire
Landslides/Erosion/Other Earth Movements
Tsunami
Climate-related Hazards
Severe Weather
Drought and Water Shortage
Agriculture Pests and Disease
Dam Failure
Hazardous Material Release
Energy Shortage and Energy Resiliency
Natural Gas Pipeline/Storage
Oil Spill
Terrorism
Civil Disturbance
Train Accident; Explosion and/or Chemical Release

10.5.2.2 Hazard Screening/Prioritization

The intent of screening hazards is to help prioritize which hazard creates the greatest concern in the community. Because the original process used to rank hazards in the City of Carpinteria 2011 HMP is not being utilized, an alternative approach is being recommended. A summary of the process and the results of the revised hazard ranking for the 2016 HMP Update are discussed below:

Ranking Tool Design
The ranking tool prioritizes hazards on two (2) separate factors:

- Probability of the hazard affecting the community
- Potential impacts of the hazard on the community

To further assist with the process, the following definition of "High", "Medium", and "Low" probability and impacts were utilized:

Probability

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

Impact

High- Catastrophic/Critical: Major loss of function, downtime, and/or evacuations
Medium- Limited: Some loss of function, downtime and/or evacuations
Low- Negligible: Minimal loss of function, downtime and/or evacuations

Based on the revised list of hazards and utilizing the alternative approach, the Local Planning Team screened the hazards. The results of the assessment are in **Table 10.7**. The shading of the matrix boxes indicate the priority level: red = tier 1; green = tier 2; and gray = tier 3.

Table 10.7: Hazard Screening and Ranking

Rank	High Impact	Medium Impact	Low Impact
High Probability		• Drought/Water Shortage • Energy Shortage • Flooding/ Sea Level Rise/Coastal Flooding • Landslide/Other Earth Movements • Oil Spill • Severe Weather • Train Accident • Wildfire	• Agricultural Pests/Disease
Medium Probability	• Earthquake	• HazMat Release • Natural Gas Pipeline/Storage • Terrorism	
Low Probability	• Dam Failure	• Civil Disturbance • Tsunami	

10.5.3 Local Planning Team Hazard Assessment

The local planning team leveraged the work completed by the MAC, reviewed the information and material from the State of California Multi-Hazard Mitigation Plan, the Santa Barbara County Comprehensive Plan Seismic Safety and Safety Element, and the City of Carpinteria 2011 HMP, the

City's 2014 Emergency Management Plan as well as, other documents, plans, and material provided by the local planning team members. The following sections provide a summary of the work.

10.5.3.1 Hazard Identification

Considering information and all materials provided by the local planning team members and the MAC, the team adopted a list of hazards (*see* Table 5.1).

10.5.3.2 Hazard Screening/Prioritization

Because of the similarities between of the list of hazards, the local planning team determine the most prudent course of action was to review and validate the hazard screening effort completed by the MAC. After internal discussions the local planning team adopted the MAC hazard screening and rankings (*see* Table 5.2).

10.6 HAZARD PROFILES

The following sections represents work done by the MAC and confirmed by the local planning team. The information provided below is relevant to the City of Santa Barbara. In other words, if the planning team considered a particular hazard not a threat it was not included in the HMP. The following material is intended to be an overview of the hazards; more information may be found in the State of California Multi-Hazard Mitigation Plan, the Santa Barbara County Comprehensive Plan Seismic Safety and Safety Element, City's 2014 Emergency Management Plan and other documents.

10.6.1 Earthquake

10.6.1.1 Description of Hazard

An earthquake is caused by a release of strain, within or along the edge of the Earth's tectonic plates, which produces ground motion and shaking, surface fault rupture, and secondary hazards, such as ground failure. The severity of the motion increases with the amount of energy released, decreases with distance from the causative fault or epicenter, and is amplified by soft soils. After just a few seconds, earthquakes can cause massive damage and extensive casualties.

The effect of an earthquake on the Earth's surface is called the intensity. The intensity scale consists of a series of certain key responses such as people awakening, movement of furniture, damage to chimneys, and finally, total destruction. The scale currently used in the United States is the Modified Mercalli Intensity (MMI) Scale. It was developed in 1931 by the American seismologists Harry Wood and Frank Neumann. This scale, composed of 12 increasing levels of intensity that range from imperceptible shaking to catastrophic destruction, is designated by Roman numerals. It does not have a mathematical basis; instead it is an arbitrary ranking based on observed effects.

Most people are familiar with the Richter scale, a method of rating earthquakes based on strength using an indirect measure of released energy (**Table 10.8**). The Richter scale is logarithmic. Each one-point increase corresponds to a 10-fold increase in the amplitude of the seismic shock waves and

a 32-fold increase in energy released. An earthquake registering 7.0 on the Richter scale releases over 1,000 times more energy than an earthquake registering 5.0.

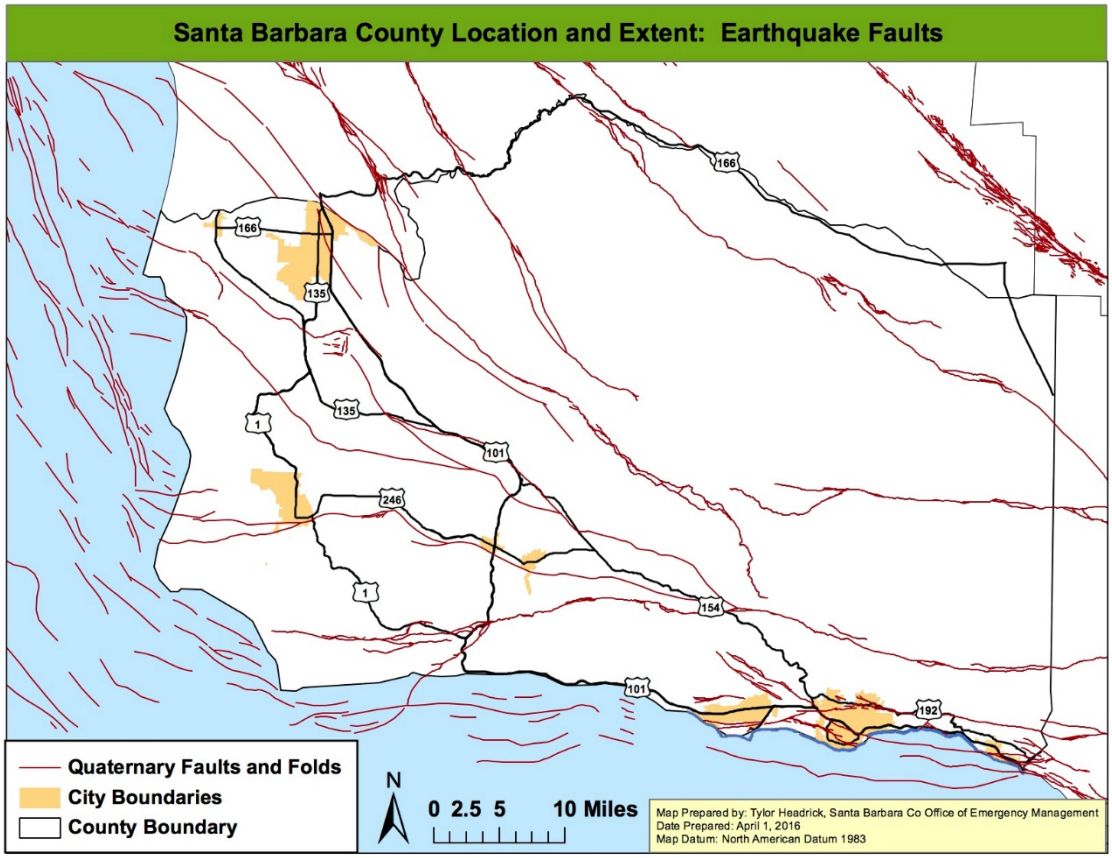
Table 10.8: Richter Scale

Richter Magnitudes	Earthquake Effects
Less than 3.5	Generally not felt, but recorded.
3.5-5.4	Often felt, but rarely causes damage.
Under 6.0	Slight damage to well-designed buildings. Can cause major damage to poorly constructed buildings over small regions.
6.1-6.9	Can be destructive in areas up to about 100 kilometers across residential areas.
7.0-7.9	Can cause serious damage over larger areas.
8 or greater	Can cause serious damage in areas several hundred kilometers across.

Peak ground acceleration (PGA) is a measure of the strength of ground shaking. Larger peak ground accelerations result in greater damage to structures. PGA is used to depict the risk of damage from future earthquakes by showing earthquake ground motions that have a specified probability (10%, 5%, or 2%) of being exceeded in 50 years return period. These values are often used for reference in construction design, and in assessing relative hazards when making economic and safety decisions.

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

Figure 10.3: Earthquake Faults in Santa Barbara County



10.6.1.2 Location and Extent of Hazard in Carpinteria

As previously mentioned, Santa Barbara County, including the City of Carpinteria, is located in a high seismic activity zone. The County is located in the Transverse Range geologic province. Movement of continental plates manifest primarily along the San Andreas Fault system. The San Andreas fault is situated 7 miles northeast of Santa Barbara County; active faults in the San Andreas Fault system that fall within Santa Barbara County include the Nacimiento, Ozena, Suey, and Little Pine faults. Other active faults in the region include the Big Pine, Mesa, Santa Ynez, Graveyard-Turkey Trap, More Ranch, Pacifico, Santa Ynez, and Santa Rose Island faults. The Santa Barbara County Comprehensive Plan Seismic Safety and Safety Element provides descriptions of all faults in Santa Barbara County, including historically active, active, potentially active and inactive, as well as their location and fault length. A map of faults in the Santa Barbara County region is located above (**Figure 10.3**).

After earthquakes, some regions may be prone to liquefaction. On level ground, liquefaction results in water rising to the ground surface. On sloping ground, liquefaction will usually result in slope failure such as occurred at the Sheffield Dam in the 1925 Santa Barbara earthquake. Liquefaction risk is considered high if there were soft soils (Types D or E) present. The National Earthquake Hazards Reduction Program (NEHRP) rates soils from hard to soft, and gives the soils ratings from Type A through Type E, with the hardest soils being Type A, and the softest soils rated at Type E.

The majority of the soils in Santa Barbara County are types A-C, with some areas having type D. There have been no Type E soils identified. (NOTE: A further discussion of soils can be found in the Santa Barbara County Comprehensive Plan Seismic Safety and Safety Element, along with maps of the expansive soils and collapsible soils problems ranking.) Liquefaction risk is also determined by depth to groundwater. Most of the low coastal plan and valley bottoms are underlain by alluvium and given a moderate rating with respect to liquefaction potential. Based on this information and work conducted as part of the Santa Barbara County Comprehensive Plan a map was generated indicating groundwater and liquefaction severity (**Figure 10.4**).

Figure 10.4: Groundwater and Liquefaction Severity

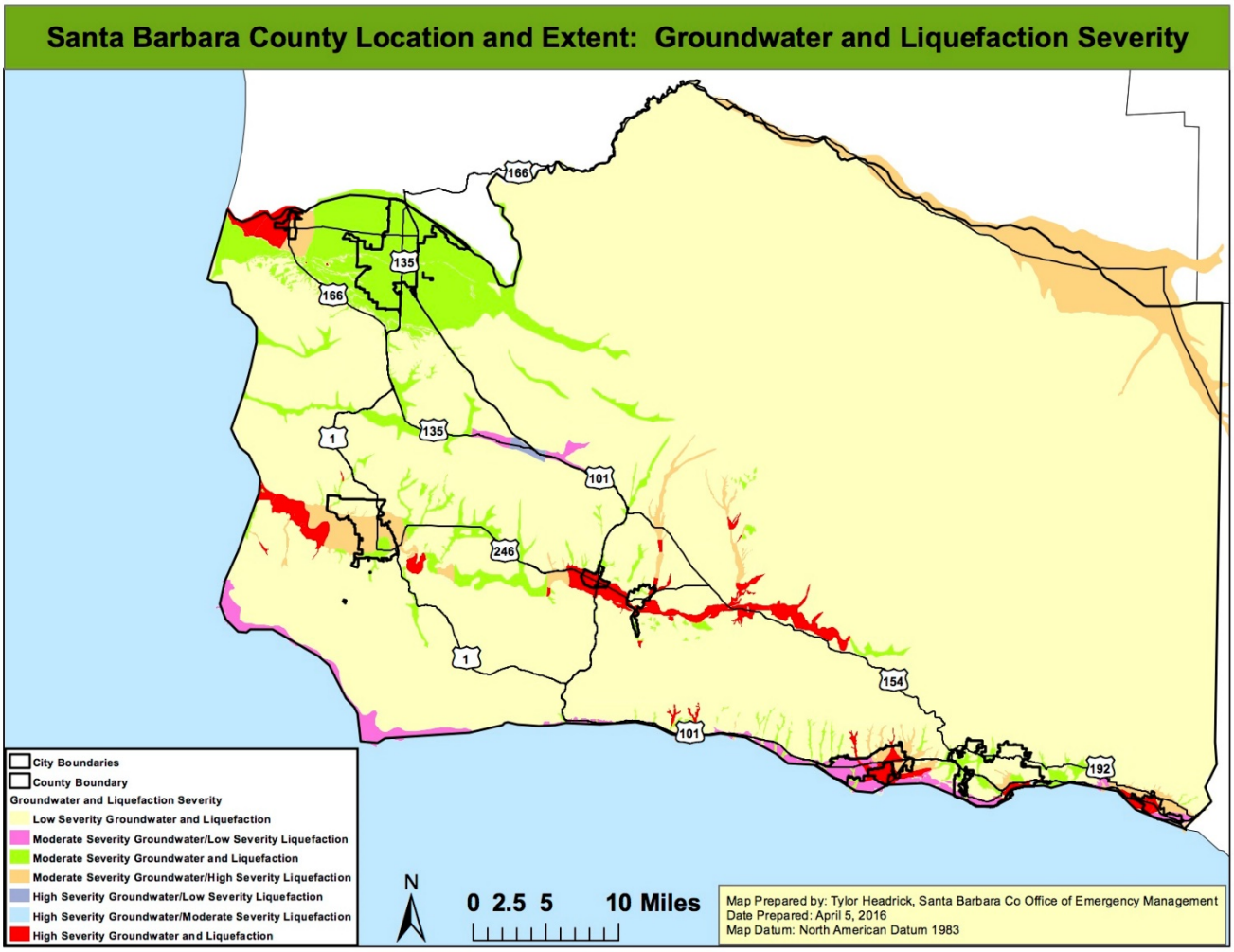
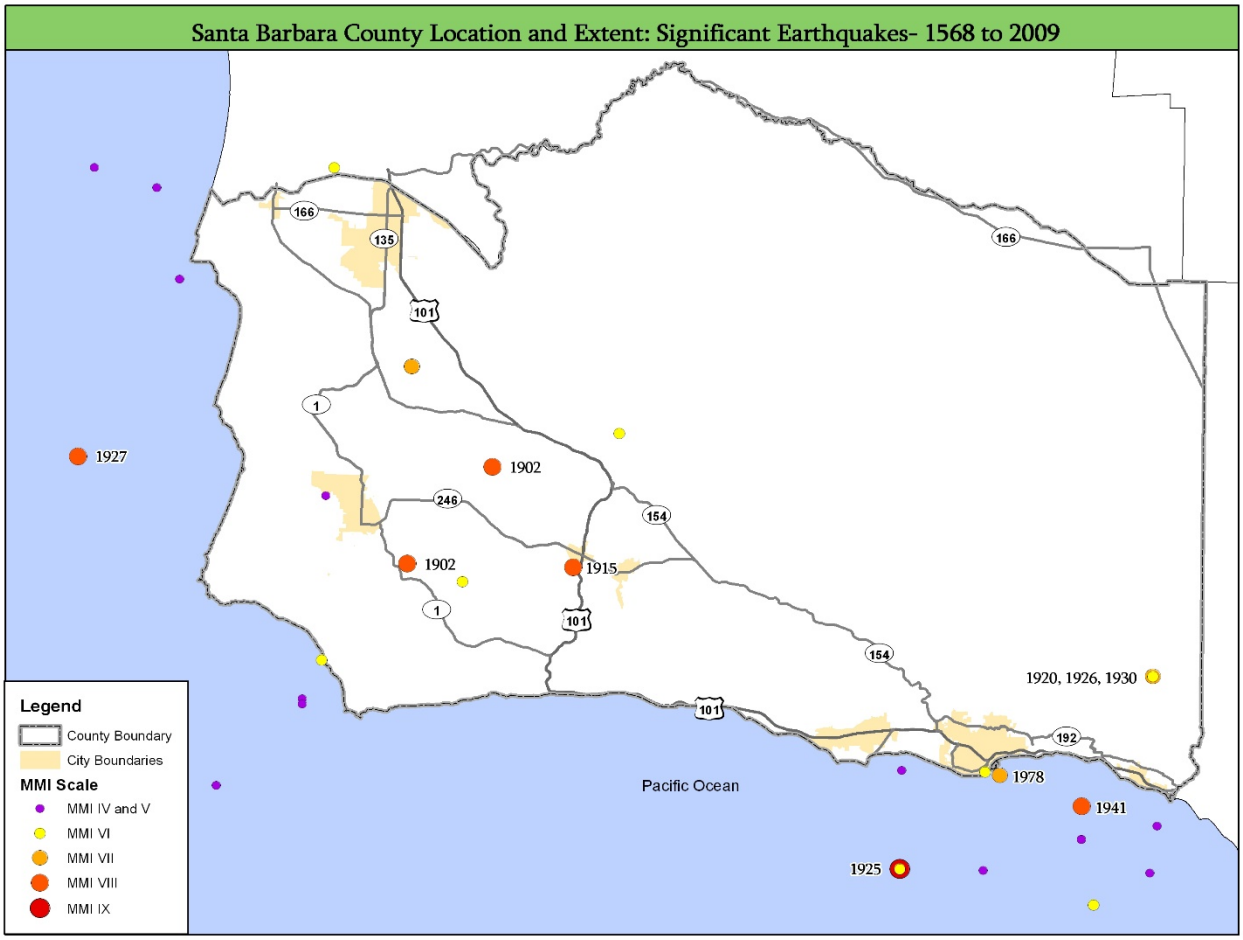


Figure 10.5 Santa Barbara County Significant Earthquakes



10.6.1.3 History of Hazard in Carpinteria

Although Carpinteria is located in a high seismic activity zone and as such has a long history of earthquakes, there has been no significant seismic activity since 2009. Most seismic activity in California occurs along the San Andreas Fault system and most historic seismic events in the Santa Barbara County region have been centered offshore on an east-west trending fault between Santa Barbara and the Channel Islands. The above map (**Figure 10.5**) displays historical epicenters of earthquakes located in the Santa Barbara County from 1568 to 2009. The dates of the more significant earthquake events are provided adjacent to the epicenters.

While more extensive discussion of previous earthquakes in Santa Barbara County is available in the Seismic and Safety Element of the Santa Barbara County Comprehensive Plan, the following information provides an overview of the more recent, significant events:

> In March of 1978, and continuing sporadically through July of 1978, a swarm of small earthquakes, called micro-earthquakes occurred underneath the northeastern end of the Santa Barbara Channel. Toward the end of the micro-earthquake swarm, in July and early August of

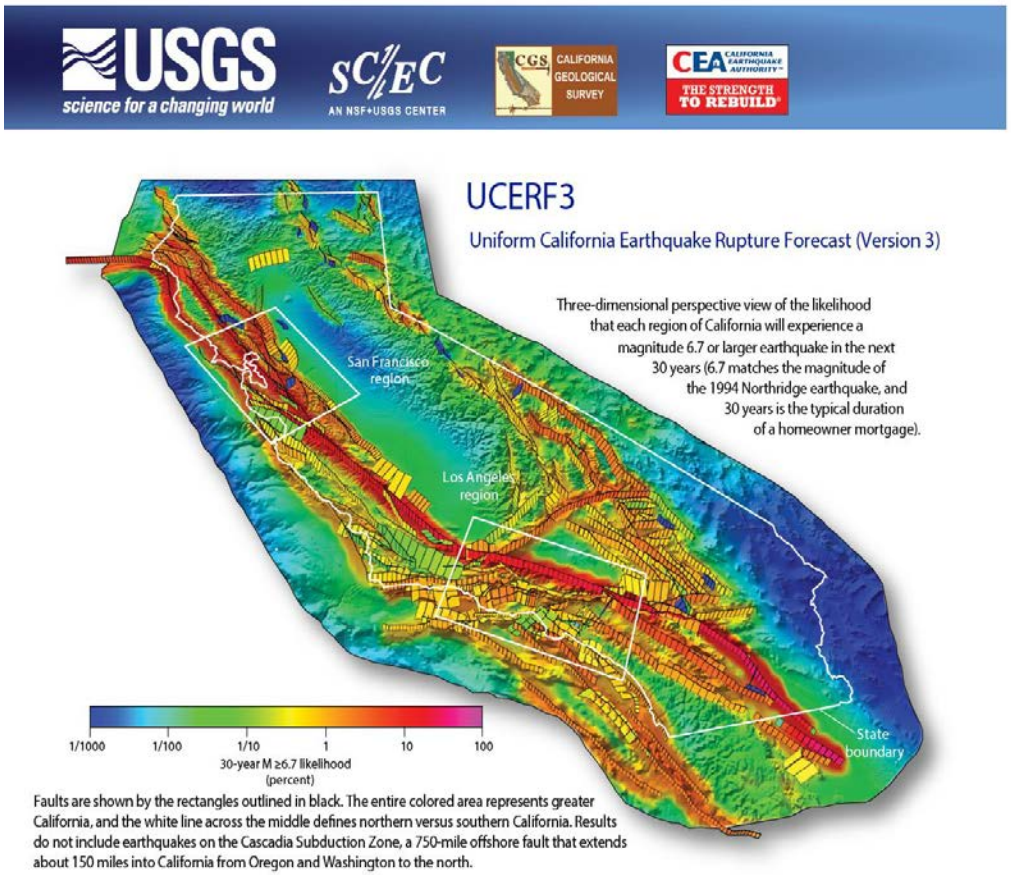
1978, an unusually large amount of oil and tar was reported on local beaches in Santa Barbara. A common occurrence for the Santa Barbara area, the oil from these natural seeps was considered only a minor nuisance. On August 13, 1978, an earthquake occurred just to the southwest of the City of Santa Barbara, about 5 miles beneath the Santa Barbara Channel. The earthquake ruptured to the northwest, focusing its energy toward Goleta, the most intense ground motion occurring between Turnpike Road and Winchester Canyon Road, an area that includes the University of California, Santa Barbara. A strong-motion seismograph on the University of California campus recorded an acceleration of 0.45 times that of gravity. Another seismograph, located at the top of North Hall, recorded an acceleration of 0.94 times that of gravity. Sixty-five people were treated for injuries at local hospitals. No deaths were reported.

On December 22, 2003 at 11:15 a.m. a magnitude 6.5 earthquake struck the central California coast. The event, known as the San Simeon Earthquake, was located 11 kilometers northeast of San Simeon, and 39 kilometers west/northwest of Paso Robles. Although the San Simeon Earthquake had a more significant impact on San Luis Obispo County, the event was reportedly felt as a MMI VI in Guadalupe and Santa Maria and as a MMI V in Lompoc, Santa Ynez and Solvang. According to reports on the San Simeon earthquake by the U.S. Geological Survey and U.C. Berkeley Seismological Laboratory, two (2) people were killed, 40 people were injured, over 40 buildings collapsed or were severely damaged and more than 10,000 homes and businesses were without power. The most severe damage was to un-reinforced masonry (URM) structures that had not yet been retrofitted to better withstand earthquakes. In Santa Barbara County, there was minor damage to more than 30 URM buildings in the City of Guadalupe.

10.6.1.4 Probability of Occurrence

The United States Geological Survey (USGS) and their partners, as part of the latest Uniform California Earthquake Rupture Forecast Version 3 (UCERF3; 2015), have estimated the chances of having large earthquakes throughout California over the next 30 years (**Figure 10.6**).

Figure 10.6: Rates for Earthquake of Magnitude 6.7 or Larger in the Next 30 years (USGS, 2015)



Statewide, the rate of earthquakes around Magnitude 6.7 (the size of the 1994 Northridge earthquake) has been estimated to be one per 6.3 years (more than 99% likelihood in the next 30 years); in southern California, the rate is one per 12 years (93% likelihood in the next 30 years). Southern California's rates are given in **Table 10.9**.

Table 10.9: Southern California Region Earthquake Likelihoods (UCERF3, 2015)

Magnitude (greater than or equal to)	Average Repeat Time (years)	30-year likelihood of one or more events
5	0.24	100%
6	2.3	100%
6.7	12	93%
7	25	75%
7.5	87	36%
8	522	7%

10.6.1.5 Climate Change Considerations

To date, no credible evidence has been provided that links climate to earthquakes; however, climate and weather does play a significant role in the response and recovery from earthquakes. Effects from climate change could create cascading complications and impacts.

10.6.2 Wildfire

10.6.2.1 Description of Hazard

Wildfires can be classified as either a wildland fire or a wildland-urban interface (WUI) fire. The former involves situations where wildfire occurs in an area that is relatively undeveloped except for the possible existence of basic infrastructure such as roads and power lines. A WUI fire includes situations in which a wildfire enters an area that is developed with structures and other human developments. In WUI fires, the fire is fueled by both naturally occurring vegetation and the urban structural elements themselves. According to the National Fire Plan issued by the U.S. Departments of Agriculture and Interior, the wildland-urban interface is defined as "*…the line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels.*"

The WUI fire can be subdivided into three categories (NWUIFPP, 1998): The *classic wildland-urban interface* exists where well-defined urban and suburban development presses up against open expanses of wildland areas. The *mixed wildland-urban interface* is characterized by isolated homes, subdivisions, and small communities situated predominantly in wildland settings. The *occluded wildland-urban interface* exists where islands of wildland vegetation occur inside a largely urbanized area. Generally, many of the areas at risk within the Santa Barbara County fall into the classic wildland-urban interface category.

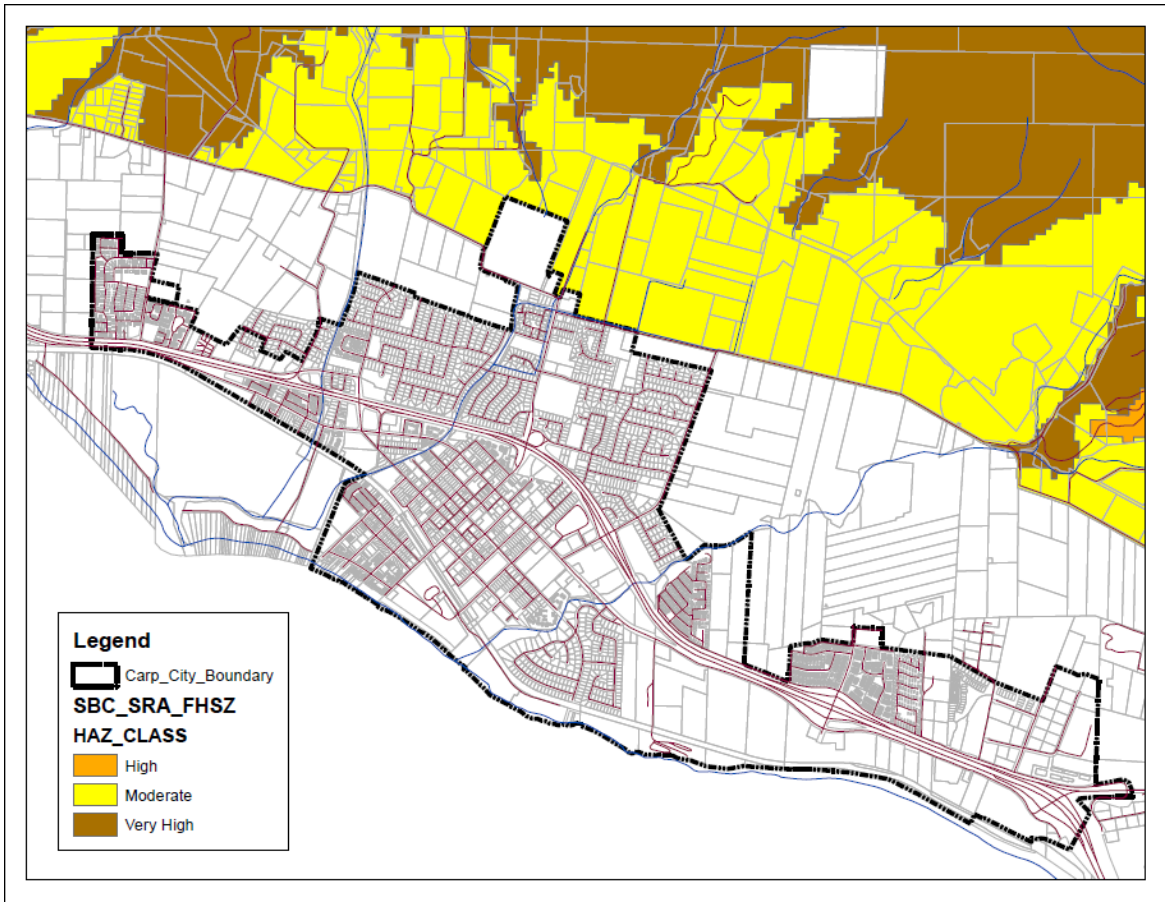
Certain conditions must be present for a wildfire hazard to occur; a large source of fuel must be present, the weather must be conducive (generally hot, dry, and windy), and fire suppression sources must not be able to easily suppress and control the fire. The cause of a majority of wildfires is human-induced or lightning; however, once burning, wildfire behavior is based on three primary factors: fuel, topography, and weather. Fuel will affect the potential size and behavior of a wildfire depending on the amount present, its burning qualities (e.g. level of moisture), and its horizontal and vertical continuity. Topography affects the movement of air, and thus the fire, over the ground surface. The terrain can also change the speed at which the fire travels, and the ability of firefighters to reach and extinguish the fire. Weather as manifested in temperature, humidity and wind (both short and long term) affect the probability, severity, and duration of wildfires.

10.6.2.2 Location and Extent of Hazard in Carpinteria

The climate, topography, and vegetation in Santa Barbara County is conducive to wildfires. California Department of Forestry and Fire Protection, Fire and Resource Assessment Program (CDF-FRAP) were mandated to map areas of significant fire hazards based on fuels (vegetation), terrain, weather, and other relevant factors. These zones, referred to as Fire Hazard Severity Zones,

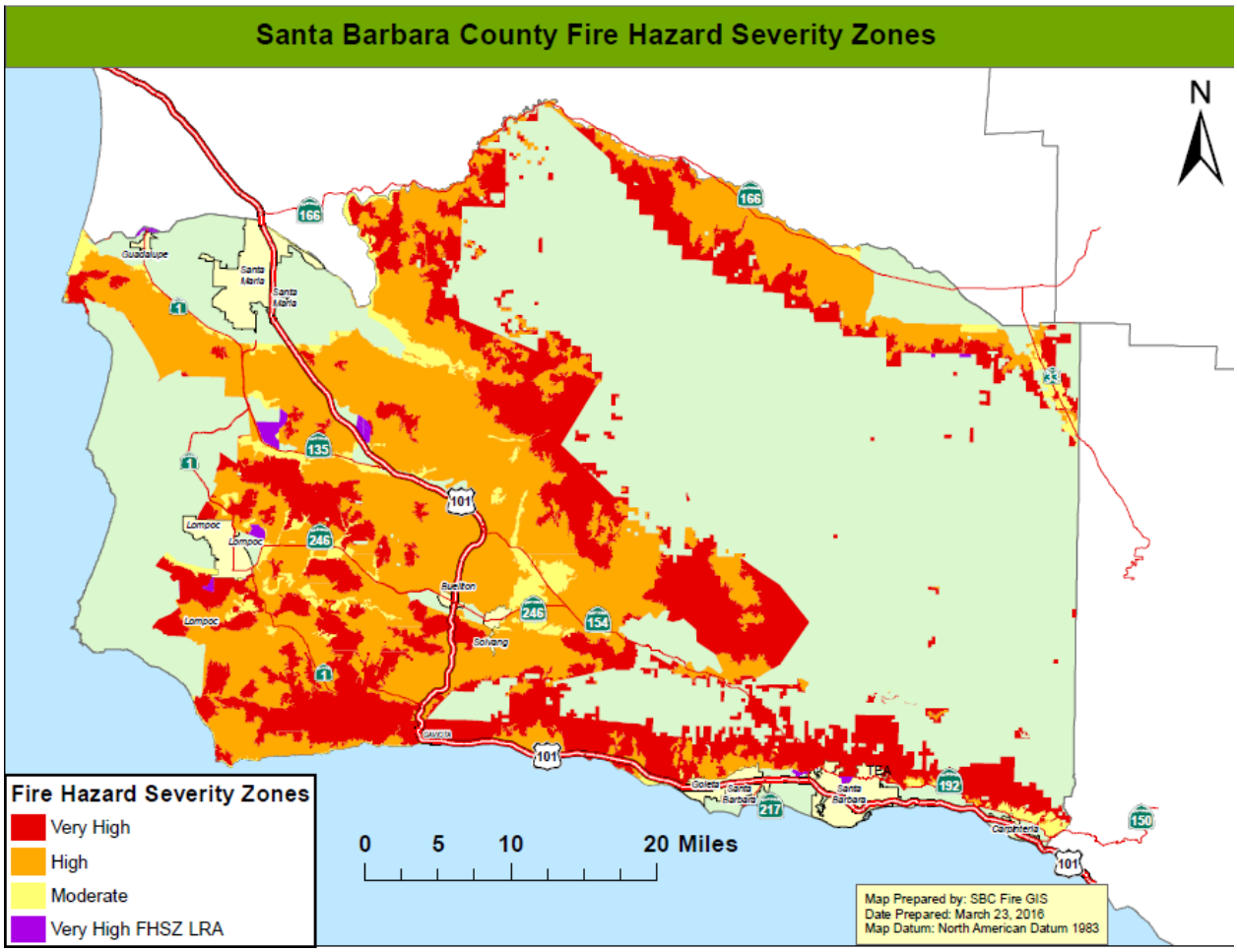
define the application of various mitigation strategies to reduce risk associated with wildland fires. The most current mapping efforts by CDF-FRAP were conducted in 2007. The map below shows the Fire Hazard Severity Zones located in Santa Barbara County (**Figure 10.7**).

Figure 10.7: Fire Hazard Severity Zone



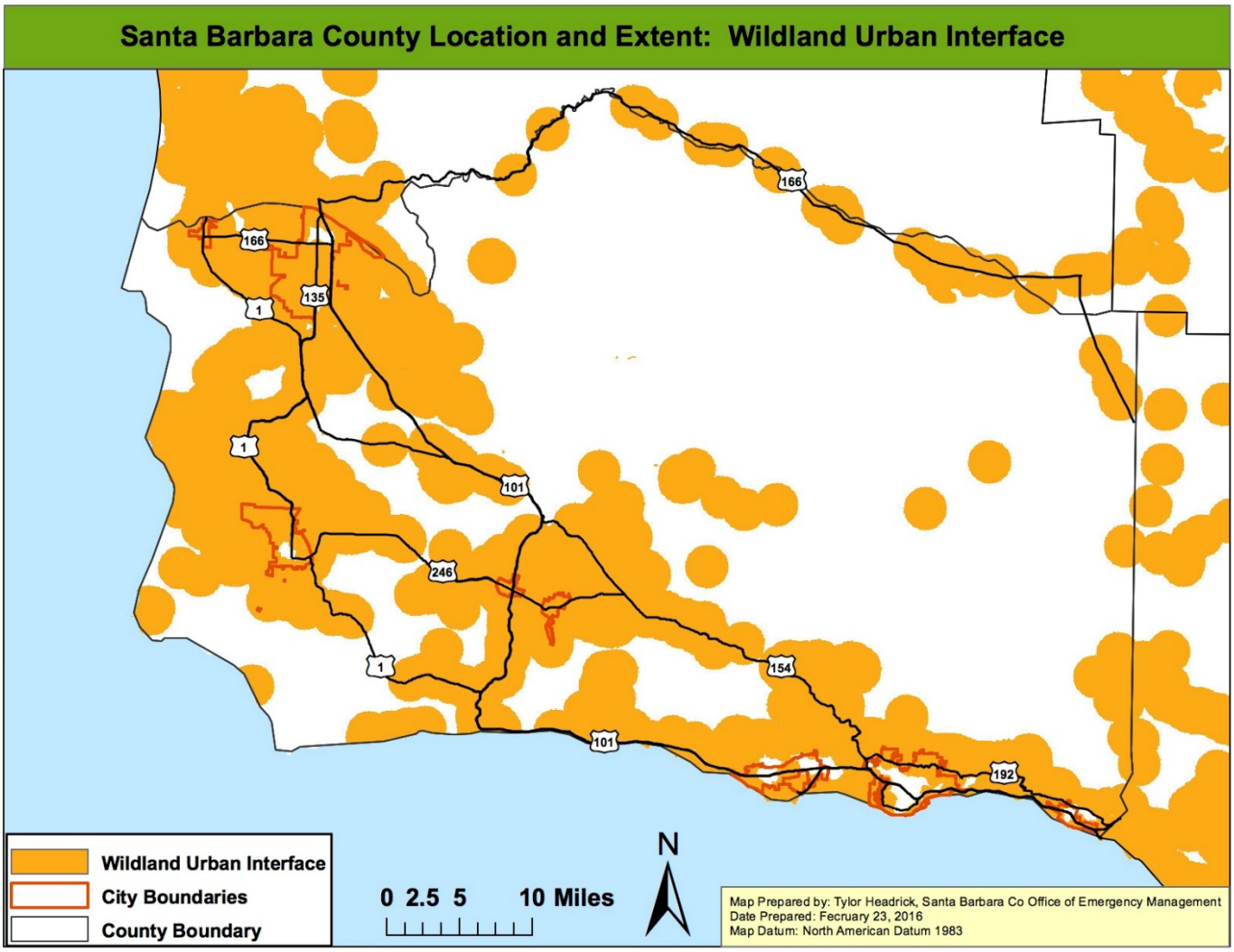
The City of Carpinteria is located in a low risk zone bordered by a moderate to high risk zone as seen in **Figure 10.8** below.

Figure 10.8: City of Carpinteria Fire Hazard Severity Zones



CDF-FRAP developed data that displays the relative risk to areas of significant population density from wildfire. This data is created by intersecting residential housing unit density with proximate fire threat, to give a relative measure of potential loss of structures and threats to public safety from wildfire. The map (**Figure 10.9**) was generated using this data but shows only the wildland-urban interface (WUI) in Santa Barbara County. The WUI map depicts areas where potential fuels treatments will be prioritized to reduce wildland fire threats.

Figure 10.9: Wildland-Urban Interface (WUI)



Fire representatives on the Mitigation Advisory Committee (MAC) acknowledge that the WUI data shown in Figure 5.7 was developed on a statewide basis and does not consider the placement of local neighborhoods within the geography. Santa Barbara County Fire has synthesized the data at a more local level to convey communities at risk. To help protect people and their property from potential catastrophic wildfire, the National Fire Plan directs funding to be provided for projects designed to reduce the fire risks to communities. A fundamental step in achieving this goal was the identification of communities that are at high risk of damage from wildfire. These high risk communities identified within the WUI, were published in the Federal Register in 2001. At the request of Congress, the Federal Register notice only listed those communities neighboring federal lands. The list represents the collaborative work of the 50 states and five federal agencies using a standardized process, whereby states were asked to submit all communities within their borders that met the criteria of a structure at high risk from wildfire. The following list contains the federally regulated (communities which adjoin federal lands) communities at risk within Santa Barbara County:

- Carpinteria
- Casmalia
- Cuyama
- Gaviota
- Goleta
- Lompoc
- Mission Hills
- Orcutt
- Santa Barbara
- Tajiguas
- Vandenberg Air Force Base
- Vandenberg Village

With California's extensive WUI situation, the list of communities extends beyond just those adjacent to Federal lands. After the 2000 fire season the California Department of Forestry and Fire Protection (CAL FIRE), working with the California Fire Alliance, developed a list of communities at risk from wildfire using 1990 Census and USGS Geographic Names Information System data to identify populated places, and CAL FIRE's Fire and Resource Assessment Program (FRAP) fuel hazard data. In addition to the already-mentioned communities, they designated the following as WUI Communities at Risk:

- Buellton
- Garey
- Guadalupe
- Isla Vista
- Los Alamos
- Los Olivos
- Montecito
- Santa Maria
- Santa Ynez
- Sisquoc
- Solvang
- Summerland
- Ventucopa

Combining both lists, there are currently 25 communities on the Communities at Risk List in Santa Barbara County. The California State Forester (CAL FIRE Director) has assigned the role of managing the list to the California Fire Alliance (Alliance). In addition to the 25 State and Federal recognized communities, there are other communities within the county that are also at risk of wildfire and need to be identified. Communities that were not captured in any state or federally recognized list, but have been identified by County Fire and other jurisdictions to be at risk include:

- Cebada Canyon
- Toro Canyon
- El Capitan
- Woodstock
- Jonata Ranch/Bobcat Springs
- Hope Ranch
- Miguelito Canyon
- Mission Canyon
- Trout Club
- Painted Cave
- Rosario Park
- Refugio Canyon
- Jalama
- Tepusquet Canyon
- Paradise
- Gobernador

The figure (**Figure 10.10**) below provides an overview of the location of the Communities at Risk.

Figure 10.10: Communities at Risk

10.6.2.3 History of Hazard in Santa Barbara County

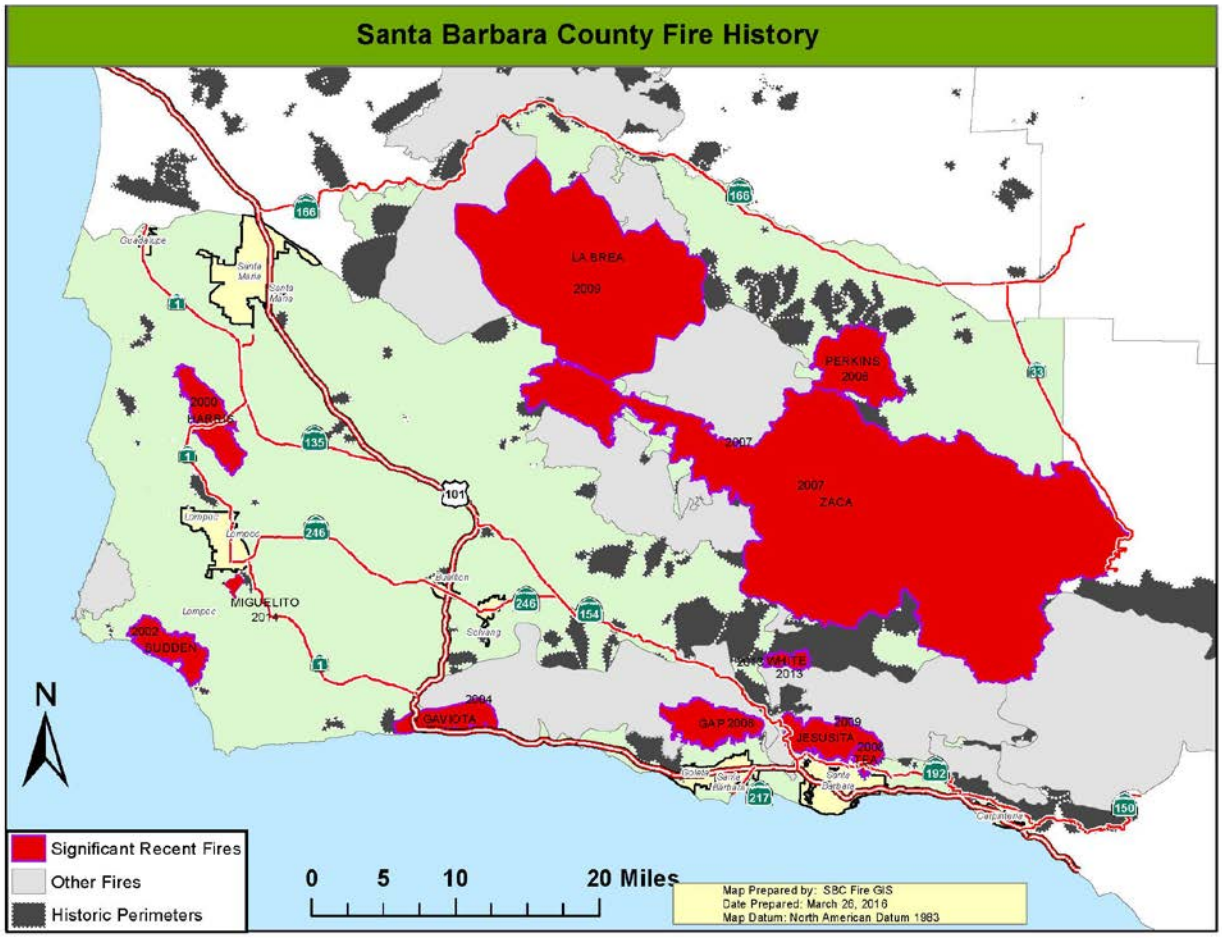
Because Santa Barbara County is prone to wildfires, there is a long history of wildfires in the County that have affected the City (see shaded incidents). **Table 10.10** lists the major wildfires in Santa Barbara County from 1922-2015.

Table 10.10: Major Wildfires in Santa Barbara County

Year	Fire Name	Acres Burned
1922	Kellye Ranch	59,600
1923	Oso Canyon	70,000
1928	Aliso Canyon	42,880
1933	Indian Canyon	30,800
1950	San Marcos	9,500
1953	Big Dalton	73,450
1955	Refugio	84,770
1964	Coyote	67,000
1966	Wellman	93,600
1971	Romero	14,538
1977	Sycamore Canyon	805
1977	Hondo Canyon	8,087
1979	Spanish Ranch	1,190
1979	Eagle Canyon	3,765
1990	Paint	4,424
1993	Marre	43,864
1994	Oak Hill	2,130
1997	Santa Rosa	3,074
1999	Spanish Ranch	22,296
1999	Camuesa	180
2000	Harris	8,684
2002	Sudden	7,500
2004	Gaviota	7,197
2006	Perkins	14,923
2007	Zaca	240,807
2008	Gap	9,443
2008	Tea	1,940
2009	Jesusita	8,733
2009	La Brea	89,489
2010	Bear Creek	1,252
2011	Figueroa	698
2013	White	1,984
2015	Miguelito	632

The CDF-FRAP compiles fire perimeters of wildfires and has established an on-going fire perimeter data capture process. The map below (**Figure 10.11**) shows historic, significant wildfire perimeters in Santa Barbara County. Fire perimeters provide a reasonable view of the spatial distribution of past large fires.

Figure 10.11: Santa Barbara County Fire History

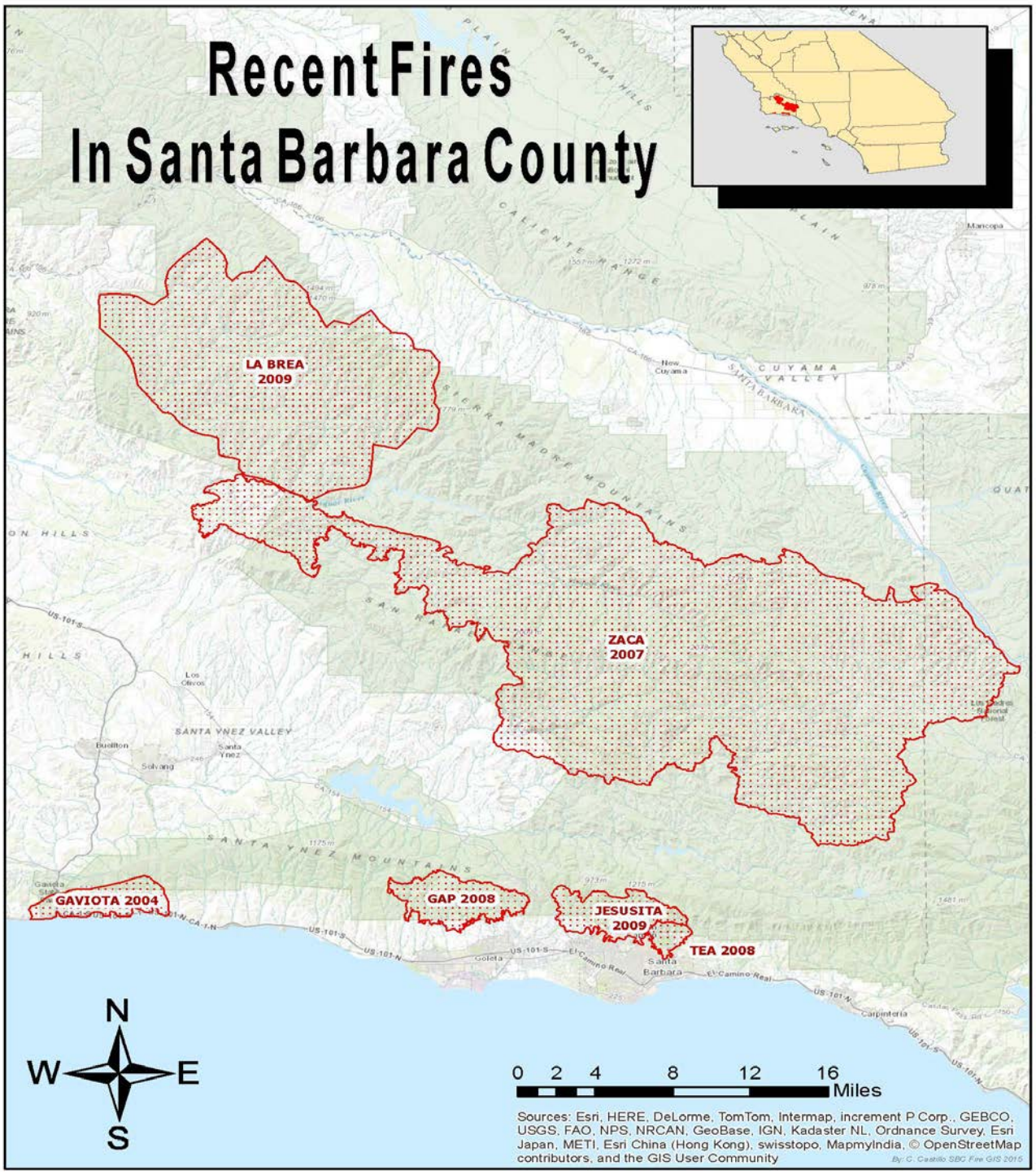


Over the last ten years, Santa Barbara County has experienced seven (7) major fires. Although these fires did not directly threaten the City of Carpinteria, the smoke and ash produced created air quality issues for hundreds of miles. While more extensive discussion of previous wildfires in Santa Barbara County is available, the following information provides an overview and the location (**Figure 10.12**) of the more recent, significant events:

- The Zaca Wildfire burned 240,207 acres, making the Zaca Fire one of the largest wildfires in California history. The total cost of suppression was over $119 million.
- The Gap Wildfire charred 9,443 acres of forest in the Los Padres National Forest. The fire was located in the Santa Ynez Mountains north of the community of Goleta.
- The Jesusita Fire burned over 8,700 acres in the hills above the City of Santa Barbara. This wildfire was driven by a combination of a large dead fuel bed and sundowner winds gusting over 60 miles per hour. The damage, as a result of this fire, was significant, with 80 homes destroyed and another 15 homes badly damaged. No deaths were reported, but at least 30 firefighters were injured battling the fire.

- The La Brea Wildfire burned over 89,000 acres in the Los Padres National Forest in the County of Santa Barbara. The fire was fueled by very hot temperatures, low relative humidity and significant heavy fuels.

Figure 10.12: Recent Significant Fires in Santa Barbara County

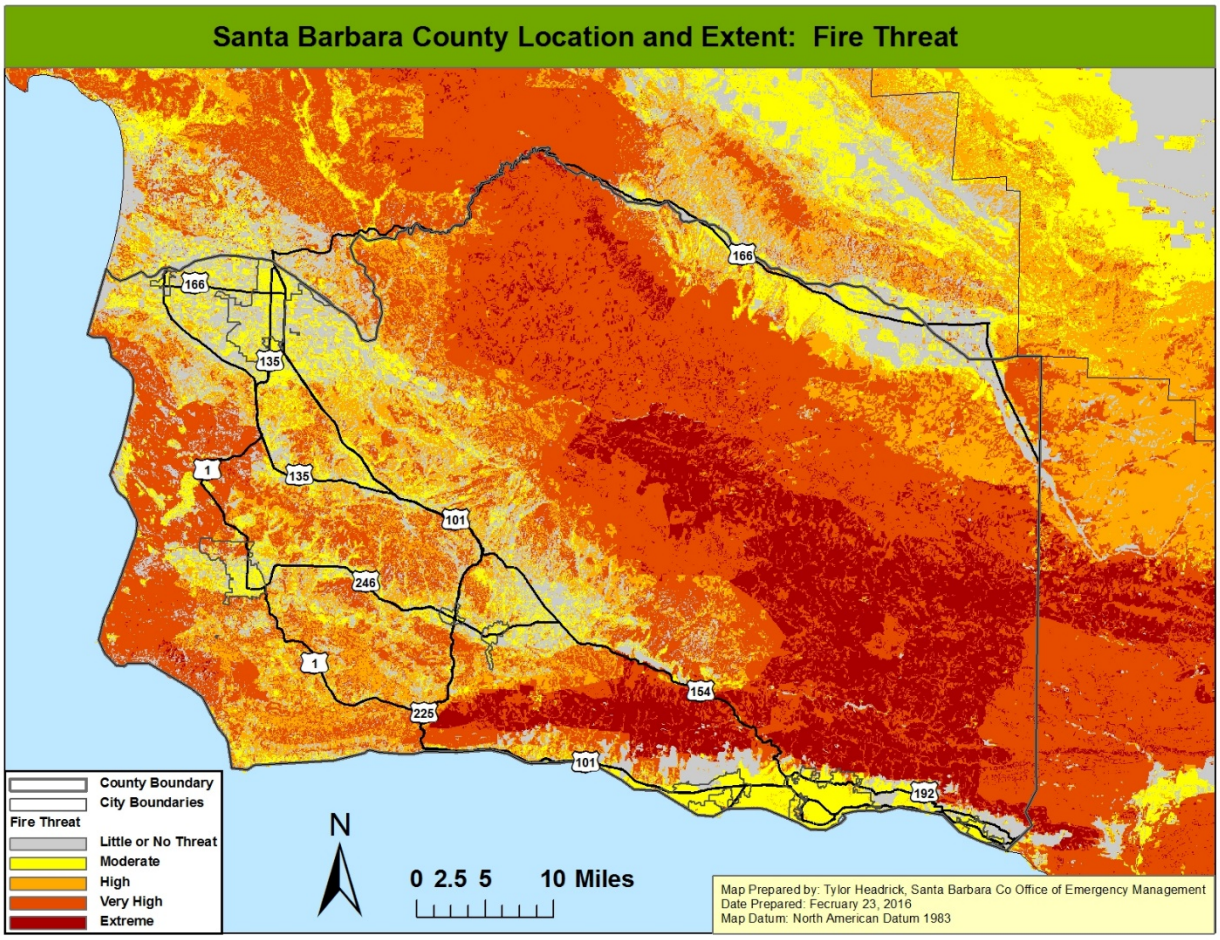


10.6.2.4 Probability of Occurrence

Vegetation and topography were the significant elements in the identification of the fire threat zones. A substantial amount of the vegetation in Santa Barbara County is commonly called chaparral, it is a dense and scrubby bush that has evolved to persist in a fire-prone habitat. Chaparral plants will eventually age and die; however, they will not be replaced by new growth until a fire rejuvenates the area. Chamise, manzanita and ceanothus are all examples of chaparral which are quite common in Santa Barbara County.

Santa Barbara County was subject to 29 major wildfires over 88 years, resulting in a 33% chance of occurrence in any given year. In addition, the map below (**Figure 10.13**) shows the threat of fire to Santa Barbara County. Fire threat is a combination of two (2) factors: 1) fire frequency or the likelihood of a given area burning, and 2) potential fire behavior. These two factors are combined to create four (4) threat classes ranging from moderate to extreme.

Figure 10.13: Fire Threat



10.6.2.5 Climate Change Considerations

Climate change plays a significant role in wildfire hazards. The changing conditions from wet to dry can create more fuel; the increased possibility of high winds increase risk and present a challenge, and drought conditions could hinder ability to contain fires. Large wildfires also have several indirect effects beyond those of a smaller, local fire. These may include air quality and health issues, road closures, business closures, and other forms of losses. Furthermore, large wildfires increase the threat of other disasters such as landslide and flooding.

10.6.3 Landslide and other Earth Movements

10.6.3.1 Description of Hazard

Landslides can be defined as the movement of a mass of rock, debris, or earth down an incline. Types of landslides include: rock falls, rock slides, deep slope failures, shallow debris flows, and mud flows.

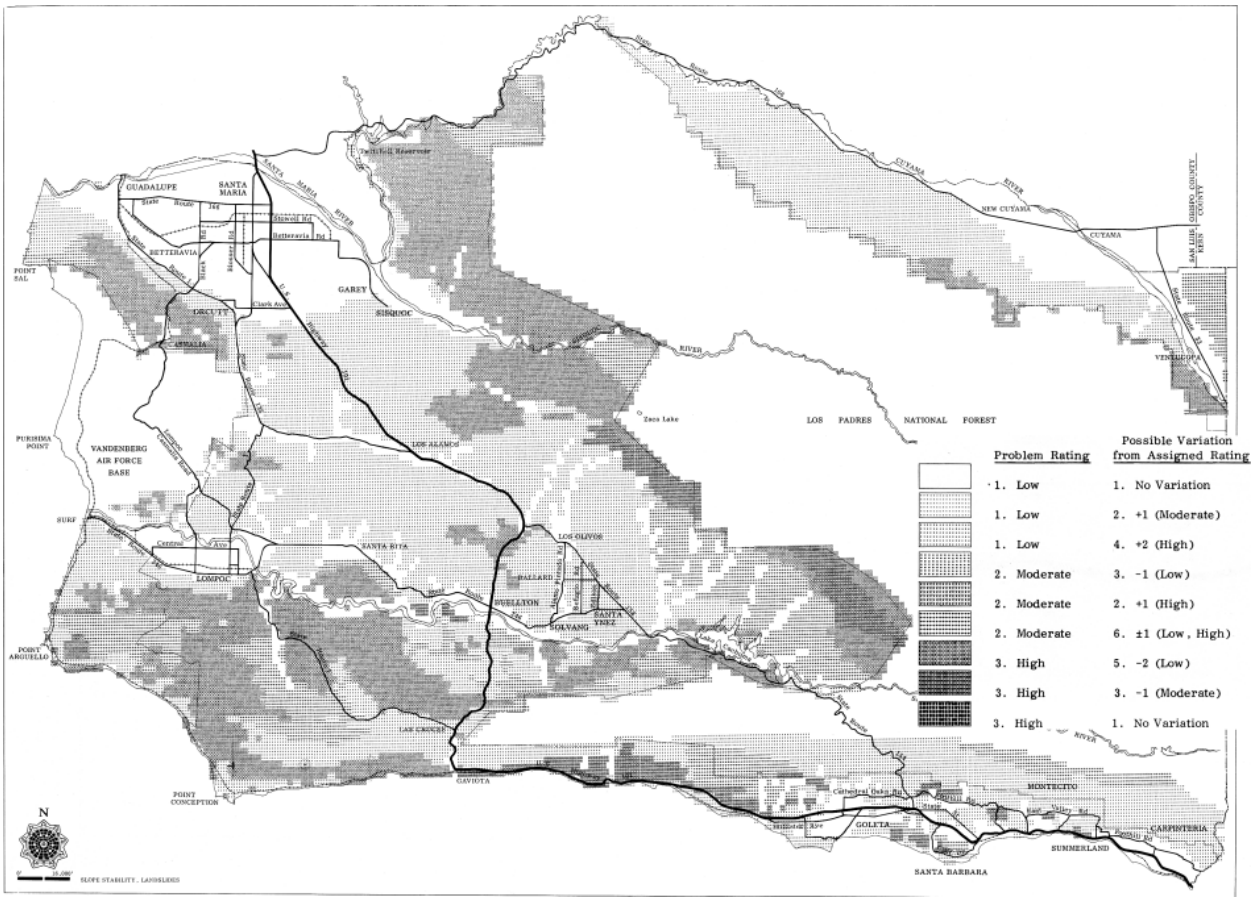
- Slope failure occurs when there is erosion of slopes by surface-water runoff. The intensity of slope wash is dependent on the discharge and velocity of surface runoff and on the resistance of surface materials to erosion.
- Mudflows are defined as flows or rivers of liquid mud down a hillside on the surface of normally dry land. They occur when water saturates the ground, usually following long and heavy rain falls, or rapid snow melt. Mud forms and flows down slope if there is no ground cover such as brush or trees to hold the soil in place.
- Debris Flow is defined when water begins to wash material from a slope or when water sheets off of a newly burned stretch of land. Chaparral land is especially susceptible to debris flows after a fire. The flow will pick up speed and debris as it descends the slope. As the system gradually picks up speed it takes on the characteristics of a basic river system, carrying everything in its path along with it.

The most common cause of a landslide is an increase in the down slope gravitational stress applied to slope materials, also known as over-steepening. Over-steepening can be caused by natural processes or by man-made activities. Undercutting of a valley wall by stream erosion or of a sea cliff by wave erosion are ways in which over-steeping may occur naturally.

10.6.3.2 Location and Extent of Hazard in Santa Barbara County

The location and extent of landslides are extremely difficult to predict consistently for a planning area the size of Santa Barbara County. Landslides and landslide prone sedimentary formations are present throughout the coastal plain of western Santa Barbara County (**Figure 10.14**). Landslides also occur in the granitic mountains of East Santa Barbara County, although they are less prevalent. Many of these landslides are thought to have occurred under much wetter climatic conditions than at present. Recent landslides are those with fresh or sharp geomorphic expressions suggestive of active (ongoing) movement or movement within the past several decades. Reactivations of existing landslides can be triggered by disturbances such as heavy rainfall, seismic shaking and/or grading. Many recent landslides are thought to be reactivations of ancient landslides.

Figure 10.14: Slope Stability, Landslides



The Santa Barbara County Comprehensive Plan Seismic Safety and Safety Element lists the areas in Santa Barbara County where there is fairly severe land sliding and associated geologic formations. The areas are as follows:

- Foothills in the Summerland area
- Foothills of the South Coast – from Santa Barbara west to Gaviota Pass
- Hope Ranch area – west of Lavigia Hill to Goleta
- Sea cliffs along the coast from Santa Barbara to Gaviota, particularly those with out-of-slope dips
- Solvang area south of the Santa Ynez River in the vicinity of, and east of Alisal Ranch
- Areas east and northeast of Los Olivos near the Los Padres National Forest boundary
- Lompoc area south of Santa Ynez River
- Mountains south of Guadalupe and east of Point Sal

Several areas in the County are prone to more frequent rain induced landslides, resulting in disruption to transportation and damage to roadways. The most common areas in the South County recent historic slides are listed below.

Road	Year
Palimino Road	1995, 1998
Gibraltar Road	1995, 1998, 2001, 2003
Glen Annie Road	1995, 1998, 2001, 2004
Refugio Road	1995, 1998, 2001
Ortega Hill Road	1195, 1998
Stagecoach Road	2003, 2004, Constant
Painted Cave	1995, 1998
Old San Marcus Road	1995, 1998, Currently Moving
Gobernador Canyon	1995, 1998, Currently Moving
East Mountain Drive	1995, 1998, 2001
All Road underlain by the Rincon Shale Formation	

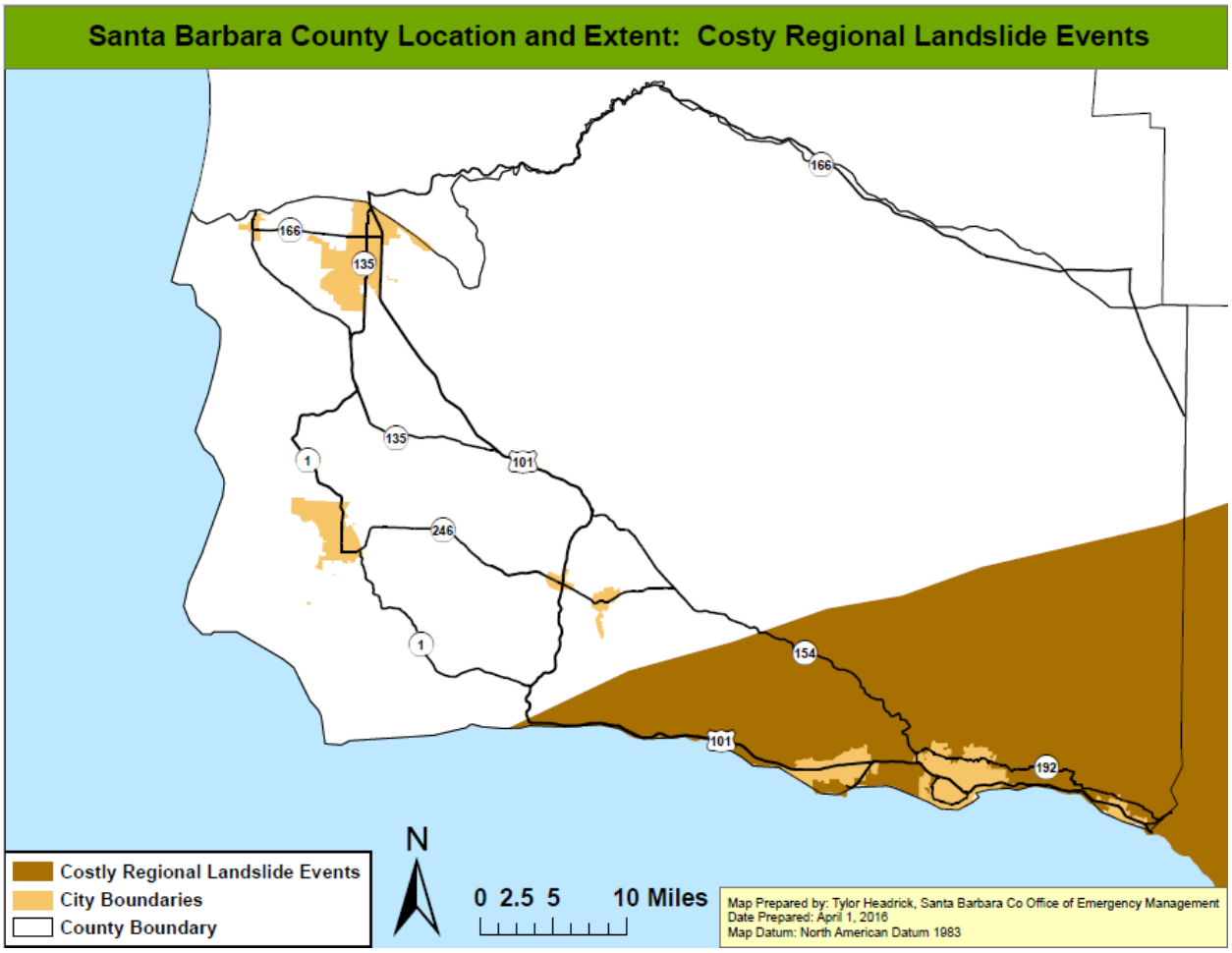
10.6.3.3 History of Hazard in Santa Barbara County

As previously mention, Santa Barbara County is prone to landslides; however many are smaller in nature and are not well documented. Three (3) of the more significant recent landslides are discussed below:

In January 2005, a powerful Pacific storm brought heavy rain, snow, flash flooding, high winds and landslides to Central and Southern California. During the 5 day event, rainfall totals ranged from 3 to 10 inches over coastal areas with up to 32 inches in the mountains. With such copious rainfall, flash flooding was a serious problem across Santa Barbara, Ventura and Los Angeles counties. In Santa Barbara County, flash flooding and mudslides closed Gibraltar Road at Mt. Calvary Road, stranding several vehicles, while mudslides inundated 3 homes in Lake Casitas. Across Ventura county, flash flooding and mudslides closed down Creek Road at Hermosa Road. In addition, the Ventura Beach RV Resort was flooded and Highways 1 and 126 were closed due to flooding. Across Los Angeles county, flash flooding killed a homeless man in Elysian Park, flooded a mobile home park in Santa Clarita, closed Highway 1 and caused numerous problems in Palmdale. In the mountains, 4 to 12 feet of snowfall was recorded along with southeast winds between 30 and 50 MPH with higher gusts. Across the Central Coast and in the Salinas River Valley, high winds gusting to 65 MPH knocked down numerous trees and power lines. In La Conchita, a devastating mudslide killed 10 people, destroyed 15 homes and damaged 12 other homes. Overall, damage estimates for the entire series of storms that started December 27th, 2004 and ended on January 11th, 2005 were easily over $200 million with the most damage incurred by agricultural interests in Ventura County.

During the late 1990’s in Sycamore Canyon, which resides near the border of Santa Barbara County and the City of Santa Barbara, a mud flow displaced a home from its foundation and moved it several feet downhill. This is only a minor example of the destruction that landslides can cause. In the spring of 1995, La Conchita, located at
the western border of Ventura County and adjacent to Santa Barbara County, experienced a landslide that completely destroyed several houses in its path. A portion of the bank of the Cuyama River collapsed east of Santa Maria in 1998, affecting half a dozen cars and a tractor trailer rig on Highway 166, which were caught in the slide. Two people were killed.

Figure 10.15: Costly Regional Landslide Events



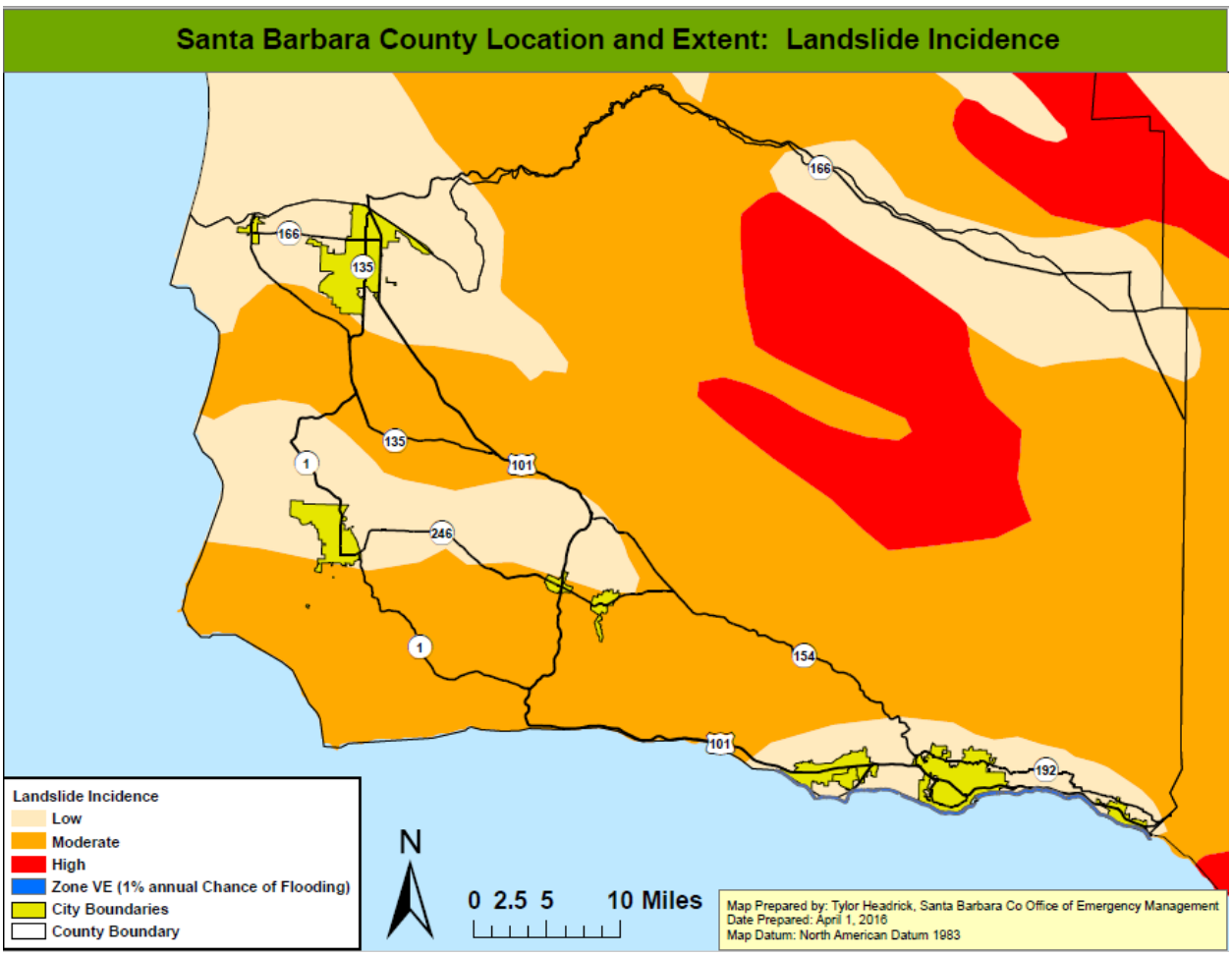
In 1980 the most costly landslide events in the US occurred. The event depicted in this Santa Barbara County-specific map (**Figure 10.15**) affected six southern California counties, including Santa Barbara County. The type of landslide was mostly debris flow from heavy rainfall. Over $800 million dollars' worth of damage resulted from this event.

10.6.3.4 Probability of Occurrence

Figure 10.16 shows the general locations of high and moderate landslide risk in Santa Barbara County. These areas are considered to have a higher probability of landslide occurrence than the low landslide risk areas in Santa Barbara County.

In order for landslides to occur, the correct geological conditions, which include unstable or weak soil or rock, and topographical conditions, such as steep slopes, are necessary. Heavy rain often triggers these hazards, as the water adds extra weight that the soil cannot bear. Over irrigating has the same affect. Earthquakes can also affect soil stability, causing enough weakening to favor gravitational forces.

Figure 10.16: Landslide Incidence



10.6.3.5 Climate Change Consideration

Climate change can increase the frequency and/or intensity of landslides. Changes in precipitation, specifically the increased frequency of intense precipitation, can result in a water content the ground cannot tolerate, and may cause landslides. These landslides may happen more frequently due to the increased number of heavy rainfall events. Also, the increased heavy precipitation events may cause instability in areas where landslides we not as likely before. Therefore, resulting landslides may be larger or more widespread.

10.6.3.6 Infrastructure/Critical Facilities

Currently in the City of Carpinteria there are no impacts to critical facilities in the landslide areas identified. The City continues to assess its vulnerabilities with the continued collection of data. This will assist in improving the City's risk assessment process in order to direct planning and mitigation decisions.

10.6.4 Flood

10.6.4.1 Description of Hazard

A flood is a general and temporary condition of partial or complete inundation on land that is normally dry. Several factors determine the severity of floods, including rainfall intensity and duration, antecedent moisture conditions, surface permeability, and geographic characteristics of the watershed such as shape and slope. Other causes can include a ruptured dam or levee, rapid ice or snow melting in the mountains, under-engineered infrastructure, or even a poorly placed beaver dam can overwhelm a river or channel and send water spreading over adjacent land or floodplains.

A large amount of rainfall in a short time can result in flash flood conditions, as can a dam failure or other sudden spill. The National Weather Service's definition of a flash flood is a flood occurring in a watershed where the time of travel of the peak of flow from one end of the watershed to the other is less than six hours.

Another form of flooding occurs when coastal storms produce large ocean waves that sweep across coastlines making landfall. Storm surges inundate coastal areas, destroy dunes, and cause flooding. If a storm surge occurs at the same time as high tide, the water height will be even greater. The County historically has been vulnerable to storm surge inundation associated with tropical storms and El Nino.

10.6.4.2 Location and Extent of Hazard in Carpinteria

The geographical location, climate, and topography of Santa Barbara County and the City of Carpinteria make it prone to flooding. In areas such as Carpinteria, without extended periods of below-freezing temperatures, floods usually occur during the season of highest precipitations or during heavy rainfalls after long dry spells. Additionally, due to the Mediterranean climate and the variability of rainfall, stream flow throughout the County is highly variable and directly impacted from rainfall with little snowmelt or base flow from headwaters. Watercourses can experience a high amount of sedimentation during wet years and high amounts of vegetative growth during dry and moderate years.

The drainages in the southern part of the County, which includes the City of Carpinteria, are characterized by high intensity, short duration runoff events, due to the relatively short distance from the top of the Santa Ynez Mountains to the Pacific Ocean. Runoff from high intensity, short duration storm events can cause inundation of over bank areas, debris including sediment, rock, downed trees in the water that can plug culverts and bridges, erosion and sloughing of banks, and loss of channel capacity due to sedimentation.

Another contributing factor to flooding is the City's location along the Pacific Ocean. With nearly three miles of coastline, the City is susceptible to storm surge events following storms off the coast. Additionally, portions of the City are subject to flooding due to flash flooding, urban flooding, watershed channel overflow, and downstream flooding.

Flood hazard areas within Carpinteria have been determined by FEMA National Flood Insurance Rate Maps (FIRMs). Areas of the City are within the 100-year flood zone and winter storms also bring high ocean tides and waves that annually threaten structures adjacent to the City beach. The

City has received a permit to annually build a sand berm during the winter months to protect the structures and property. All new construction or reconstruction, additions and remodels that have a valuation exceeding 50 percent of the valuation of the existing structure, shall be constructed so as to be protected from wave action. In an effort to reduce the damages caused by flooding, all new development proposed in the 100-year floodplain must adhere to the County of Santa Barbara Floodplain Management Ordinance to receive a building permit.

10.6.4.3 History of Hazard in Santa Barbara County

Flooding has been a major problem throughout Santa Barbara County's history. Santa Barbara County has several hydrologic basins that have different types of flooding problems, including over bank riverine flooding, flash floods, tidal flooding/tsunamis, and dam failure. The most common flooding in Santa Barbara is due to watershed channel flooding and flash flood events.

Between 1862 and the 2014, Santa Barbara County experienced 19 significant floods. Eight of these floods received Presidential Disaster Declarations. **Table 10.11** lists these floods, as well as information concerning the nature of the flooding and the extent of the damages. Shaded events occurred in the City of Carpinteria.

Table 10.11: Historical Records of Large Floods in Santa Barbara County

Date	Damages	Source of Estimate	Comments
1862	Not available	1993 Precipitation Report	Largest discharges ever in California
1907	Significant damage to structures, crops	1993 Precipitation Report	4 straight days of rain, entire Lompoc Valley engulfed
1914	Twelve houses and six bridges lost	County of Santa Barbara Sanitation and Flood Control	Destroyed 2 dams, 22 deaths
1952	50+ homes inundated, large-scale evacuations	EIR, 1993 Precipitation Report	Propagated the formation of the Flood Control District
1964	Millions of dollars	Floodplain Information Montecito Streams Vicinity of Montecito, SB County	Relatively light rain fell on recently burned areas. 20' walls of water, mud, boulders, and trees
1969	$4.5 million	Floodplain Information Montecito Streams Vicinity of Montecito, SB County	Highest flows in 2900 years on Santa Ynez River, 16" of rain in 24 hours at Juncal Dam
1971	Federal Disaster Declaration	Floodplain Information Montecito Streams Vicinity of Montecito, SB	High flows and flooding along Romero Canyon Creek, Garrapata Creek, and

Date	Damages	Source of Estimate	Comments
		County	Toro Canyon Creek
1978	Millions of dollars, Presidential Disaster Declaration	1993 Precipitation Report and Hydrology Methods	Inundation of agricultural areas and mudslides.
1980	Presidential Disaster Declaration	n/a	Severe flooding, mudslides, and high tides throughout County
1982-1983	2 Presidential Disaster Declarations	n/a	Parts of southern California received over 200% of normal rainfall
1993	$1.4 million in disaster recovery funds received from FEMA	1993 Precipitation Report and Hydrology Methods	180%-209% of normal rainfall, with highest-ever intensity for the County recorded at Buellton Fire Station: $1^1/_4$ inches in 15 minutes.
January 1995	$50 million, Presidential Disaster Declaration	1995 Floods	Flooding on most major channels in Goleta, Santa Barbara, Montecito, and Carpinteria
March 1995	$30 million, Presidential Disaster Declaration	1995 Floods	Major flooding in Goleta, Santa Barbara, and Montecito, many of the same structures flooded in January were flooded again
1998	$15 million, Presidential Disaster Declaration	1998 Flood Report	21.36” of rainfall that month in Santa Barbara, many areas at 600% of normal February rainfall
February 2005	$2 million	NCDC	In Santa Barbara county, flash flooding and mudslides closed down Highway 101 at Bates Road.
January 26, 2011	Total Individual Assistance: $1,909,557 Total Public Assistance:	FEMA	Severe winter storms, flooding, and debris and mudflows occurred from December 17, 2010 to January 4, 2011. The

Date	Damages	Source of Estimate	Comments
	$75,414,223 Countywide per capita impact: Santa Barbara County- $9.43, Presidential Disaster Declaration		counties affected include: Inyo, Kern, Kings, Orange, Riverside, San Bernardino, San Diego, San Luis Obispo, Santa Barbara, and Tulare.
March 2011	$1.7 Million	County Insurance Claims	A severe winter storm occurred in March 2011 that included flooding, debris and mudflows flows throughout Santa Barbara County
March 1, 2014	$500k	Television Reports	A strong winter storm caused significant damage to coastal properties on the south coast of Santa Barbara County. Coastal Damage; Goleta Pier partially closed
December 12, 2014	<$100k	County Flood Control District	A brief but intense rainfall, portions of which covered a limited area that exceeded a 200-year return period, caused damage county-wide, mostly in the form of downed trees, bank erosion and sediment and debris deposition.

While there is extensive detailed documentation of historical flood events in Santa Barbara County, the following section provides a summary of the more recent significant flood events:

1992 Flood- The 1992 – 1993 rainy season was one of the wettest recorded in Santa Barbara County, areas of the County received 180% to 209% normal rainfall. One of the County's highest short-duration rainfall intensities was recorded during 1993; 1-¼-inches fell in fifteen minutes at the Buellton Fire Station. Following a 25-year storm event that occurred in late March, Santa Barbara was declared a federal disaster area with 12 creeks substantially damaged along with several detention basins and residences. Santa Barbara County received approximately $1.4 million in disaster recovery funds from FEMA. (1993 Precipitation Report and Hydrology Methods) (Presidential Disaster Declaration)

1995 Flood- The floods of 1995 brought widespread flooding to Santa Barbara County. The most severe flooding occurred on the South Coast while the rest of the County was largely spared from serious damages. On the South Coast, the 1995 Flood was more severe and wide spread than either the 1969 or 1967 floods. Flooding occurred on most major streams from Goleta to Montecito. Estimated public and private damages were around $100 million and the area was declared a federal disaster area. (1995 Floods)

January 1995- Flooding occurred on most major channels in Goleta, Santa Barbara, Montecito, and Carpinteria. Approximately 510 structures were reported flooded and/or damaged along the South Coast, with a total cost resulting from public and private damages of approximately $50,000,000. All modes of transportation in and out of the South Coast were cut off for several hours; some modes of transportation were not restored for several days. (1995 Floods) (Presidential Disaster Declaration)

March 1995- During the March 10th 1995 storm, major flooding occurred again in the areas of Goleta, Santa Barbara, and Montecito. More than 300 structures were reported flooded and/or damaged; many of the same structures flooded or damaged during the January 1995 storm event. Approximately 30 million dollars of public and private property were damaged during the storm. Once again, all modes of transportation in and out of the South Coast were cut off for several hours. (1995 Floods) (Presidential Disaster Declaration)

1998 Flood– February 1998 brought several record-breaking rainfalls with 50-year storm event intensities. The City of Santa Barbara recorded its wettest month in history, 21.36-inches of rainfall. By the end of the month, many areas in the County had received 600% of normal February rainfall. Flood related damages within Santa Barbara occurred during three major storm periods: February 1-4, February 6-9, and February 22-24. The cost to repair extensive flood damage to public and private property was estimated at $15 million. Just like in 1995, transportation throughout the County was disrupted through closures of roads, the Santa Barbara Airport, and train service. Flood damage was spread throughout the County and the County was declared a Federal Disaster Area on February 9. (Presidential Disaster Declaration)

Although the February storms had higher annual rainfalls, flooding in 1998 was considered less severe than other historical events due to flood control improvements, such as Cachuma Reservoir, and channel and debris dam maintenance performed by the County. (1998 Flood Report)

2005 Flood– A powerful Pacific storm tapped into a subtropical moisture source to produce heavy rain and flash flooding across Southwestern California. Overall, rainfall totals ranged from 4 to 8 inches over coastal areas to between 10 and 20 inches in the mountains. In Ventura County, State Route 150 was closed at the Dennison Grade due to flash flooding and mudslides. In Los Angeles County, numerous roadways were closed due to mudslide and flash flooding including Interstates 5 and 10, Highway 101 in Hollywood, North Topanga Canyon Road in the San Fernando Valley, Malibu Canyon Road near Malibu and East Colima Road in Walnut. *In Santa Barbara county, flash flooding and mudslides closed down Highway 101 at Bates Road. With such heavy rainfall, both the Santa Clara River and the Santa Ynez River exceeded their respective flood stages.* In the mountains of Ventura and Los Angeles counties, resort areas received between 3 and 4 feet of new snowfall. Preliminary damage estimates from this storm range between $8-10 million with agricultural interests in Ventura county accounting for most of the monetary damage.

2011 Flood- Severe winter storms, flooding, and debris and mudflows occurred from December 17, 2010 to January 4, 2011. The counties affected include: Inyo, Kern, Kings, Orange, Riverside, San Bernardino, San Diego, San Luis Obispo, Santa Barbara, and Tulare.

March 2011 Flood- A severe winter storm occurred in March 2011 that included flooding, debris and mudflows throughout Santa Barbara County.

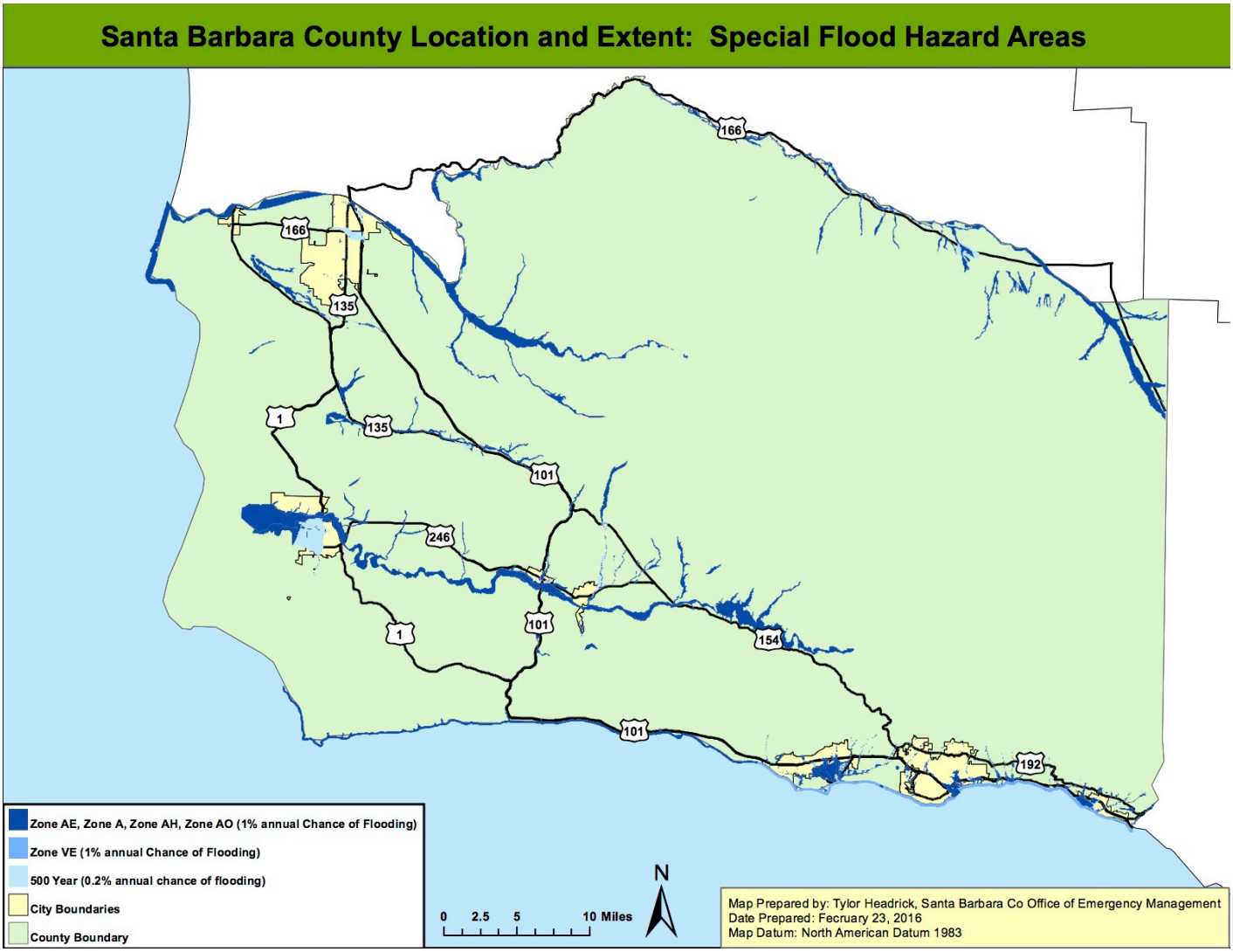
March 1st 2014- A strong winter storm caused significant damage to coastal properties on the south coast of Santa Barbara County

December 12, 2014 – A brief but intense rainfall, portions of which covered a limited area that exceeded a 200-year return period, caused damages county-wide, mostly in the form of downed trees, bank erosion and sediment and debris deposition.

10.6.4.4 Probability of Occurrence

The probability of flooding in Santa Barbara County, which includes the City of Carpinteria, is shown in **Figure 10.17**. The map shows the location of the special flood hazard zones in Santa Barbara County. The flood hazard zones depicted on the map are derived from FEMA's Flood Insurance Rate Maps (FIRM) and indicate the probability of flooding happening over a given period of time. Flood zones are geographic areas that defined varying levels of flood risk. Each zone reflects the severity or type of flooding in the area. The FIRM boundaries are developed by FEMA to convey flood risk.

Figure 10.17: Special Flood Hazard Area



Within the coastal special flood hazard area, there are two primary flood zones: Zone VE and Zone AE. Zone VE, also known as the Coastal High Hazard Area, has a wave component that is greater than three feet in height. Coastal Zone AE has a wave component of 0-3 feet in height.

The Federal Emergency Management Agency is conducting a coastal flood study for Santa Barbara County as part of the California Coastal Analysis and Mapping Project. Results from this Open Pacific Coast Study will produce flood and wave data for the National Flood Insurance Program, Flood Insurance Study reports, and regulatory Flood Insurance Rate Map panels. [1]

This coastal study will result in floodplain mapping that is anticipated to become effective in 2018. Current indications are that the resulting base flood elevations will be several feet higher than the current flood mapping.

[1] Source: FEMA; Santa Barbara, California Open Pacific Coast Study, California Coastal Analysis and Mapping Project, April 2016

The following below describes the different flood hazard zones and their associated probabilities.

Zone A

Zone A is the flood insurance rate zone that corresponds to the 100-year floodplains that are determined in the Flood Insurance Study (FIS) by approximate methods. Because detailed hydraulic analyses are not performed for such areas, no BFEs or depths are shown within this zone. Mandatory flood insurance purchase requirements apply.

Zone AE and A1-A30

Zones AE and A1-A30 are the flood insurance rate zones that correspond to the 100-year floodplains that are determined in the FIS by detailed methods. In most instances, BFEs derived from the detailed hydraulic analyses are shown at selected intervals within this zone. Mandatory flood insurance purchase requirements apply.

Zone AH

Zone AH is the flood insurance rate zone that corresponds to the areas of 100-year shallow flooding with a constant water-surface elevation (usually areas of ponding) where average depths are between 1 and 3 feet. The BFEs derived from the detailed hydraulic analyses are shown at selected intervals within this zone. Mandatory flood insurance purchase requirements apply.

Zone AO

Zone AO is the flood insurance rate zone that corresponds to the areas of 100-year shallow flooding (usually sheet flow on sloping terrain) where average depths are between 1 and 3 feet. The depth should be averaged along the cross section and then along the direction of flow to determine the extent of the zone. Average flood depths derived from the detailed hydraulic analyses are shown within this zone. In addition, alluvial fan flood hazards are shown as Zone AO on the FIRM. Mandatory flood insurance purchase requirements apply.

Zone AR

Zone AR is the flood insurance rate zone used to depict areas protected from flood hazards by flood control structures, such as a levee, that are being restored. FEMA will consider using the Zone AR designation for a community if the flood protection system has been deemed restorable by a Federal agency in consultation with a local project sponsor; a minimum level of flood protection is still provided to the community by the system; and restoration of the flood protection system is scheduled to begin within a designated time period and in accordance with a progress plan negotiated between the community and FEMA. Mandatory purchase requirements for flood insurance will apply in Zone AR, but the rate will not exceed the rate for unnumbered A zones if the structure is built in compliance with Zone AR floodplain management regulations.

For floodplain management in Zone AR areas, elevation is not required for improvements to existing structures. However, for new construction, the structure must be elevated (or floodproofed for non-residential structures) such that the lowest floor, including basement, is a maximum of 3 feet above the highest adjacent existing grade if the depth of the base flood elevation (BFE) does not exceed 5 feet at the proposed development site. For infill sites, rehabilitation of existing structures, or redevelopment of previously developed areas, there is a 3 foot elevation requirement regardless of the depth of the BFE at the project site.

The Zone AR designation will be removed and the restored flood control system shown as providing protection from the 1% annual chance flood on the NFIP map upon completion of the restoration project and submittal of all the necessary data to FEMA.

Zone A99

Zone A99 is the flood insurance rate zone that corresponds to areas of the 100-year floodplains that will be protected by a Federal flood protection system where construction has reached specified statutory milestones. No BFEs or depths are shown within this zone. Mandatory flood insurance purchase requirements apply.

Zone D

The Zone D designation on NFIP maps is used for areas where there are possible but undetermined flood hazards. In areas designated as Zone D, no analysis of flood hazards has been conducted. Mandatory flood insurance purchase requirements do not apply, but coverage is available. The flood insurance rates for properties in Zone D are commensurate with the uncertainty of the flood risk

Zone V

Zone V is the flood insurance rate zone that corresponds to the 100-year coastal floodplains that have additional hazards associated with storm waves. Because approximate hydraulic analyses are performed for such areas, no BFEs are shown within this zone. Mandatory flood insurance purchase requirements apply.

Zone VE

Zone VE is the flood insurance rate zone that corresponds to the 100-year coastal floodplains that have additional hazards associated with storm waves. BFEs derived from the detailed hydraulic analyses are shown at selected intervals within this zone. Mandatory flood insurance purchase requirements apply.

Zones B, C, and X

Zones B, C, and X are the flood insurance rate zones that correspond to areas outside the 100-year floodplains, areas of 100-year sheet flow flooding where average depths are less than 1 foot, areas of 100-year stream flooding where the contributing drainage area is less than 1 square mile, or areas protected from the 100-year flood by levees. No BFEs or depths are shown within this zone.

10.6.4.5 Climate Change Consideration

Climate change is both a present threat and a slow-onset disaster. It acts as an amplifier of existing hazards. Extreme weather events have become more frequent over the past 40 to 50 years and this trend is projected to continue. Rising sea levels, changes in rainfall distribution and intensity are expected to have a significant impact on coastal communities, including portions of Santa Barbara County. This section presents a discussion of how climate change might impact the frequency, intensity and distribution of flood hazards.

10.6.4.6 Infrastructure/Critical Facilities

It is worth noting that the City of Carpinteria has less than ten critical facilities located within the 100 year flood zone and could be moderately impacted by a flood event. The City continues to assess its vulnerabilities with the continued collection of data. This will assist in improving the City's risk assessment process in order to direct planning and mitigation decisions.

10.6.5 Climate-related Hazards

This section assesses hazards that are related to climate and weather. NASA defines weather as the way the atmosphere is behaving, mainly with respect to its effects upon life and human activities. The difference between weather and climate is that weather consists of the short-term (minutes to months) changes in the atmosphere. Most people think of weather in terms of temperature, humidity, precipitation, cloudiness, brightness, visibility, wind, and atmospheric pressure, as in high and low pressure. In most places, weather can change from minute-to-minute, hour-to-hour, day-to-day, and season-to season. Climate, however, is the average of weather over time and space. Fifty-eight long-term changes in the climate, especially those driven by the accumulation of anthropogenic greenhouse gases in the atmosphere, are expected to change short-term weather patterns and thus change weather-related impacts, both short- and long-term. Most prominently, climate change is warming the average global temperatures, which will result in more frequent and intense extreme events related to changes in temperature and precipitation, such as heat waves, flooding.

In the State Hazard Mitigation Plan, climate change is treated as a condition that will change and potentially exacerbate the impact of other hazards rather than being treated as a distinct hazard with unique impacts. For example, extreme heat and heat waves is an existing hazard that will be exacerbated by climate change. Impacts of climate change on the frequency, timing, and magnitude of flooding varies with the geography throughout the state. Areas that experience early run off from snow melt coupled with intensified rain or coastal areas experiencing sea level rise may be more greatly impacted by flooding. Hazards that have the potential to be affected by climate change are grouped in this subsection.

The following sections are the relevant climate-related hazards in Santa Barbara County.

10.6.5.1 Sea Level Rise and Erosion

10.6.5.1.1 Description of Hazard

Sea level rise (SLR) is defined as the rising of the level of the sea as a result of the so-called greenhouse effect or global warming. SLR can occur through one or more of three (3) processes that

include eustasy, isostasy, or thermal expansion, Erosion is a natural process which alters existing geomorphic features. Erosion can occur due to a number of factors, including winter storms, tidal action, wind-generated high surf, wave action, and rising sea levels.

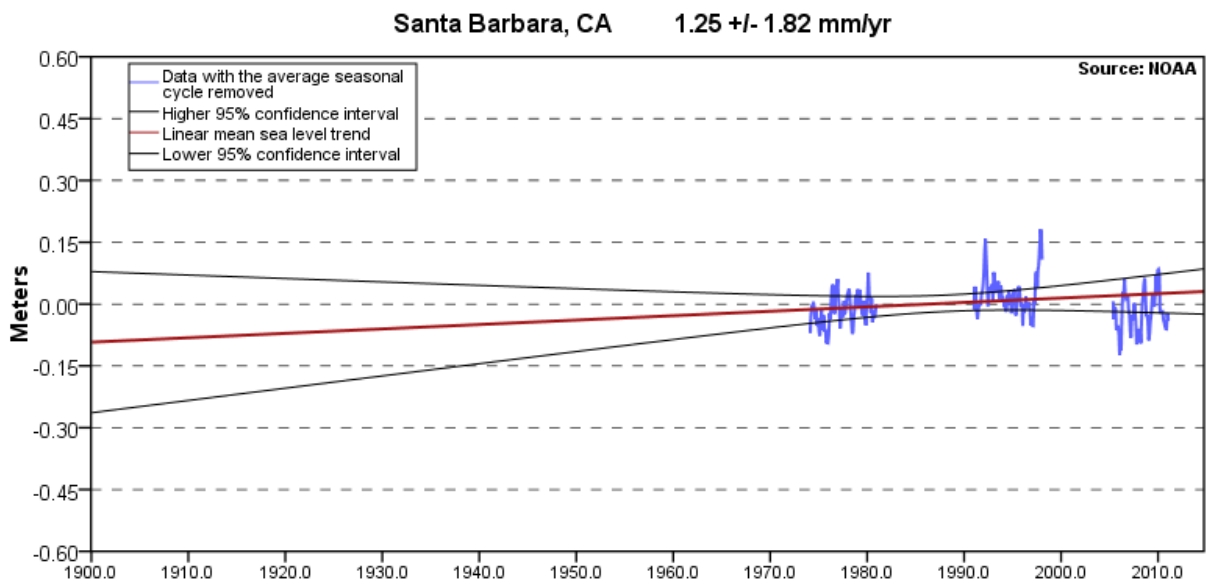
10.6.5.1.2 Location and Extent of Hazard in Santa Barbara County

The impacts from SLR and erosion in Santa Barbara County will be felt along its 110 mile long coastline. SLR coupled with increased frequency, severity, and duration of high tide and storm events related to climate change will result in more frequent and severe extreme events along the coast. These events could expose the coast to severe flooding and erosion, damage to coastal structures and real estate, and salinity intrusion into delta areas and coastal aquifers (Projecting Future Sea Level, A Report from the California Climate Change Center, 2006).

10.6.5.1.3 History of Hazard in Santa Barbara County

Typically, the highest sea level readings along California's coastline occur during periods of heavy rain that coincide with high tides, causing coastal flooding, coastal bluff erosion, and landslides such as were experienced during the 1998 El Nino storms. Sea levels are already rising along the Santa Barbara County coastline as is evident in long term tidal gauge records from Station 9411340 since 1973, where the rate of rise has been approximately 0.41 feet per century[2] (**Figure 10.18**).

Figure 10.18: Mean Sea Level Trend in Santa Barbara



10.6.5.1.4 Probability of Occurrence

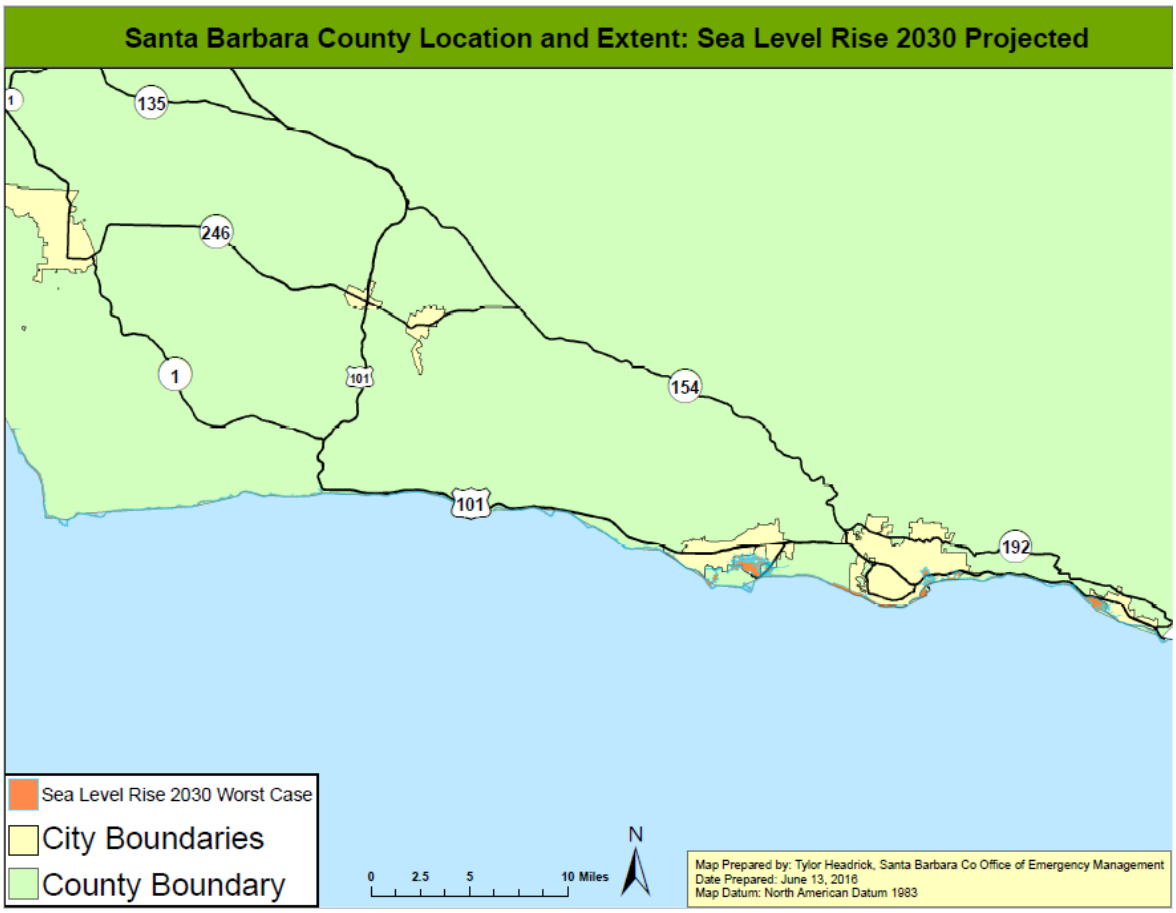
As discussed above, the potential impacts of global warming and climate change include increased opportunities for severe weather that may result in sea level rise and erosion. Santa Barbara County's

[2] NOAA: http://tidesandcurrents.noaa.gov/sltrends/sltrends_station.shtml?stnid=9411340; retrieved April 6, 2011.

land mass includes more than 110 miles of coastline with varying geologic features including steep coastal bluffs, beaches, wetlands, bays, and deltas. It also supports varying levels of development and land use, including recreational, agricultural, industrial, commercial, and residential.

A growing consensus of scientists believes that sea level rise will continue and the rate of rise will increase. The Intergovernmental Panel on Climate Change (IPCC) suggests that global SLR on the order of 0.2 m (0.66 ft.) and 0.6 m (1.97 ft.) is possible by 2100 with other scientists indicating this rise could be over 1 meter (3.28 ft.). [3] **Figure 10.19** depicts areas (dark blue along and near the Santa Barbara County coastline that may be vulnerable to sea level rise in a 1.4 meter sea level rise scenario. [4] From the figure, it is apparent that a considerable number of buildings and infrastructure may be impacted.

Figure 10.19: Sea Level Rise Santa Barbara Quadrangle



[3] M. Vermeer and S. Rahmstorf. 2009. Global sea level linked to global temperature. Proceedings of the National Academy of Sciences, USA.

[4] M. Heberger, H. Cookley, P. Herrera, The Pacific Institute, May 2009. The Impacts of Sea-Level Rise on The California Coast.

10.6.5.1.5 Climate Change Considerations

This entire section is dedicated to climate change hazards, and as such, is focused on climate change's effects on the community. However, it is important to highlight climate change's potential direct impact.

As mentioned above, SLR can be caused by three (3) different processes. Two (2) of which, melting of ice sheets and/or thermal expansion of water, are a result of climate change and/or global warming

Erosion can be increased by climate change in two (2) ways. First, sea level rise, over time, will cause more rapid erosion of more inland areas than in previous years. This will be chronic erosion, however it will reach new, more inland areas, in the future due to higher average sea levels. Secondly, while the topic of increased frequency of storms is up in debate, if more severe or frequent storms do occur, it will increase coastal erosion events. More frequent storms will impact how frequently acute coastal erosion events occur, while more intense events will cause the erosion to extend further inland than before.

10.6.5.2 Drought and Water Shortages

10.6.5.2.1 Description of Hazard

Drought and water shortages are a gradual phenomenon and generally are not signified by one or two dry years. California's and Santa Barbara County's extensive system of water supply infrastructure (reservoirs, groundwater basins, and interregional conveyance facilities) generally mitigates the effects of short-term dry periods for most water users. However, drought conditions are present when a region receives below-average precipitation, resulting in prolonged shortages in its water supply, whether atmospheric, surface, or ground water. A drought can last for months or years, or may be declared after as few as 15 days.

10.6.5.2.2 Location and Extent of Hazard in Santa Barbara County

The entire county is subject to drought conditions and water shortages.

10.6.5.2.3 History of Hazard in Santa Barbara County

Santa Barbara County has had three (3) State and/or Federally declared drought disasters since 1950; in 1990, 1991, and 2001. The state of California and Santa Barbara are currently in a drought. The average rainfall in Santa Barbara County is 17.6 inches; however, since 2016, the County has experienced significantly less than normal rainfall. The effects of the drought are most visible when looking at the current capacity and maximum storage of the two main water reservoirs in the county, Lake Cachuma and Twitchell. On February 16, 2016, Cachuma was reported to be at 14.9% capacity, and Twitchell was at 0.2% capacity.

10.6.5.2.4 Probability of Occurrence

In any given year, Santa Barbara County can be subject to drought conditions and water shortages.

10.6.5.2.5 Climate Change Considerations

This entire section is dedicated to climate change hazards, and as such, is focused on climate change's effects on the community. However, it is important to highlight climate change's potential direct impact.

Climate change has the potential to make drought events more common in the West, including California. Extreme heat creates conditions more conducive for evaporation of moisture from the ground, thereby increasing the possibility of drought. A warming planet could lead to earlier melting of winter snow packs, leaving lower stream flows and drier conditions in the late spring and summer. Snow packs are important in terms of providing water storage and ensuring adequate supply in the summer, when water is most needed. Changing precipitation distribution and intensity have the potential to cause more of the precipitation that does fall to run-off rather than be stored. The result of these processes is an increased potential for more frequent and more severe periods of drought.

10.6.5.3 Severe Weather and Storms

10.6.5.3.1 Extreme Heat

10.6.5.3.1.1 Description of Hazard

Extreme Heat is a function of heat and relative humidity. A Heat Index describes how hot the heat-humidity combination makes the air feel. As relative humidity increases, the air seems warmer than it actually is because the body is less able to cool itself via evaporation of perspiration. As the Heat Index rises, so do health risks such as heat exhaustion, sunstroke, and heatstroke. Some Heat Index Program Alert procedures are implemented when the high temperature is expected to exceed 105° to 110° (depending on local climate) for at least two consecutive days.

10.6.5.3.1.2 Location and Extent of Hazard in Santa Barbara County

The entire county is subject to extreme heat conditions, particularly inland areas.

10.6.5.3.1.3 History of Hazard in Santa Barbara County

Santa Barbara County has experienced several extreme heat events in the past; however, they are not well documented. One documented event occurred in September 1856 where a U.S. Coast Guard vessel recorded a record temperature of 135 degrees Fahrenheit during a sundowner event on the Santa Barbara coast.

10.6.5.3.1.4 Probability of Occurrence

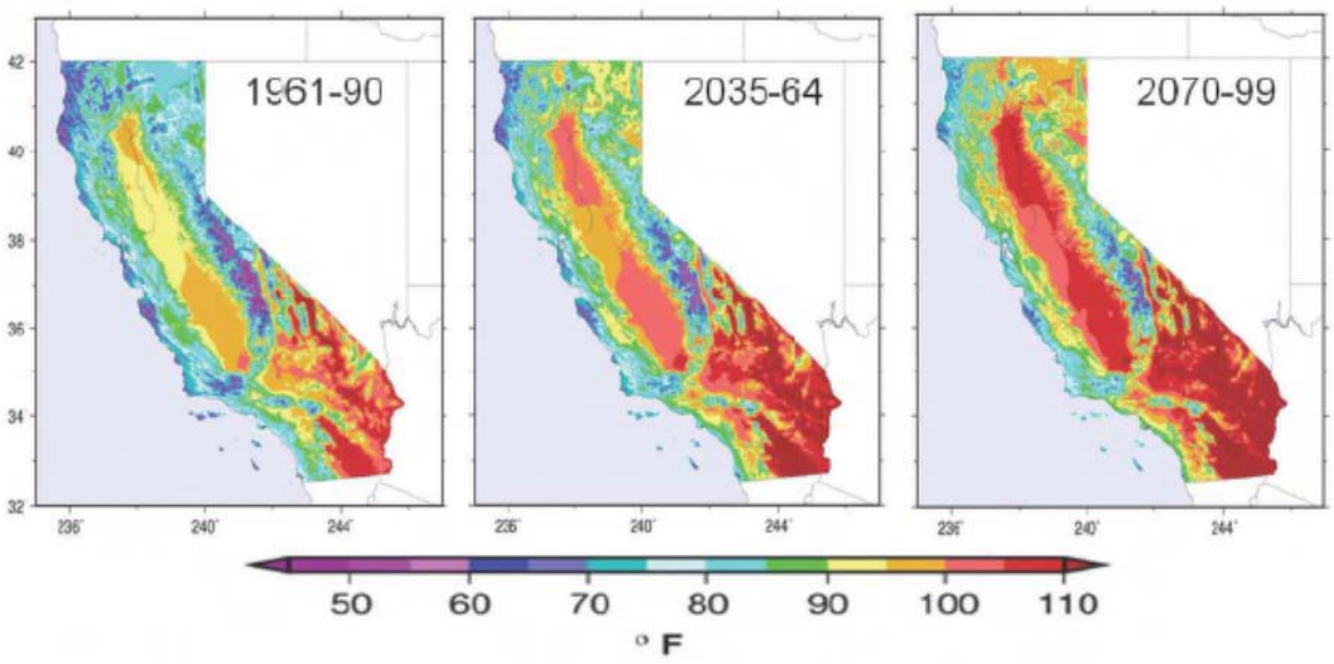
In any given year, Santa Barbara County can be subject to extreme heat conditions.

10.6.5.3.1.5 Climate Change Considerations

As temperatures rise due to climate change, Californians will face greater risk of death from dehydration, heat stroke/exhaustion, heart attack, stroke, and respiratory distress caused by extreme

heat. By mid-century, extreme heat events in urban centers could cause two to three times more heat-related deaths than occur today. By 2100, hotter temperatures are expected throughout the state, with an increase of 3 to 5.5°F under the lower emissions scenario and 8 to 10.5°F under the higher emissions scenario (**Figure 10.20**).

Figure 10.20: Comparison between Historic and Projected Temperature



10.6.6 Energy Shortage and Resiliency

10.6.6.1 Description of Hazard

Energy shortages (or disruptions) are considered a form of lifeline system failure. Disruptions can be the consequence of another hazard, or can be a primary hazard, absent of an outside trigger. A failure could involve one, or a combination of the potable water system, power system, natural gas system, wastewater system, communication system, or transportation system. Most power blackouts are not human caused. They are the result of situations involving unintended events, such as an overwhelming need for power due to weather conditions, equipment failure, or accidents. They may also fail due to natural hazards such as earthquakes, floods, and landslides. These outages can last anywhere from a few minutes to several weeks.

Santa Barbara County has two service providers. Pacific Gas and Electric (PG&E) provides electricity in the northern part of the County, with termination of services north of the Gaviota area. Southern California Edison (SCE) provides power to the Southern parts of the County, with termination of services in Gaviota. The two systems are not connected. Thus, is there is a major interruption of service in the Santa Barbara area, then all serviced could be denied in either direction.

Both power companies are well aware of the restrictions on their systems and are making planned systematic changes to address the shortcomings. SCE has temporarily deployed several portable generators in the Goleta Valley to mitigate any problems that may occur during the El Nino rain season.

10.6.6.2 Location and Extent of Hazard in Santa Barbara County

The entire county is subject to energy shortages.

10.6.6.3 History of Hazard in Santa Barbara County

Energy disruptions on a small scale have occurred on a regular basis in Santa Barbara County.

10.6.6.4 Probability of Occurrence

In any given year, Santa Barbara County can be subject to energy shortages. A large disruption due to a power failure or rotating brown out a highly likely.

10.6.6.5 Climate Change Considerations

With increased changes in weather and climate, the demands on energy will shift too. This shift in demand could have significant impacts on energy supply and demand.

10.6.7 Oil Spills

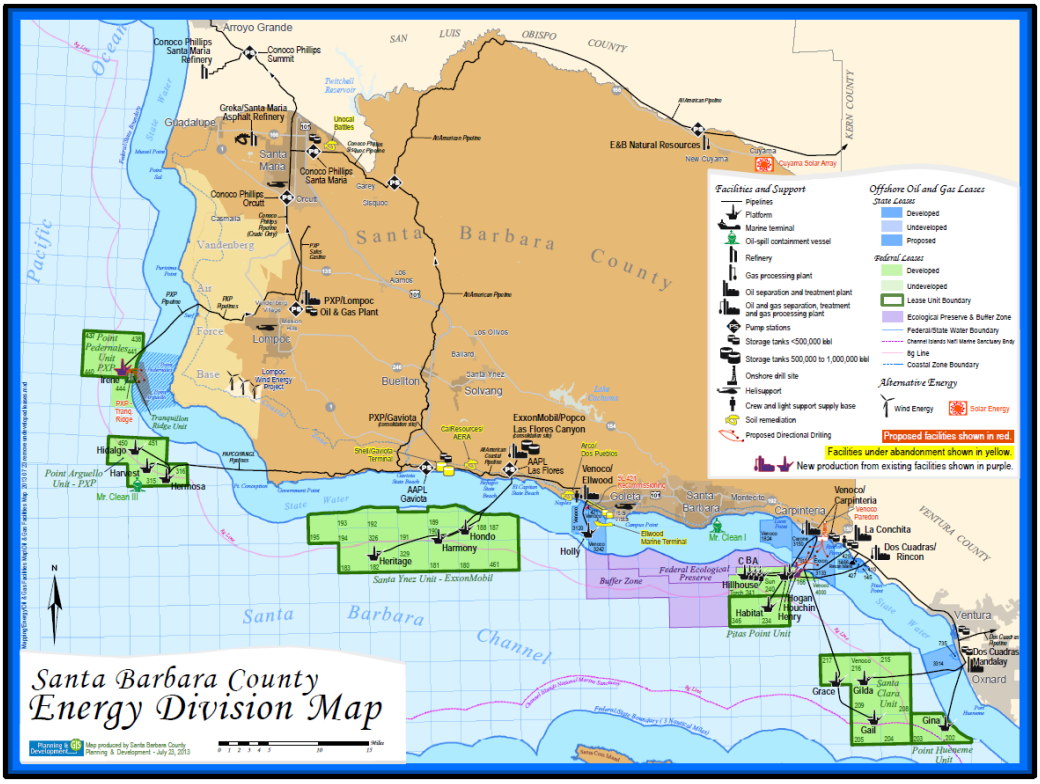
10.6.7.1 Description of Hazard

An oil spill is a release of liquid petroleum hydrocarbon into the environment due to human activity or technological error that results in pollution of land, water, and air. Oil releases also occur naturally through oil seeps either on land or under water. Marine oil spills, whether accidental or intentional, can result from the release of crude oil from offshore oil platforms, drilling rigs, wells, pipelines, tank trucks, and marine tank vessels (tankers). Refined petroleum products such as gasoline, diesel, and heavier fuels such as bunker fuel used by cargo ships are also sources of potential oil spill releases. Depending on the origin, size, and duration of the release, an oil spill can have serious impacts on air and water quality, public health, plant and animal habitat, and biological resources. Clean up and recovery is time and cost consuming, and dependent on weather conditions such as wind and rain. Tidal and Current conditions may also make the spill more dynamic.

10.6.7.2 Location and Extent of Hazard in Santa Barbara County

This hazard can occur in any part of Santa Barbara County where existing oil & gas operations are located, including off shore where there are several platforms and undersea pipelines. Currently, there are 11 Oil Platforms off of the Santa Barbara County Coast and several oil and gas wells in Santa Barbara County. **Figure 10.21** show the Oil Platforms and their proximity to Santa Barbara.

Figure 10.21: Oil Platform Map of Santa Barbara Coast



10.6.7.3 History of Hazard in Santa Barbara County

Santa Barbara County has experienced the following large oil spills:

- January 28, 1969 Platform A - 80,000 to 100,000 barrels
- September 28, 1997 Platform Irene - 163 barrels
- May 19, 2015 Plains All American Pipeline at Refugio - 3,400 barrels

10.6.7.4 Probability of Occurrence

In any given year, Santa Barbara County could be subject to oil spills onshore or offshore.

10.6.7.5 Climate Change Considerations

With increased changes in weather, climate, and economics, the demands for oil & gas production may shift. This shift in demand could increase production, distribution, and transportation of oil products; thus increasing the potential oil spill occurrences.

10.6.8 Dam Failure

10.6.8.1 Description of Hazard

Dams fail due to old age, poor design, structural damage, improper siting, landslides flowing into a reservoir, or terrorist actions. Structural damage is often a result of a flood, erosion, or earthquake. A catastrophic dam failure could inundate the area downstream. The force of the water is large enough to carry boulders, trees, automobiles, and even houses along a destructive path downstream. The potential for casualties, environmental damage, and economic loss is great. Damage to electric generating facilities and transmission lines could impact life support systems in communities outside the immediate hazard area.

10.6.8.2 History of Hazard in Santa Barbara County

The State of California and the federal government have a rigorous Dam Safety Program. This is a proactive program that ensures proper planning in the event of failure but also sets standards for dam design and maintenance. Because of this, many potential issues have been addressed and/or resolved. Prior to the implementation of this program Santa Barbara did experience a dam related incident.

Built in 1917, the Sheffield Dam only survived for eight years, failing catastrophically during an earthquake in 1925. It was built on sandy soil which liquefied during the event. The center 300-feet of the 720-feet long dam broke off and was carried away on the liquefied soil, spilling 30 million gallons of water. Damage estimates are unavailable.

10.6.8.3 Location and Extent of Hazard in Santa Barbara County

There are 15 dams in the County. These dams range in purpose from water supply to flood control. Dam failure inundation zones mapped by the State of California indicate areas that would be inundated should a dam fail catastrophically. The inundation mapping is considered confidential by the State of California. **Figure 10.22 and Figure 10.23** display the dam locations and dam inundation areas in the County. **Figure 10.24** shows the Carpinteria area.

Figure 10.22: Dam Locations

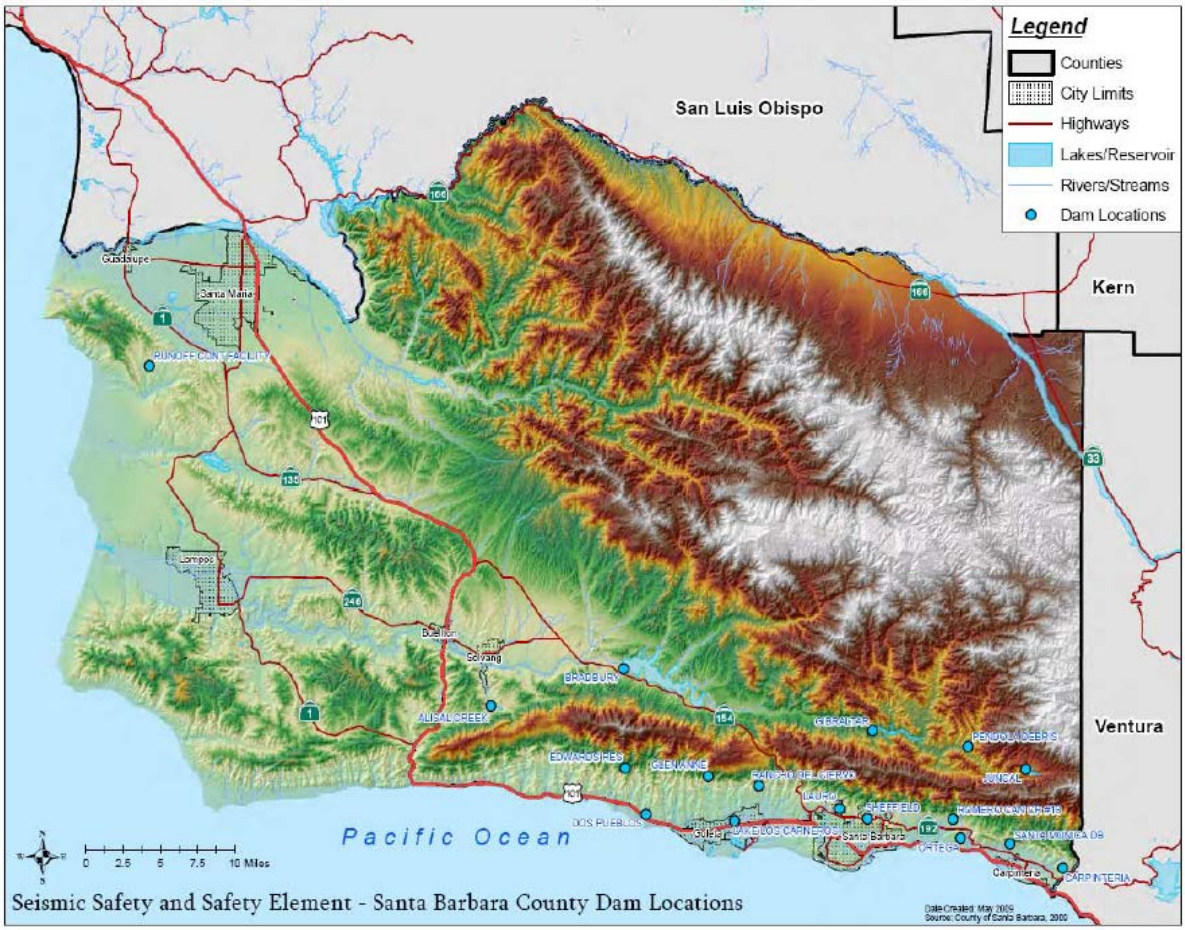


Figure 10.23: Dam Inundation Zones

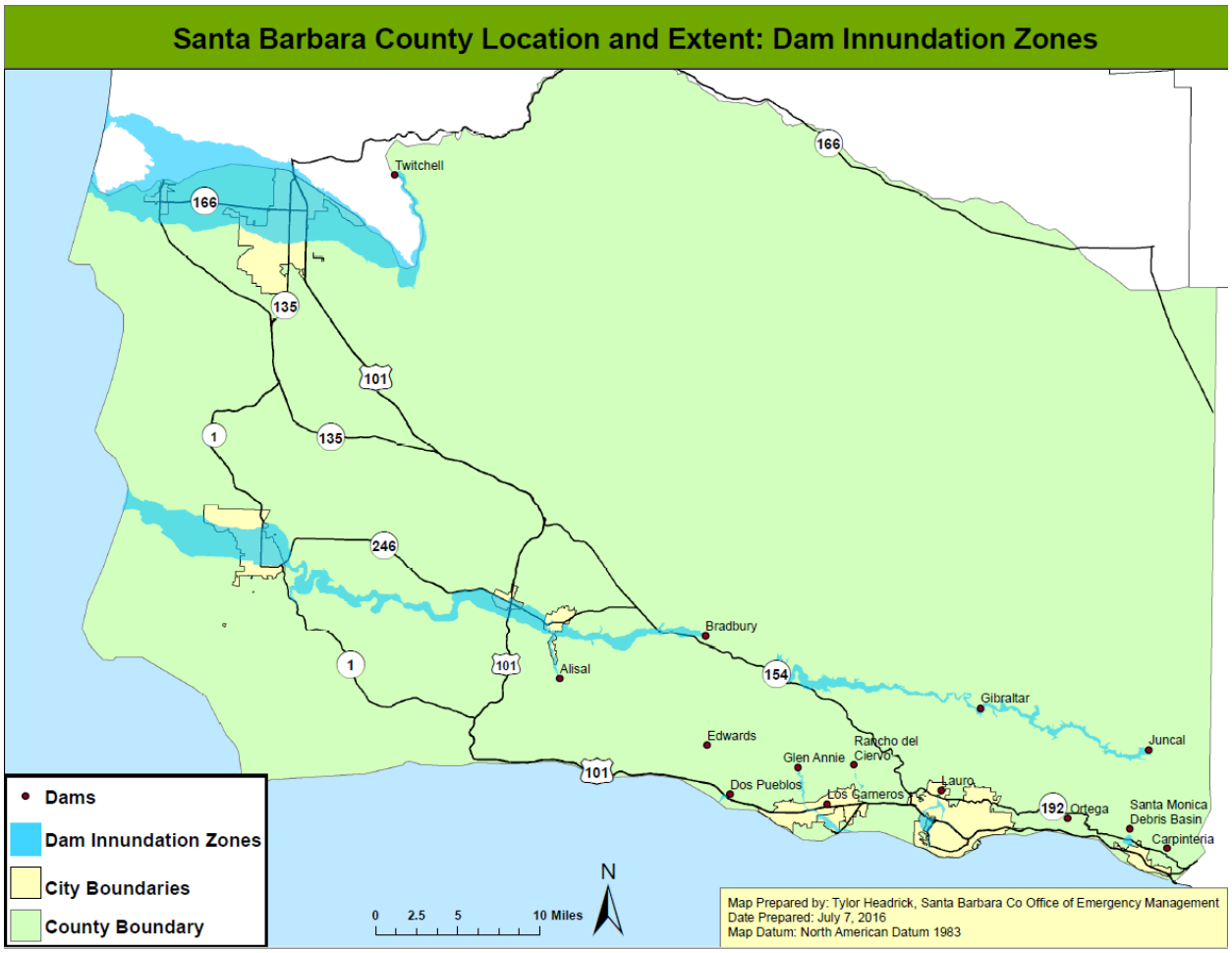
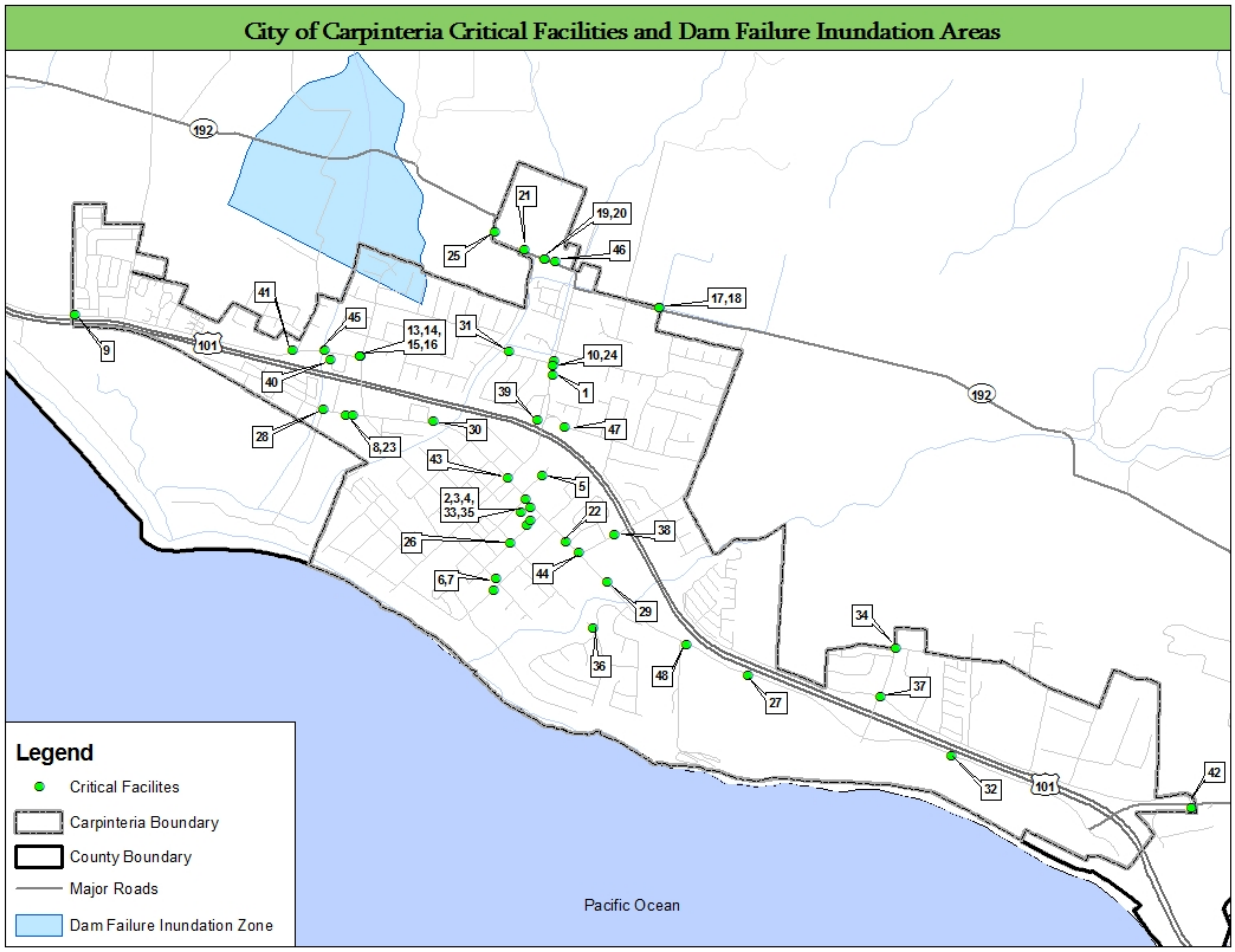


Figure 10.24: City of Carpinteria Dam Failure Inundation Areas



Source: Santa Barbara County Flood Control and Water Conservation District

10.6.8.4 Probability of Occurrence

Dam failure events are infrequent and usually coincide with the events that cause them, such as earthquakes, landslides and excessive rainfall and snowmelt. There is a “residual risk” associated with dams; residual risk is the risk that remains after safeguards have been implemented. For dams, the residual risk is associated with events beyond those that the facility was designed to withstand. However, the probability of occurrence of any type of dam failure event is considered to be low in today’s regulatory and dam safety oversight environment.

10.6.8.5 Climate Change Considerations

Increased rainfall from changing climate conditions could present a risk to dams in Santa Barbara County if volume of runoff is greater than the dam’s capacity. This could cause the County to release stored water into the downstream water courses in order to ensure the integrity of the dam.

10.6.9 Agricultural Pests

10.6.9.1 Description of Hazard

Agricultural pests and disease infestation occur when an undesirable organism inhabits an area in a manner that causes serious harm to agriculture crops, livestock or poultry, and wild land vegetation or animals. Countless insects and diseases live on, in, and around plants and animals in all environments. Most are harmless, while some can cause significant damage and loss. Under some conditions, insects and diseases that have been relatively harmless can become hazardous. For example, severe drought conditions can weaken trees and make them more susceptible to destruction from insect attacks than they would be under normal conditions.

10.6.9.2 History of Hazard in Santa Barbara County

Santa Barbara County has a demonstrated vulnerability to insect infestation. Infestations of Mediterranean Fruit Fly, Oriental Fruit Fly, Gypsy Moth, Glassy-winged Sharpshooter, Asian Citrus Psyllid, and Light-brown Apple Moth have all occurred in the last 30 years. Diseases such as Chrysanthemum White Rust and Pierce's Disease of Grapes have caused significant losses to local growers.

10.6.9.3 Location and Extent of Hazard in Santa Barbara County

Figure 10.25 shows land that, under the Williamson Act, has been zoned as agricultural, open space, or recreational. These lands are susceptible to agricultural pests and diseases. **Figure 10.26** portrays crop land. These areas are also susceptible to agricultural pests and diseases.

Figure 10.25: Agricultural Preserves, 2010

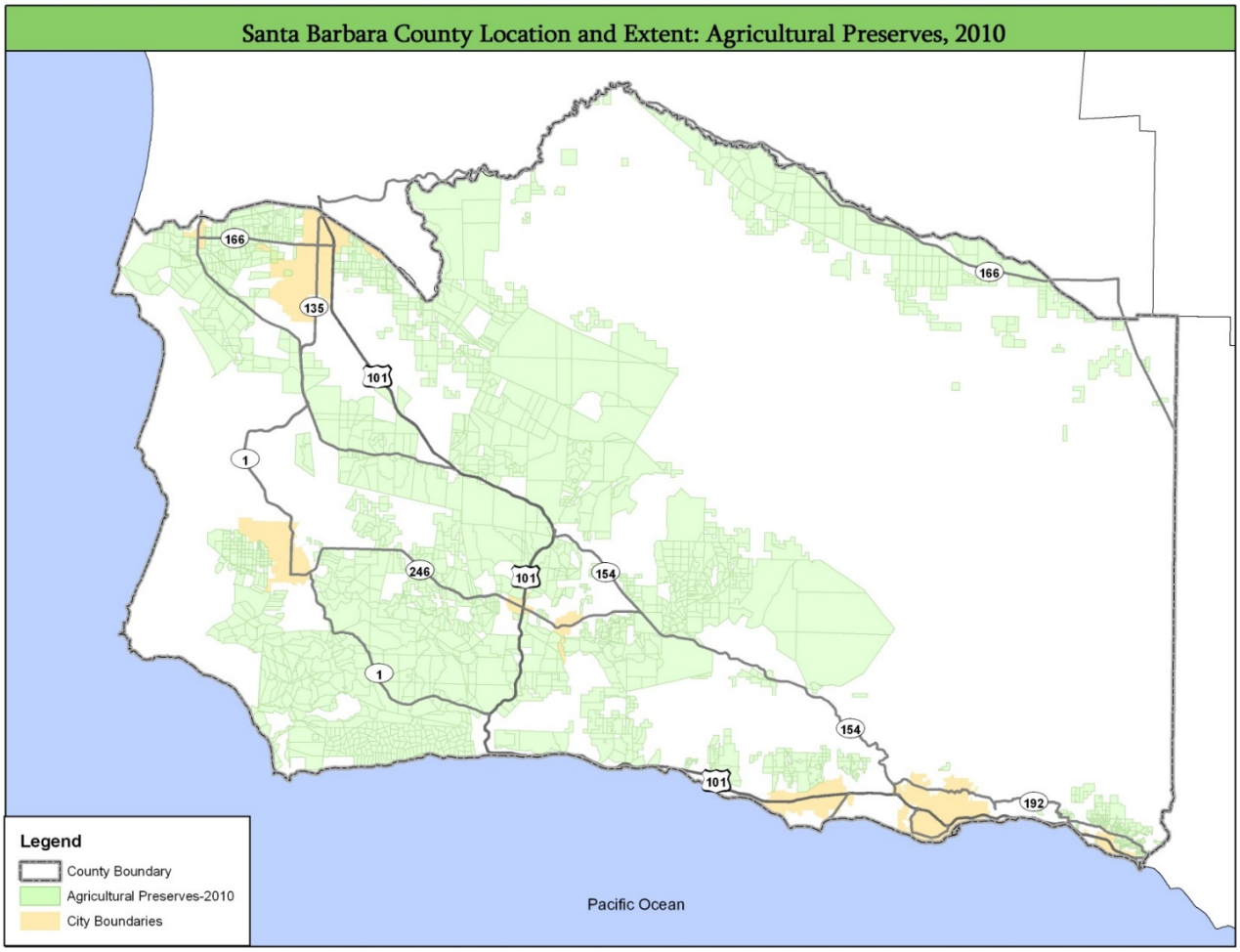
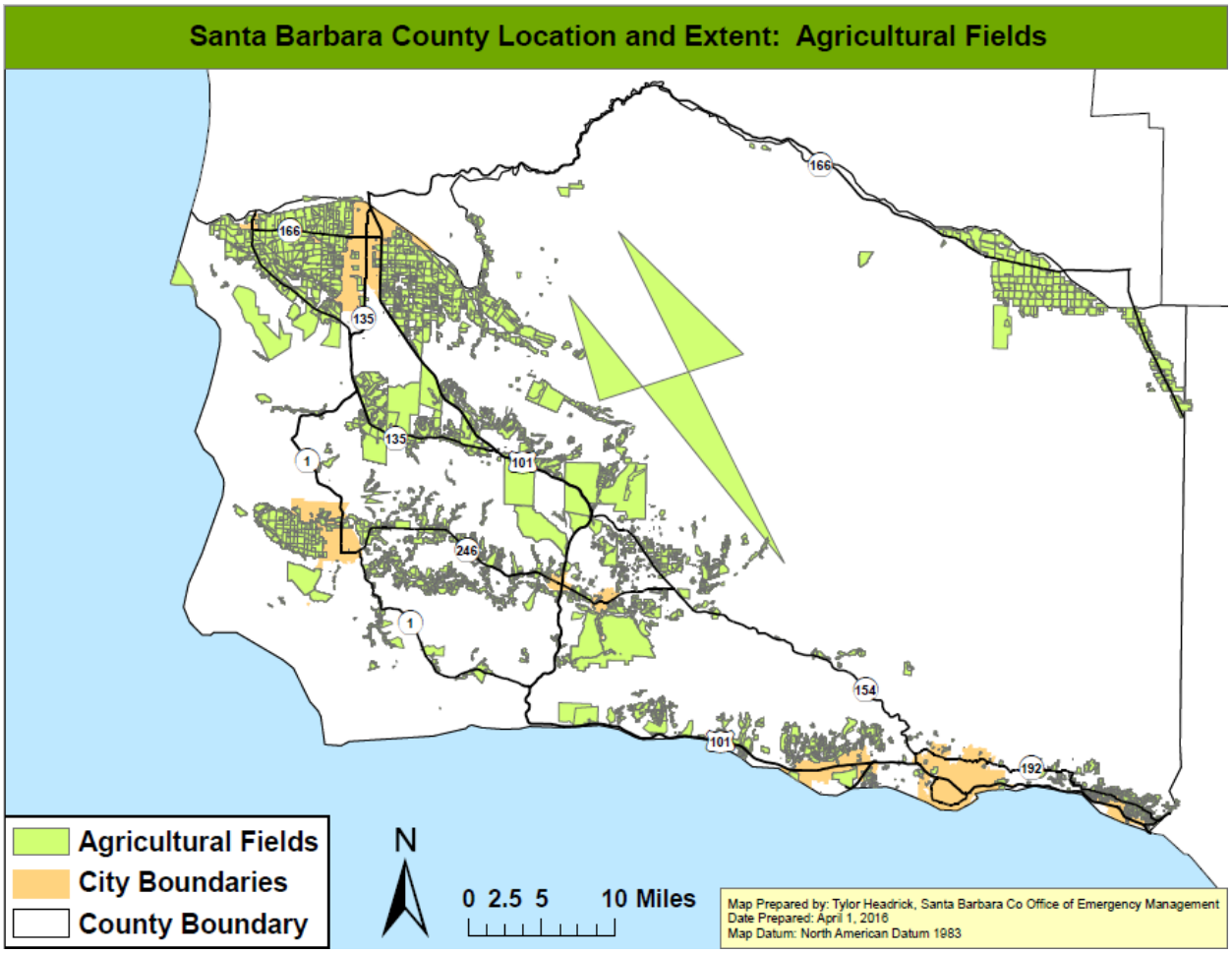


Figure 10.26: Agricultural Fields



10.6.9.4 Probability of Occurrence

Due to its interaction with the global economy, its mild Mediterranean climate, and its diversified agricultural and native landscape, Santa Barbara County currently experiences and will continue to experience periodic losses due to agricultural pests and diseases.

10.6.9.5 Climate Change Consideration

California farmers contend with a wide range of crop-damaging pests and pathogens. Continued climate change is likely to alter the abundance and types of many pests, lengthen pests' breeding season, and increase pathogen growth rates. For example, the pink bollworm, a common pest of cotton crops, is currently a problem only in southern desert valleys because it cannot survive winter frosts elsewhere in the state. However, if winter temperatures rise 3 to 4.5°F, the pink bollworm's range would likely expand northward, which could lead to substantial economic and ecological consequences for the state.

Temperature is not the only climatic influence on pests. For example, some insects are unable to cope in extreme drought, while others cannot survive in extremely wet conditions. Furthermore, while warming speeds up the lifecycles of many insects, suggesting that pest problems could increase, some insects may grow more slowly as elevated carbon dioxide levels decrease the protein content of the leaves on which they feed (California Climate Change Center 2006).

10.6.10 Epidemic/Pandemic/Vector Borne Disease

10.6.10.1 Description of Hazard

Infectious disease emergencies are circumstances caused by biological agents, including organisms such as bacteria, viruses or toxins, with the potential for significant illness or death in the population.

Infectious disease emergencies may be caused by:

- Naturally occurring diseases spread person to person (e.g., measles, mumps, meningococcal disease, tuberculosis)
- Foodborne (e.g.: salmonella, E.coli, botulinum toxin, etc.)
- Vectors such as a mosquito that spread disease (e.g.: West Nile virus, dengue, Zika, malaria).
- Newly emerging infectious diseases (e.g.: Ebola, Zika, SARS, MERS, avian influenza).
- Intentionally caused spread of disease or toxins known as bioterrorism. Past bioterrorism events include the contamination of restaurant food with E.coli in Oregon (1984) and the release of Sarin gas in the Tokyo subway (1995).

The impact of infectious disease emergencies on the local community and its critical infrastructure will depends on:

- The type of biological agent and availability of treatment for victims
- The availability of prophylaxis for responders and the public
- The scale of exposure and ongoing exposure
- The mode of transmission and whether transmission can be interrupted
- Whether the event is affecting staffing for critical infrastructure within and outside of the county such as transportation, law enforcement, health care, and the medical and food supply chains.

Outbreaks, Epidemics, and Pandemics

An **outbreak** is when there are more cases than would be normally expected, often suddenly, of an infectious disease in a community or facility.
An **epidemic** is when there are more cases than would be normally expected of an infectious disease, often suddenly, in a population of a large geographic area.
A **pandemic** refers to an epidemic that has spread over several countries or continents, usually affecting a large number of people. Examples include pandemic influenza and Severe Acute Respiratory Syndrome or “SARS”.

Outbreaks, epidemics, or pandemics can occur when a new virus emerges to which the population has little immunity. The 20th century saw three such pandemics, the most notable of which was the 1918 Spanish influenza pandemic that was responsible for 20 million deaths throughout the world. Secondary impacts include significant economic disruption to a community's infrastructure due to loss of employee work time, essential services and products, and costs of treating or preventing spread of the disease.

Public health measures are used to control outbreaks, epidemics, or pandemics of infectious diseases, and are especially important for diseases with high morbidity or mortality and limited medical prophylaxis and/or rapid treatment.

Measures to control disease include:

- Legal measure such as isolation and quarantine of persons or products, and legal closure of food establishments.
- Control of contaminated food or water through recall of product or, for water, "Do Not Use", "Do Not Drink" or "Boil Water" orders issued by state or local health departments.

Vector control to eliminate vectors such as mosquitos that carry the disease from person to person. The Vector Borne Disease Section of the California Department of Public Health identifies the following types of diseases:

- *Africanized Honeybees*
- *Bed Bugs*
- *Body Lice*
- *Cat Scratch Disease*
- *Conenose Bugs*
- *Hantavirus Cardiopulmonary Syndrome*
- *Head lice*
- *Lyme Disease*
- *Mosquitoes*
- *Murine Typhus*
- *Plague*
- *Ticks*
- *West Nile Virus*
- *Red Imported Fire Ants*
- *Scabies*
- *Swimmer's Itch*
- *Tularemia*
- *Zika Virus*

10.6.10.2 Location and Extent of Hazard in Santa Barbara County

An infectious disease hazard can occur throughout the entire County.

10.6.10.3 History of Hazard in Santa Barbara County

- Foodborne outbreaks occur every year in Santa Barbara County, commonly the result of Norovirus, and have sickened up to 100 individuals at a single facility.
- 2009 H1N1 "Swine Flu" pandemic required rationing and prioritization of influenza vaccine. Public was given 27,000 vaccinations at large and small scale clinics. One hundred thirty-two thousand (132,000) doses of vaccine were distributed Countywide through response partners. The Santa Barbara Public Health Department Operations Center was activated for more than three months.
- 2013 Serogroup B meningococcal outbreak occurred at UCSB requiring a joint effort between the CDC, FDA, California Department of Public Health, the Santa Barbara County

Public Health Department. FDA approved an investigational new drug (IND) to allow for a stand up of a CDC approved mass vaccination operation for students. 17,540 total vaccinations were given.

10.6.10.4 Probability of Occurrence

Disease outbreaks and flu epidemics occur on an ongoing basis. Occasionally these outbreaks require the initiation of the Santa Barbara County Public Health Department Infectious Disease Response Plan but have required little to no support from the County Emergency Operations Center. There is a continued threat from a novel influenza virus or other emerging epidemic or pandemic disease that would require a disaster response at the EOC level. The disease could affect the county infrastructure, and the ability of the EOC and other county departments to respond due to disease related loss of staff.

10.6.10.5 Climate Change Consideration

- While many vector born and zoonotic diseases (VBZD), such as malaria, yellow fever, dengue, and murine typhus, are rarely seen in the United States, we are directly susceptible to VBZD that are found in warmer climates and vulnerable due to global trade and travel.
- Many VBZD are climate sensitive and ecological shifts associated with climate change are expected to impact the distribution and incidences of these diseases.
- Changes in temperature and precipitation directly affect vector born disease transmission through pathogen-host interaction, and indirectly through ecosystem changes and species composition.
- As temperatures increases vectors can spread into new areas that were previously too cold. For example, two mosquito vectors that carry malaria are now found at the U.S.-Mexico border.

10.6.11 Hazardous Materials Release

10.6.11.1 Description of Hazard

Hazardous Waste/Materials are widely used or created at facilities such as hospitals, wastewater treatments plants, universities and industrial/manufacturing warehouses. Several household products such as cleaning supplies and paint are also considered hazardous materials. Hazardous materials include:

- Explosives;
- Flammable, non-flammable, and poisonous gases;
- Flammable liquids;
- Flammable, spontaneously combustible, and dangerous when wet solids;
- Oxidizers and organic peroxides;
- Poisons and infectious substances;
- Radioactive materials; and
- Corrosive materials.

Both mobile and external hazardous materials releases can spread and affect a wide area, through the release of plumes of chemical, biological, or radiological elements or leaks or spills. Conversely, internal releases are more likely to be confined to the structure the material is store in.

Chemical may be corrosive or otherwise damaging over time. A hazardous materials release could also result in fire or explosion. Contamination may be carried out of the immediate area of the incident by people, vehicles, wind, and water. Weather conditions can increase the size and intensity of the Hazardous Materials Release. Typography, such as hills and canyons, can increase the size of the release or make it more difficult to contain.

10.6.11.2 Location and Extent of Hazard in Santa Barbara County

The locations and identity of facilities that store hazardous materials are reported to local and federal governments. Many facilities have their own hazardous materials guides and response plans, including transportation companies who transport hazardous materials.

The release of hazardous materials into the environment can cause a multitude of problems. Although these incidents can happen almost anywhere, certain areas of the County are at higher risk, such as near roadways that are frequently used to transport hazardous materials and locations with industrial facilities that use, store, and/or dispose of such materials. Areas crossed by railways, waterways, airways, and pipelines also have increased potential for mishaps.

5.4.7.1 History of Hazard in Santa Barbara County

No significant historical events to report to date

10.6.11.3 Probability of Occurrence

The release of hazardous materials can occur throughout the entire county. Incidences can occur during production, storage, transportation, use or disposal of hazardous materials. Communities can be at risk if a chemical is used unsafely or released in harmful amounts into the environment. Hazardous materials can cause death, serious injury, long lasting health effects, and damage to buildings, the environment, homes, and other property.

10.6.11.4 Climate Change Consideration

As mentioned above, weather can play a significant factor in hazardous material releases. While there is little evidence to link climate change increase occurrences of hazardous material releases, it could impact the response and recovery efforts.

10.6.12 Terrorism

10.6.12.1 Description of Hazard

The term terrorism refers to intentional, criminal malicious acts. There is no single, universally accepted definition of terrorism, and it can be interpreted in many ways. Terrorism is defined in the Code of Federal Regulations as "*...the unlawful use of force and violence against persons or property*

to intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of political or social objectives." (28 CFR, Section 0.85). For the purposes of this plan, terrorism refers to the use of weapons of mass destruction, including biological, chemical, nuclear, and radiological weapons; arson, incendiary, explosive, and armed attacks; industrial sabotage and intentional hazardous materials releases; and cyber terrorism. Conventional Attacks/Active Shooter incident is initiated by humans. It can be a well-planned coordinated attack with multiple suspects, or the result of a lone individual on a rampage.

10.6.12.2 Location and Extent of Hazard in Santa Barbara County

Terrorism can occur throughout the entire county but due to its intended purpose would most likely happened in more populous urban areas where more devastation (and fear) will ensue.

10.6.12.3 History of Hazard in Santa Barbara County

While the county has seen several recent events of mass casualties brought on by disgruntled or distraught individuals; none of them can be categorized as terrorism.

10.6.12.4 Probability of Occurrence

All County businesses and facilities are perceived as a soft target resulting in increased property crimes by criminals who live outside the County. However, as the history shows, Isla Vista is on the largest soft targets in the County. Isla Vista is on the most densely populated areas in the western United States. During the weekend nights, it has historically been the location of several street parties inviting thousands of people to the community. Halloween has been a problem in the past, bringing up to forty-thousand street partygoers. Although in 2014 the celebration was subdued to local efforts on the part of students and community members to keep it smaller in nature.

10.6.12.5 Climate Change Consideration

While there is little evidence to link climate change increase occurrences of terrorism, depending on the type of attack, it could impact the response and recovery efforts.

10.6.12.6 Infrastructure/Critical Facilities

There is no data regarding terrorism and City critical facilities.

10.6.13 Cyber Threats

10.6.13.1 Description of Hazard

A cyber security threat is a circumstance or event that has or indicates the potential to exploit vulnerabilities and to adversely impact organizational operations, organizational assets (including information and information systems), individuals, other organizations, or society. Critical infrastructure, such as utilities and telecommunications, are also potential targets. Examples of cyber

threats include malware, phishing, denial of service attacks, ransomware, and state-sponsored hacking.

10.6.13.2 Location and Extent of Hazard in Santa Barbara County

This hazard can happen anywhere within the County or City but will generally be targeted towards larger corporations or government.

10.6.13.3 History of Hazard in Santa Barbara County

While there have been several smaller cyber threats and hacking, none have reached a level of significance.

10.6.13.4 Probability of Occurrence

Cyber threats are on the rise globally, national, and locally. The probability of occurrence of cyber threats is rapidly increasing, especially with increased reliance on the Internet and cloud-based computing.

10.6.13.5 Climate Change Consideration

While there is little evidence to link climate change to increase in occurrences of cyber threats, the target could be related to persons/groups with issues with individuals or companies they perceive to have effect on the climate (i.e., greenhouse gas producers).

10.6.13.6 Infrastructure/Critical Facilities

There is no data regarding Cyber Terrorism and City critical facilities.

10.6.14 Train Accidents

10.6.14.1 Description of Hazard

Train accidents are defined as any accidents involving public or private trains carrying passengers or cargo along the rail corridor. Train accidents, like other transportation accidents, are less likely to lead to a state or federal disaster declaration, than other hazards previously and afore mentioned.

10.6.14.2 Location and Extent of Hazard in Santa Barbara County

Trains running through Santa Barbara County, and in close proximity to U.S. Highway 101, carry both commuters and commodities. Such commodities include hazardous materials, fuel (including oil), agriculture, meats, and non-consumables. A hazardous materials incident on the rails or roadway has the potential to shut down both rail and highway transportation routes where the two are within close proximity to another.

10.6.14.3 History of Hazard in Santa Barbara County

In 1991 the Seacliff Incident, in neighboring Ventura County, occurred when a train released 440 gallons of aqueous hydrazine. The accident required the evacuation of the nearby Seacliff Community along with the shutting down of Highway 101, and took 5 days to cleanup.

10.6.14.4 Probability of Occurrence

Train accidents are generally localized and the incidents result in limited impacts at the community level. However, if there are volatile or flammable substances on the train and the train is in a highly populated or densely forested area, death, injuries, and damage to homes, infrastructure, and the environment, including forest fires can occur.

10.6.14.5 Climate Change Consideration

There is no none linkage between climate change and train accidents; however, because of rail road track proximity along the Pacific Ocean, sea level rise could impact service. It is expected that conditions would be gradual in nature and would not create unforeseen problems or complications.

10.6.15 Natural Gas Pipeline Rupture & Storage Facilities

10.6.15.1 Description of Hazard

The United States is heavily dependent on transmission pipelines to distribute energy and fuel sources. Virtually all natural gas, which accounts for about 28 percent of energy consumed annually, is transported by transmission pipelines. Energy demand in the United States continues to increase. Although California is a leader in exploring and implementing alternative energy sources such as wind and solar, the expansion of traditional energy sources, such as natural gas, continues.

Most of the natural gas used in California comes from out-of-state natural gas basins. It is delivered to California via the interstate natural gas pipeline system. In 2012, California customers received 42 percent of their natural gas supply from basins in the Southwest, 22 percent from Canada, 23 percent from the Rocky Mountains, and 12 percent from California.

Generally speaking, transmission lines are large-diameter steel pipes carrying natural gas at high pressure and compressed to provide higher carrying capacity. Transmission lines are both interstate and intrastate, with the latter connecting to smaller distribution lines delivering gas directly to homes and businesses.

10.6.15.2 Location and Extent of Hazard in Santa Barbara County

Natural gas transported via the interstate pipelines, and some of the California-produced natural gas, is delivered into the Pacific Gas & Electric (PG&E) and Southern California Gas (SoCal Gas) intrastate natural gas transmission pipeline systems (commonly referred to as California's "backbone" natural gas pipeline system).Natural gas on the utilities' backbone pipeline systems is then delivered

into the local transmission and distribution pipeline systems, or to natural gas storage fields. PG&E and SoCal Gas own and operate several natural gas storage fields that are located in Northern and Southern California.

Data compiled by the Pipeline and Hazardous Materials Safety Administration (PHMSA) report a total of 115,292 miles of gas pipelines in California, of which 12,414 miles are classified as gas transmission lines, 403 miles are gas-gathering lines, and the majority, 102,475 miles, are for gas distribution. Nearly 40 percent of gas transmission lines are located in Los Angeles, Kern, and San Bernardino counties.

Figure 10.27 shows the location and ownership of the natural gas pipeline system. Many of the pipelines are located in areas with high seismic activity, crossing the San Andreas and other active faults.

Figure 10.27: Natural Gas Pipeline and Service Providers in California

10.6.15.3 History of Hazard in The City of Carpinteria

No significant historical events to report to date.

10.6.15.4 Probability of Occurrence

Increased urbanization is resulting in more people living and working closer to existing gas transmission pipelines that were placed prior to government agencies adopting and implementing

land use and other pipeline safety regulations. Compounding the potential risk is the age and gradual deterioration of the gas transmission system due to natural causes. Significant failure, including pipe breaks and explosions, can result in loss of life, injury, property damage, and environmental impacts. Causes of and contributors to pipeline failures include construction errors, material defects, internal and external corrosion, operational errors, control system malfunctions, outside force damage, subsidence, and seismicity. Growth in population, urbanization, and land development near transmission pipelines, together with addition of new facilities to meet new demands, may increase the likelihood of pipeline damage due to human activity and the exposure of people and property to pipeline failures.

10.6.15.5 Climate Change Consideration

Climate change will not have a direct effect on natural gas pipelines; however, climate change could increase the demand for natural gas. This increase in demand may require the development of new pipelines; which could increase potential complications.

10.6.16 Tsunami

10.6.16.1 Description of Hazard

A tsunami is a series of long waves generated in the ocean by a sudden displacement of a large volume of water. Underwater earthquakes, landslides, volcanic eruptions, meteoric impacts, or onshore slope failures cause this displacement. Tsunami waves travel at speeds averaging 450 to 600 miles per hour. As a tsunami nears the coastline, its speed diminishes, its wavelength decreases, and its height increases. Depending on the type of event that creates the tsunami, as well the remoteness of the event, the tsunami could reach land within a few minutes or after several hours. Low-lying areas could experience severe inland inundation of water and deposition of debris more than 3,000 feet inland.

10.6.16.2 Location and Extent of Hazard in Santa Barbara County

The Cities of Santa Barbara and Carpinteria are located on or near several offshore geological faults, the more prominent faults being the Mesa Fault, the Santa Ynez Fault in the mountains, and the Santa Rosa Fault. There are other unnamed faults in the offshore area of the Channel Islands. These faults have been active in the past and can subject the entire area to seismic action at any time.

10.6.16.3 History of Hazard in Santa Barbara County

The relative threat for local tsunamis in Santa Barbara County can be considered low due to low recurrence frequencies. Large, locally-generated tsunamis are estimated to occur once every 100 years. Thirteen possible tsunamis have been observed or recorded from local earthquakes between 1812 and 1988. These tsunami events were poorly documented and some are very questionable. There is no doubt that earthquakes occurring along submarine faults off Santa Barbara could generate large destructive local tsunamis (http://www.drgeorgepc.com/Tsunami1812SantaBarbara.html). Internet research provides some documentation that two tsunamis were generated from two major earthquakes in the Santa Barbara region in December of 1812. The size of these tsunamis may never

be known with certainty, but there are unconfirmed estimates of 15 feet waves at Gaviota, 30-35 feet waves at Santa Barbara, and waves of 15 feet or more at Ventura. These estimates are found in various literature and based on anecdotal history only.

Major faults of the San Andreas zone, although capable of strong earthquakes, cannot generate any significant tsunamis. Only earthquakes in the Transverse Ranges, specifically the seaward extensions in the Santa Barbara Channel and offshore area from Point Arguello, can generate local tsunamis of any significance. The reason for this may be that earthquakes occurring in these regions result in a significant vertical displacement of the crust along these faults. Such tectonic displacements are necessary for tsunami generation.

Two separate events, occurring in 1877 and 1896, are listed in NOAA's online database as having heights of 1.8 and 2.5 feet waves. However, tsunami heights from historical records are estimated and should not be regarded as exact. Other recorded tsunamis affecting Santa Barbara during the 20th century are in the 0.1 – 1.0 foot range.

On February 27, 2010, a magnitude 8.8 earthquake occurred along the central coast of Chile and produced a tsunami. For the coast of Southern California, it was one of the largest tsunami episodes since 1964. In general, tsunami waves between 2 and 4 feet were reported. Tsunami waves of around 3 feet were reported by tide gauges across the Santa Barbara Channel. At Santa Barbara Pier, significant beach erosion was reported along with displacement of buoys. The tsunami surge lasted in excess of 20 hours. The most significant damage occurred along the coasts of Ventura and southern Santa Barbara counties. Numerous reports of dock damage were reported along with beach erosion.

On March 11, 2011, a magnitude 9.0 earthquake occurred off the Pacific coast of Tohoku, Japan. This earthquake devastated many communities in Japan and caused tsunami effects across the ocean in Santa Barbara County. The only significant impact to Santa Barbara County was to the dredging contractor for the harbor. The City harbor operations documented approximately $1,500 of damages (Public Assistance). The dredging contractor may pursue SBA funding.

10.6.16.4 Probability of Occurrence

The University Of Southern California (USC) Tsunami Research Group has modeled areas in Santa Barbara County that could potentially be inundated in the event of a tsunami. This model is based on potential earthquake sources and hypothetical extreme undersea, near-shore landslide sources. The data was mapped by Cal OES for the purpose of Tsunami Evacuation Planning. Extreme tsunami inundation areas were mapped and used to profile maximum potential exposure. The figure below (**Figure 10.28**) shows tsunami run up limits for Santa Barbara County. The tsunami inundation map helps to assist cities and counties in identifying their tsunami hazard areas. The inundation line represents the maximum considered tsunami run up from a number of extreme, yet realistic, tsunami sources.

Figure 10.28: Santa Barbara County Tsunami Inundation Area

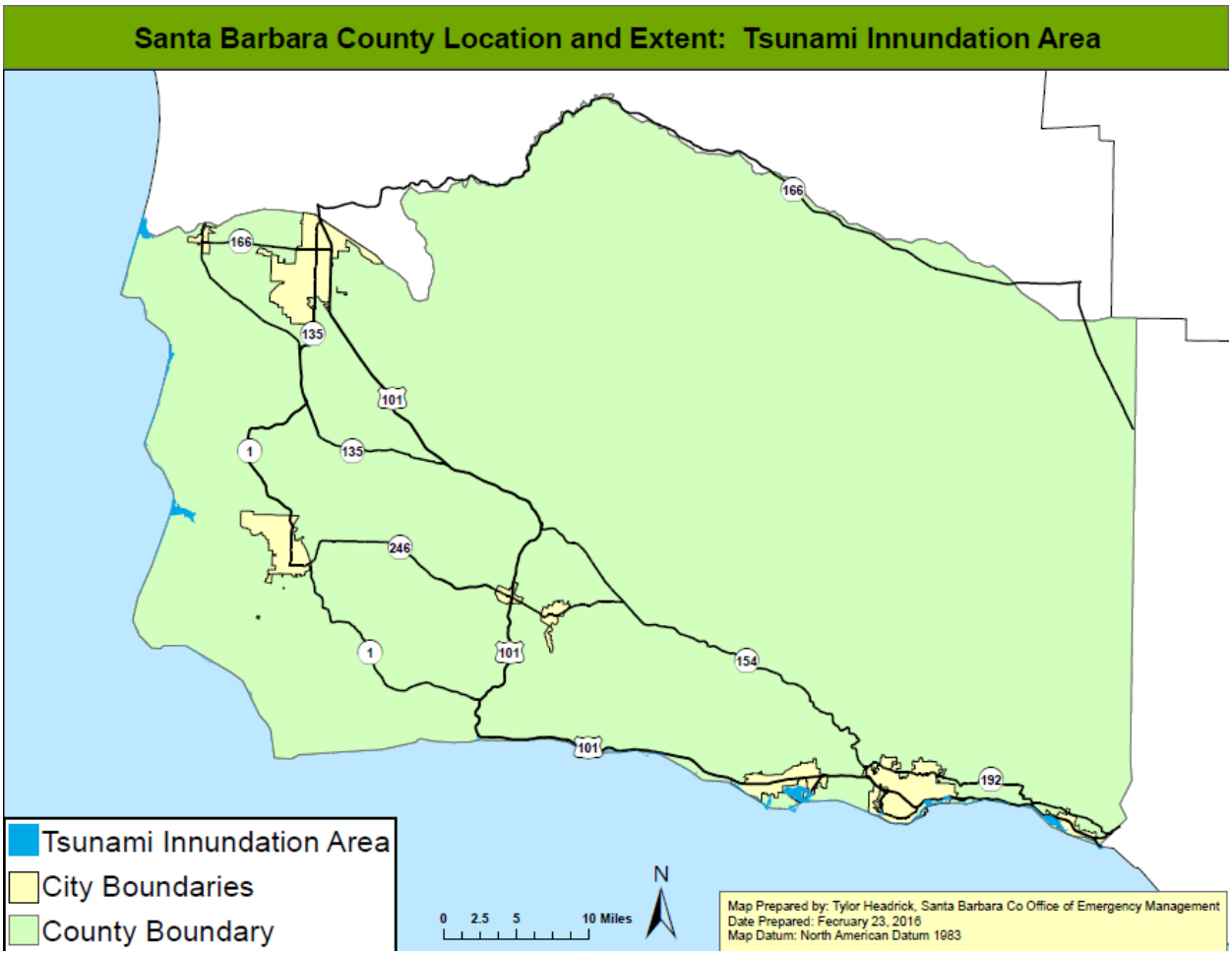
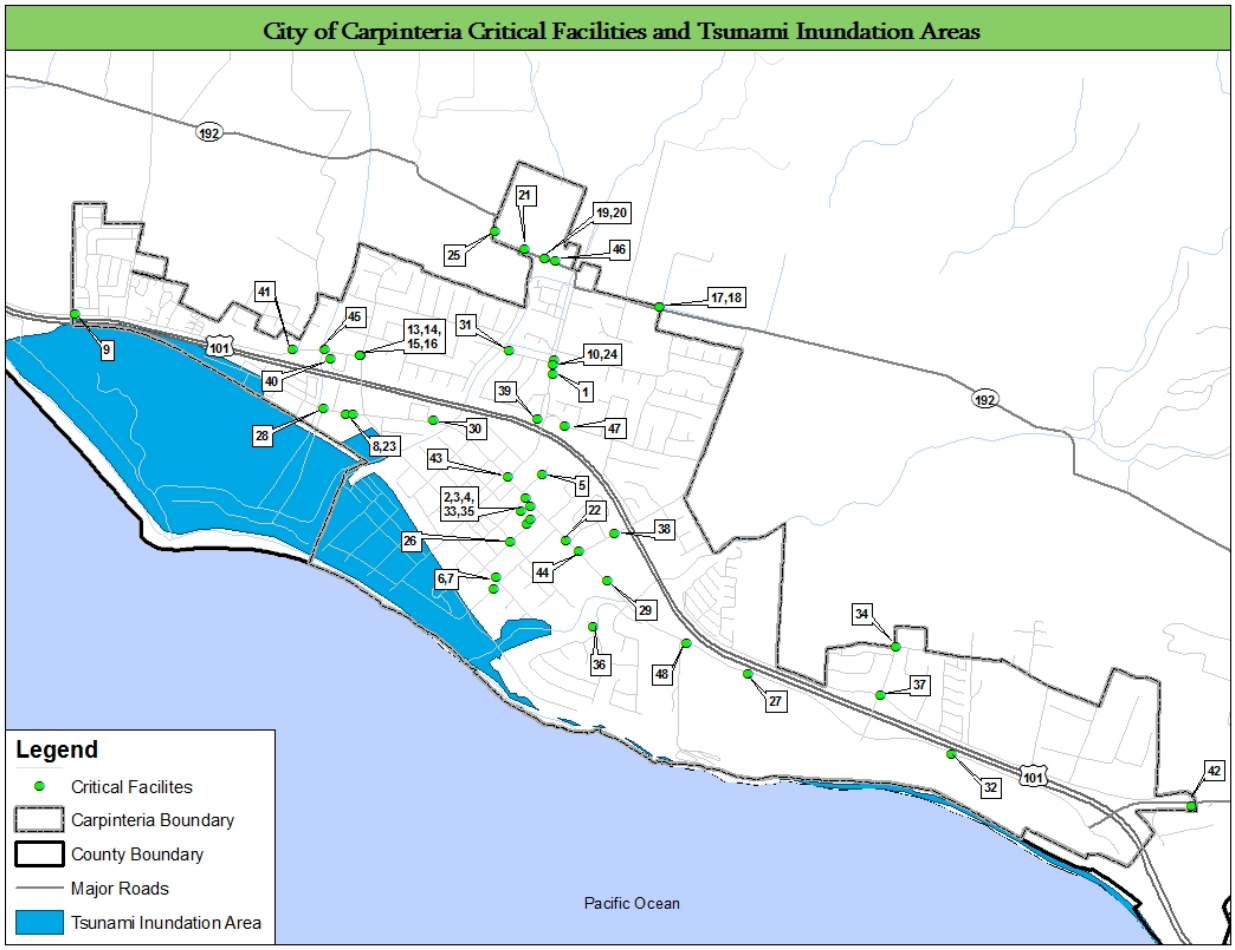


Figure 10.29: City of Carpinteria Tsunami Inundation Areas



Source: Tsunami Run-up Limits, Santa Barbara County GIS available at http://www.countyofsb.org/itd/gis/default.aspx?id=2802&ekmensel=e2f22c9a_486_496_btnlink, September 2009.

Based on the tsunami inundation map above (**Figure 10.29**), several areas along the coast of Carpinteria have the potential to be inundated by a tsunami. However, since the probability of an earthquake occurring is rare, the probability of a tsunami is also rare.

10.6.16.5 Climate Change Consideration

Tsunamis are created by earthquakes or other earth movements, to date, no relationship has been made between climate change and the occurrences of earthquakes or other earth movements.

10.6.17 Civil Disturbance

10.6.17.1 Description of Hazards

Civil Disturbance is a term generally used to describe disorderly conduct or a breakdown of orderly society by a large group of people. Civil Disturbance can range from a form protest against major socio-political problems to riots.

10.6.17.2 Location and Extent of Hazard in Santa Barbara County

Civil Disturbance can occur in any part of Santa Barbara County; however, it will generally be located within larger metropolitan areas.

10.6.17.3 History of Hazard in Santa Barbara County

There is no data in the City of Carpinteria regarding civil disturbances.

10.6.17.4 Probability of Occurrence

There are no studies that predict the probability of civil disturbance occurrences.

10.6.17.5 Climate Change Consideration

While there is no direct linkage between climate change and civil disturbances, there could be indirect linkages. As climate change impacts are either felt or perceived to be felt it could ignite passions within people to demonstrate against possible causes or enablers.

10.6.18 Marine Invasive Species

10.6.18.1 Description of Hazard

The introduction of non-indigenous species (NIS) into coastal marine and estuarine waters can cause significant and enduring economic, human health, and environmental impacts. In coastal environments, commercial shipping is the most important vector for species introductions. Commercial ships transport organisms through two primary mechanisms (vectors): ballast water and vessel biofouling. Ballast water is taken on and released by a vessel during cargo loading and discharging operations to maintain the vessel’s trim and stability. Biofouling organisms are aquatic species attached to or associated with submerged or wetted hard surfaces. Ships transfer organisms to California waters from throughout the world. The transfer of ballast water from “source” to “destination” ports results in the movement of many organisms from one region to the next. Additionally, as vessels move from port to port, biofouling communities are transported along with their “host” structure. Once introduced, invasive species are likely to become a permanent part of an ecosystem and may flourish, creating environmental imbalances, presenting risks to human health, and causing significant economic problems. Examples include the zebra and quagga mussel infestations in the Colorado River Aqueduct System and California waterways, and the propagation of aquatic weeds, such as water hyacinth, in the California Delta.

10.6.18.2 Location and Extent of Hazard in Santa Barbara County

All water bodies that are subject to recreational/commercial vessels and/or hydraulically connected to potential sources of infestation.

10.6.18.3 History of Hazard in Santa Barbara County

In 2015, the start of crab-fishing was delayed for several month's due to a massive coastal algae bloom fueled by El Nino. The potentially fatal toxin delayed caused the delay causing several businesses to suffer economic loss.

10.6.18.4 Probability of Occurrence

There is always a potential for threat of indigenous species occurrence that is subject to many factors in Carpinteria's coastal area.

10.6.18.5 Climate Change Consideration

With the climate change water temperature can rise and fall; causing disruption to the ecosystem of the ocean. This can cause many instances of invasive marine life to cause ecological and economic devastation throughout the City's coastline.

10.7 VULNERABILITY ASSESSMENT

10.7.1 Overview

The purpose of this section is to estimate the potential vulnerability (impacts) of hazards within the City on the built environment (residential, non-residential, critical facilities, etc.) and population. To accomplish this three (3) different approaches will be used: 1) application of scientific loss estimation models; 2) analysis of exposure of critical facilities to hazards; and 3) a qualitative estimate of the impacts to hazards. It is important to note that the first two approaches can only be applied to hazards that have an exposure area (footprint). For those hazards where an exposure layer does not exist, a brief qualitative assessment of the potential vulnerability will be presented. This will be done for hazards that are countywide or can occur anywhere within the county.

10.7.1.1 Scientific Loss Estimation Models

To assess potential impacts on infrastructure and the population in the County and incorporated cities, earthquake and flood scenarios have been analyzed using Hazus[5], FEMA's geographic information system (GIS) based, standardized, multi-hazard earthquake, flood and hurricane loss estimation methodology and software. The latest version of Hazus (Hazus 3.0, released in November, 2015) has been used to conduct the county-wide earthquake and flood risk assessments. Hazus' standard configuration allows for "out-of-the-box" regional or community-wide loss assessment using default ("Level 1") building inventory databases, aggregated to the census tract (earthquake) or census block (flood) level. A summary of Hazus' default building inventory data for Santa Barbara County, and the City of Carpinteria, are given in **Table 10.12** (by general occupancy) and **Table 10.13** (by general building type). The distribution of buildings across the various construction classes given in **Table 10.13** is estimated using Hazus' default relationships (e.g., x percent of offices may be built of concrete frame, y% of offices may be built of reinforced masonry, etc.). The actual distribution of building across these construction types may be different. For example, the California Seismic Safety Commission (CSSC) published results of unreinforced masonry building surveys (CSSC, 2006).

[5] For more information on Hazus, see: http://www.fema.gov/hazus

Table 10.12: Hazus 3.0 Default Building Inventory Data for Santa Barbara County and the City of Carpinteria, by General Occupancy

Jurisdiction	General Occupancy	Building Replacement Value ($1,000)	Contents Replacement Value ($1,000)	Building Square Footage (1,000 Sq. Ft.)	Building Count
Santa Barbara County	Residential	$34,724,716	$17,364,871	231,312	116,304
	Commercial	$6,387,442	$6,837,941	38,617	7,325
	Industrial	$1,307,134	$1,815,947	9,609	1,934
	Other	$1,805,563	$1,905,059	11,455	1,810
	Total	**$44,224,855**	**$27,923,818**	**290,993**	**127,373**
City of Carpinteria	Residential	$1,062,997	$531,565	7,385	3,776
	Commercial	$271,769	$281,018	1,654	311
	Industrial	$73,145	$104,668	555	80
	Other	$82,225	$82,225	630	66
	Total	**$1,490,136**	**$999,476**	**630**	**4,233**
	% of County Total	33.8%	31.9%	33.1%	35.2%

Table 10.13: Hazus 3.0 Default Building Inventory Data for Santa Barbara County and the City of Carpinteria, by General Building Type

Jurisdiction	General Building Type	Building Replacement Value ($1,000)	Building Replacement Value (%)	Estimated Building Count	% of Building Count
Santa Barbara County	Concrete	$2,492,739	5.6%	2,396	2%
	Manufactured Housing	$415,023	0.9%	7,669	6%
	Precast Concrete	$1,556,413	3.5%	2,005	2%
	Reinforced Masonry	$3,088,459	7.0%	3,858	3%
	Steel	$2,461,502	5.6%	2,614	2%
	Unreinforced Masonry	$614,394	1.4%	727	1%
	Wood Frame (Other)	$1,733,790	3.9%	2,001	2%
	Wood Frame (Single-family)	$31,862,522	72.0%	106,108	83%
	TOTAL	**$44,224,842**		**127,378**	
City of Carpinteria	Concrete	$85,015	5.7%	90	2%
	Manufactured Housing	$31,845	2.1%	592	14%
	Precast Concrete	$76,345	5.1%	86	2%
	Reinforced Masonry	$115,651	7.8%	144	3%

	Steel	$112,689	7.6%	110	3%
	Unreinforced Masonry	$27,259	1.8%	30	1%
	Wood Frame (Other)	$60,691	4.1%	73	2%
	Wood Frame (Single-family)	$980,643	65.8%	3,108	73%
	TOTAL	**$1,490,138**		**4,233**	

The lifeline inventory within HAZUS-MH is divided between transportation and utility lifeline systems. There are seven transportation systems that include highways, railways, light rail, buses, ports, ferries and airports; and six utility systems that include potable water, wastewater, natural gas, crude & refined oil, electric power, and communications. The lifeline inventory data are provided in **Tables 10.14** and **Table 10.15**.

Table 10.14: Transportation System Lifeline Inventory

System	Component	# Locations/ # Segments	Replacement value (millions of dollars)
Highway	Bridges	360	**407.90**
	Segments	270	**3,299.40**
	Tunnels	1	**1.70**
		Subtotal	**3,709.10**
Railway	Bridges	6	**0.60**
	Facilities	5	**13.30**
	Segments	157	**263.90**
	Tunnels	0	**0.00**
		Subtotal	**277.80**
Light Rail	Bridges	0	**0.00**
	Facilities	0	**0.00**
	Segments	0	**0.00**
	Tunnels	0	**0.00**
		Subtotal	**0.00**
Bus	Facilities	5	**6.40**
		Subtotal	**6.40**
Ferry	Facilities	3	**4.00**
		Subtotal	**4.00**
Port	Facilities	0	**0.00**
		Subtotal	**0.00**
Airport	Facilities	5	**53.30**

	Runways	8	**303.70**
		Subtotal	**357.00**
		TOTAL	**4,354.30**

Table 10.15: Utility System Lifeline Inventory

System	Component	# Locations/ Segments	Replacement value (millions of dollars)
Potable Water	Distribution Lines	NA	**323.20**
	Facilities	0	**0.00**
	Pipelines	0	**0.00**
		Subtotal	**323.20**
Waste Water	Distribution Lines	NA	**193.90**
	Facilities	8	**628.70**
	Pipelines	0	**0.00**
		Subtotal	**822.60**
Natural Gas	Distribution Lines	NA	**129.30**
	Facilities	0	**0.00**
	Pipelines	0	**0.00**
		Subtotal	**129.30**
Oil Systems	Facilities	2	**0.20**
	Pipelines	0	**0.00**
		Subtotal	**0.20**
Electrical Power	Facilities	4	**519.20**
		Subtotal	**519.20**
Communication	Facilities	42	**5.00**
		Subtotal	**5.00**
		TOTAL	**1,799.50**

10.7.1.2 Analysis of Exposure of Critical Facilities to Hazards

The City of Carpinteria Local Planning Team identified 68 critical facilities as shown in **Table 10.16** below. This list of critical facilities presents the buildings and structures that are the City's primary concern for ensuring resiliency; they include both City owned or operated facilities as well as privately owned and operated facilities. Information for City owned or operated facilities (building replacement cost and building content costs) were reviewed and updated as needed; where available the same information was reviewed and updated for the privately owned or operated facilities.

These facilities primarily included utilities, government, and educational structures. For the vulnerability assessment, structure and content values were available for some, but not all of the critical facilities.

Table 10.16: Critical Facilities in Carpinteria

Facility Name/Description	Building Replacement Value	Contents Value
Carpinteria Fire Station 1	$7,000,000	$150,000
Carpinteria Fire Station 2	$4,000,000	$75,000
Carpinteria Summerland HQ	$0	$60,000
Wastewater Treatment Plant	$60,000,000	
Sewage Pump Station 1	$2,000,000	
Sewage Pump Station 2	$1,500,000	
Sewage Pump Station 4	$1,000,000	
Sewage Pump Station 5	$500,000	
Sewage Pump Station 6	$400,000	
Sewage Pump Station 7	$5,000,000	
Water District Main Office	$1,200,000	$200,000
Water District Maintenance Building	$1,800,000	$466,000
Headquarters Well	$1,500,000	
Headquarters Filtration Plant	$500,000	
Headquarters Well Control Building	$700,000	
Headquarters Well Enclosure	$90,000	
Lateral 10 Booster Station	$10,000	
Foothill Tank	$5,500,000	
Foothill Tank Control Building	$1,500,000	
El Carro Well	$1,500,000	
El Carro Well Filtration Plant	$1,500,000	
Lyon Well	$800,000	
Smillie Well	$400,000	
High School Well	$1,500,000	

Facility Name/Description	Building Replacement Value	Contents Value
High School Well Treatment Plant	$800,000	
Carpinteria Reservoir	COMB	
Carpinteria Reservoir Control Building	COMB	
Lateral 30 Booster Station	$180,000	
Gobernador Booster Station	$58,000	
Gobernador Reservoir	$1,250,000	
Shepard Mesa Tank	$500,000	
Carpinteria High School	$28,535,898	
Carpinteria Middle School	$14,366,233	
Aliso Elementary	$6,457,908	
Canalino Elementary	$10,583,606	
Rincon/Foothill High School	$210,720	
Carpinteria Children's Project @ Main	$4,360,870	
City Hall (Sheriff's Substation, Maintenance)	$4,084,877	$351,910
Bridge #51C-0143	$10,000,000	
Bridge #51C-0172	$10,000,000	
Bridge #51C-0142	$10,000,000	
Bridge #51C-0295	$10,000,000	
Viola Fields Public Facilities	$262,210	
Cavalli Property	$1,320,927	
Monte Vista Park Public Facilities	$59,810	
Veteran's Memorial Building		
8th Street Bridge (Crossing Carpinteria Ck)	$1,000,000	
Highway 101 Corridor & Interchange		
Highway 101 Corridor & Interchange		
Highway 101 Corridor & Interchange		
Highway 101 Corridor & Interchange		
Highway 101 Corridor & Interchange		
Highway 101 Corridor & Interchange		
Downtown "T" Business District	$100,000,000	
Casitas Pass Road Business District		
Eastside Corridor Business Parks		
Westside Corridor Business District		
Santa Monica Business District		
Southern CA Edison - Substation		
Verizon		

Facility Name/Description	Building Replacement Value	Contents Value
Natural Gas Odorant Station (Pita's Point)		
Natural Gas Odorant (Carpinteria Oil & Gas)		
Casitas Pier		
Union Pacific RR & AMTRAK		
Bailard Residential Property	$1,799,574	
CUSD District Office	$781,008	
Carpinteria Valley Museum of History		
Carpinteria Public Library		

10.7.1.3 Qualitative Estimate of Impacts

The approach used to complete this effort involves utilizing readily available data (i.e., Census) to extrapolate and estimate potential vulnerability. In some cases, the estimation will build upon historic events but it may also include projecting worst case potentials. The MAC and the County Planning Team summarized the remaining hazards which the County is vulnerable and assessed the amount and type of damage that could be expected. This approach was done for Droughts/Water Shortage, Energy Shortage, Agricultural Pest, Hazardous Material Release, Terrorism, Aircraft Crashes, Civil Disturbance, Climate-related (some) Oil Spill, Epidemic/Pandemic, Radiological Incident, Cyber Threat, Train Accident, Well Stimulation/Fracking, and Marine Invasive Species.

10.7.2 Scientific Loss Estimation Analysis

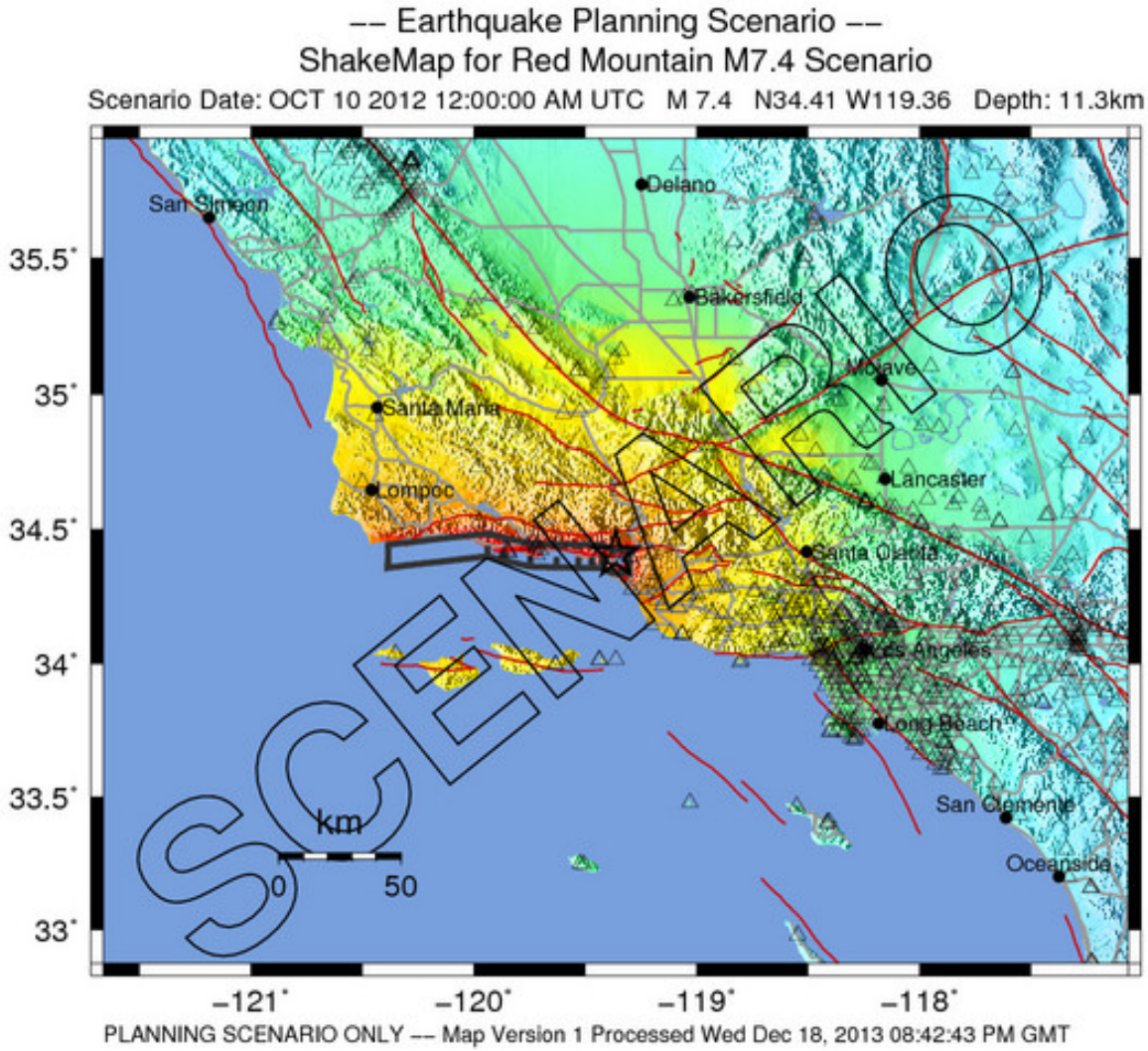
10.7.2.1 Earthquake and Liquefaction (High Impact/Medium Probability)

The entire geography of Santa Barbara County is exposed to some risk of shaking from an earthquake. The many fault lines, soil types, and construction types lead to a complicated assessment of vulnerability to earthquake. However, most of the land-based faults are either inactive or potentially active. Nearly all of the seismicity has been in the Santa Barbara Channel.

10.7.2.1.1 HAZUS-MH Earthquake Risk Assessment

An earthquake scenario developed by the United States Geological Survey (USGS), as shown in **Figure 10.30** was selected to assess the impact to Carpinteria. County and City of Carpinteria maps of ground shaking for this scenario are shown in **Figure 10.31 and Figure 10.32**.

Figure 10.30: Scenario 1 – M7.4 Earthquake on the Red Mountain Fault



PERCEIVED SHAKING	Not felt	Weak	Light	Moderate	Strong	Very strong	Severe	Violent	Extreme
POTENTIAL DAMAGE	none	none	none	Very light	Light	Moderate	Mod./Heavy	Heavy	Very Heavy
PEAK ACC.(%g)	<0.1	0.5	2.4	6.7	13	24	44	83	>156
PEAK VEL.(cm/s)	<0.07	0.4	1.9	5.8	11	22	43	83	>160
INSTRUMENTAL INTENSITY	I	II–III	IV	V	VI	VII	VIII	IX	X+

Scale based upon Wald, et al.; 1999

Figure 10.31: USGS ShakeMap Ground Motions for Santa Barbara County for a M7.4 Earthquake on the Red Mountain Fault

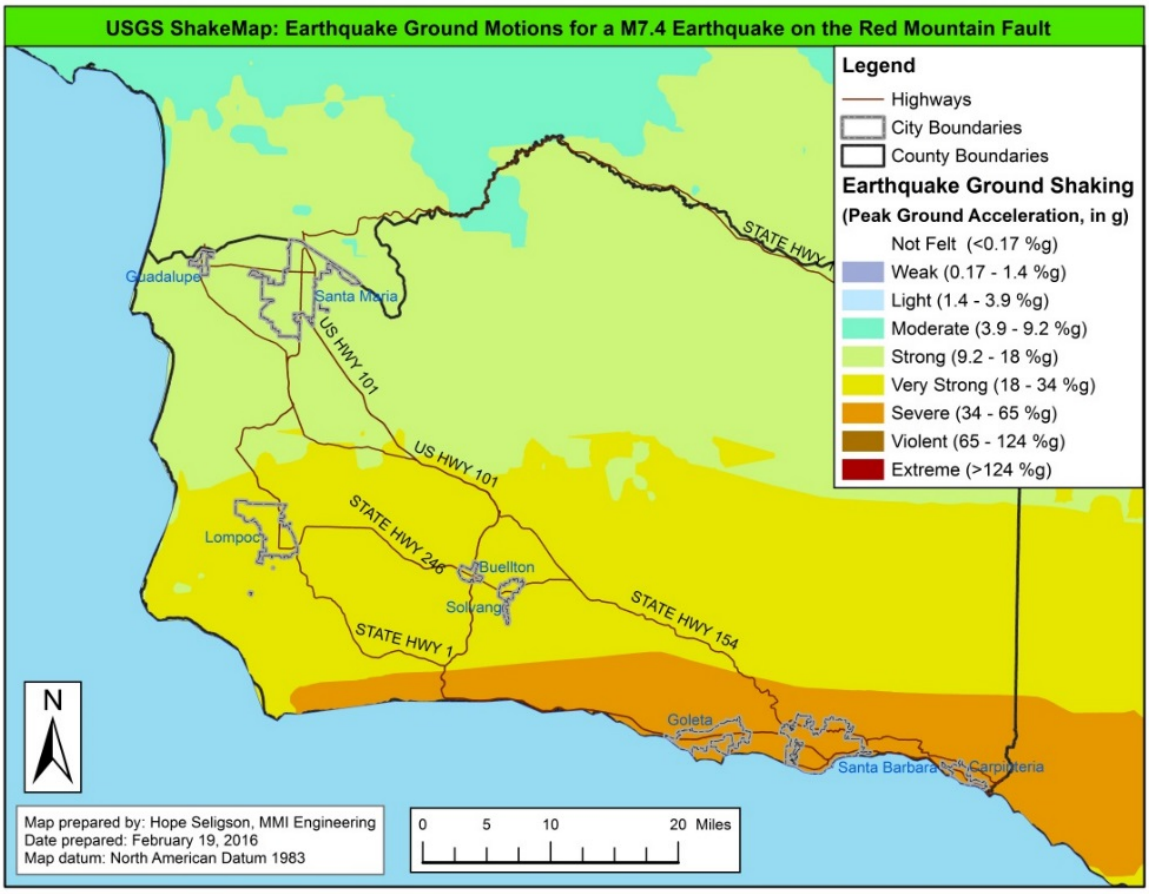
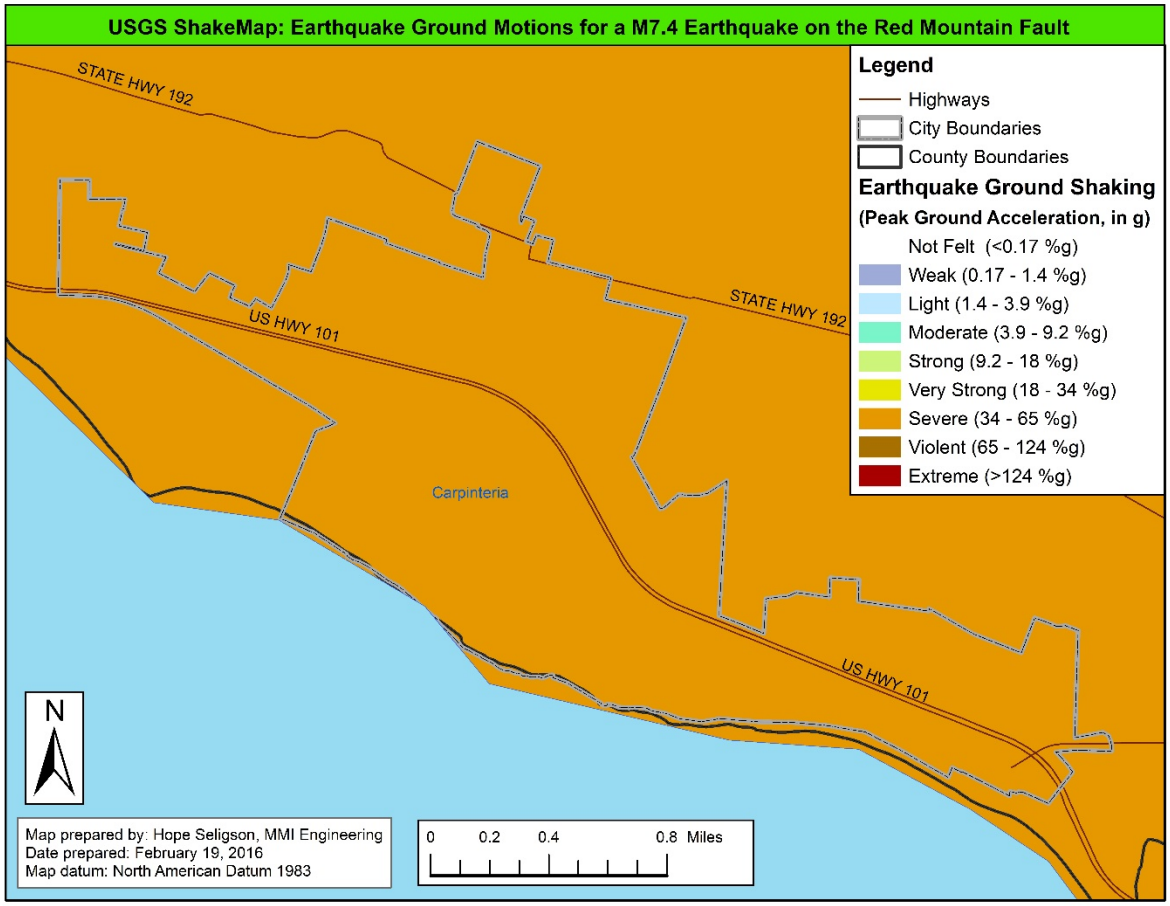


Figure 10.32: USGS ShakeMap Ground Motions for the City of Carpinteria for a M7.4 Earthquake on the Red Mountain Fault



The latest version of Hazus (Hazus 3.0, released in November, 2015) was used to conduct county-wide earthquake risk assessments. The Hazus results, computed at the census tract level, were aggregated to produce city-level impact summaries. An overview of the City results is provided in **Table 10.17**.

Table 10.17: Estimated Impact for Earthquake Scenario Event Affecting the City of Carpinteria

Direct Economic Losses for Buildings ($1,000)		
	Total Building Exposure Value	**1,490,136**
Capital Stock Losses	Cost of Structural Damage	29,038
	Cost of Non-Structural Damage	104,377
	Total Building Damage (Str. + Non-Str.)	**133,415**
	Building Loss Ratio %	9.0%
	Cost of Contents Damage	39,940
	Inventory Loss	1,374
Income Losses	Relocation Loss	11,917
	Capital-Related Loss	10,307
	Rental Income Loss	6,938
	Wage Losses	10,780
	Total Direct Economic Loss	**214,672**
	% Of Countywide Loss	**6.1%**
Casualties		
Day Casualties	**Casualties - 2 pm**	
	Level 1 - minor injuries, basic first aid	80
	Level 2 - hospital treat & release	21
	Level 3 - injuries requiring hospitalization	3
	Level 4 – fatalities	**6**
	Total Casualties	**110**
Night Casualties	**Casualties - 2 am**	
	Level 1 - minor injuries, basic first aid	37
	Level 2 - hospital treat & release	7
	Level 3 - injuries requiring hospitalization	1
	Level 4 - fatalities	**1**
	Total Casualties	**46**
Shelter		
Shelter	Number of Displaced Households	155
	Number of People Requiring Short-term Shelter	103
Debris (thousands of tons)		
Debris	Brick, Wood & Other (Light) Debris	19.3
	Concrete & Steel (Heavy) Debris	40.0
	Total Debris	**59.3**

Table 10.18 provides a breakdown of estimated building damage (building count by Hazus damage state) by general building type, allowing for an understanding of the distribution of predicted damage in the modeled scenarios. Functionality of essential facilities included in the Hazus default database. **Table 10.19** follows with a building damage count by General Building Type. **Table 10.20** shows the predicted essential facility functionality in M7.4 Red Mountain earthquake scenario affecting Carpinteria.

Table 10.18: Building Damage Count by General Building Type (Based on Hazus Default Building Data)

Concrete	None	9
	Slight	26
	Moderate	30
	Extensive	17
	Complete	7
	TOTAL	**89**
Manuf. Housing	None	0
	Slight	6
	Moderate	159
	Extensive	331
	Complete	97
	TOTAL	**593**
Precast Concrete	None	5
	Slight	18
	Moderate	40
	Extensive	19
	Complete	5
	TOTAL	**87**
Reinforced Masonry	None	23
	Slight	40
	Moderate	54
	Extensive	21
	Complete	5
	TOTAL	**143**
Steel	None	4
	Slight	15
	Moderate	43
	Extensive	36
	Complete	11
	TOTAL	**109**

Unreinforced Masonry	None	1
	Slight	4
	Moderate	10
	Extensive	9
	Complete	5
	TOTAL	**29**

Table 10.19: Building Damage Count by General Building Type (Based on Hazus Default Building Data, Continued)

Wood Frame (Other)	None	8
	Slight	29
	Moderate	27
	Extensive	8
	Complete	2
	TOTAL	**74**
Wood Frame (Single-family)	None	728
	Slight	1921
	Moderate	454
	Extensive	4
	Complete	0
	TOTAL	**3,107**
ALL BUILDING TYPES	None	778
	Slight	2,059
	Moderate	817
	Extensive	445
	Complete	132
	TOTAL	**4,231**

Table 10.20: Predicted Essential Facility Functionality in M7.4 Red Mountain Earthquake Scenario Affecting Carpinteria

Fire Stations	**Carpinteria-Summerland Fire Protection District**	
	Total Number of Facilities in Hazus Default Database*	**2**
	Default Structural Class and Design Level	**W1 (Wood Frame ≤ 5,000 SqFt), Moderate Code Design Level**
	Damage:	
	# Facilities with >50% Probability of Moderate or Greater Damage	0
	# Facilities with >50% Probability of Complete Damage	0
	Functionality:	
	Functionality < 50 % on Day 1	2
	Functionality 50 - 75% on Day 1	0
	Functionality >75% Day 1	0
Police Stations	**Santa Barbara County Sheriff****	
	Total Number of Facilities in Hazus Default Database	**1 (Coastal Bureau)**
	Default Structural Class and Design Level	**W1 (Wood Frame ≤ 5,000 SqFt), Moderate Code Design Level**
	Damage:	
	# Facilities with >50% Probability of Moderate or Greater Damage	0
	# Facilities with >50% Probability of Complete Damage	0
	Functionality:	
	Functionality < 50 % on Day 1	1
	Functionality 50 - 75% on Day 1	0
	Functionality >75% Day 1	0
Schools	**Carpinteria Unified School District**	
	Total Number of Facilities in Hazus Default Database	**9 Schools**
	Default Structural Class and Design Level	**W1 (Wood Frame ≤ 5,000 SqFt), High Code Design Level**
	Damage:	
	# Facilities with >50% Probability of Moderate or Greater Damage	0
	# Facilities with >50% Probability of Complete Damage	0
	Functionality:	

	Functionality < 50 % on Day 1	9
	Functionality 50 - 75% on Day 1	0
	Functionality >75% Day 1	0
	** The default fire station database was revised to include missing stations*	
	*** County Sheriff Station performance is also reported on the Unincorporated County Risk Assessment Report*	

10.7.2.2 Flood and Coastal Storm Surge (Medium Impact/High Probability)

Hazus 3.0 was used to develop a flood depth grid for the 1-percent annual chance (100-year) flood, using Hazus 3.0 built-in, basic (i.e., Level 1) flood depth estimation methodology. The Hazus 3.0 flood hazard assessment methodology uses available information and local river and floodplain characteristics, such as frequency, discharge and ground elevation to estimate flood elevation, and ultimately flood depth. Digital elevation model (DEM) data with 30-meter resolution, available from the USGS' National Elevation Dataset (see: http://nationalmap.gov/elevation.html) has been utilized in the current assessment.

It should be noted that the flood depth grid generated by Hazus 3.0 ***is not*** equivalent to regulatory floodplain data contained in FEMA's Digital Flood Insurance Rate Maps (DFIRMs), which are the result of extensive, detailed engineering study. The Hazus-generated flood depth grid is a hypothetical representation of a potential flooding scenario, intended for non-regulatory uses. Further, it should also be noted that the DEM data used in the default analysis do not reflect the presence of channels and levees. A more detailed assessment would utilize higher resolution DEM data, such as LIDAR-based DEM data, and/or would require GIS-based revisions to the DEM to better reflect local flood control structures. Given that the Hazus 3.0 Level 1 approach does not consider the presence of levees, Hazus 3.0 loss and damage estimates produced for areas with levees (e.g., along the Santa Maria River) should be considered "worst-case" flood losses, reflecting potential flood damage that could occur in the event that the levees fail. Hazus-estimated flood depths across Santa Barbara County are provided in **Figure 10.33** and the City of Carpinteria in **Figure 10.34**.

An overview of the county-wide Hazus results for the 100-year flood scenario is provided in **Table 10.21**, along with the sub-set of results that represent the City of Carpinteria. **Table 10.22** provides a breakdown of estimated building damage (building count by percent damage range) by general occupancy. As shown, most of the flood-damaged buildings are single family homes. Functionality of essential facilities included in the Hazus default database (with additional fire station facilities added) in the flood scenario is summarized in **Table 10.23** for Santa Barbara County and the City of Carpinteria. **Table 10.24** depicts the predicted essential facility functionality affecting the City of Carpinteria.

Figure 10.33: Hazus-Estimated Flood Depths for a 1-percent Annual Chance (100-year) Flood

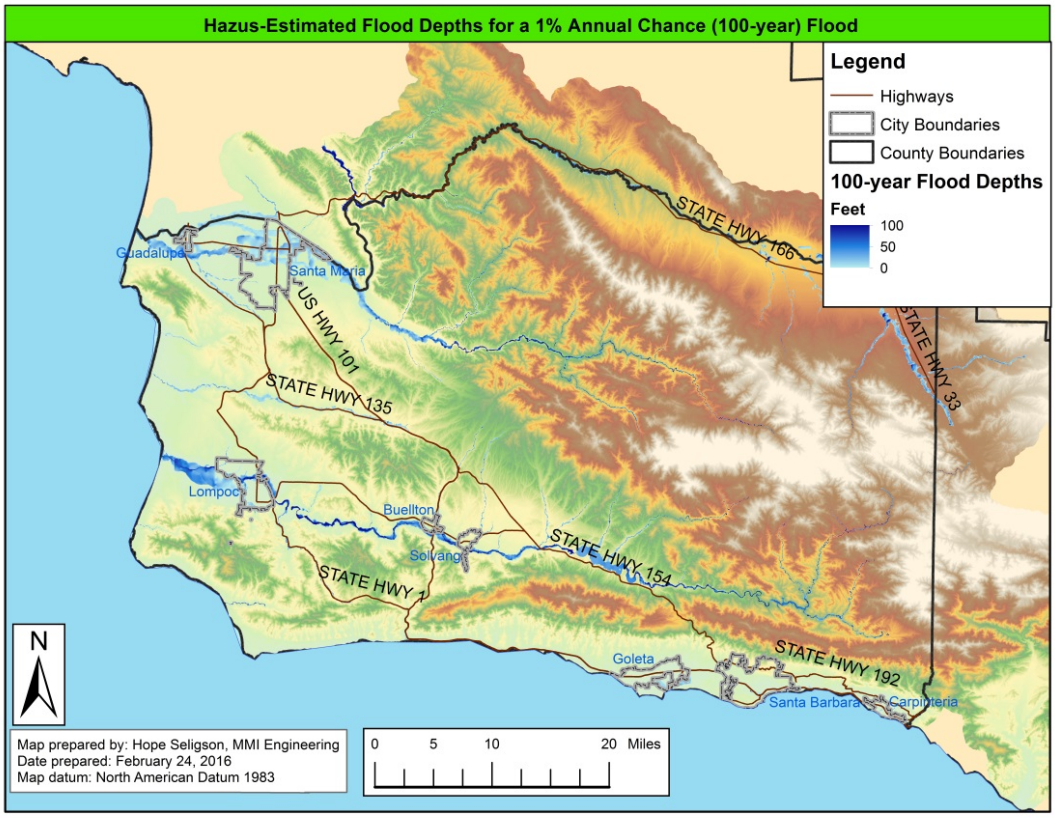


Figure 10.34: Carpinteria -100 year flood depths

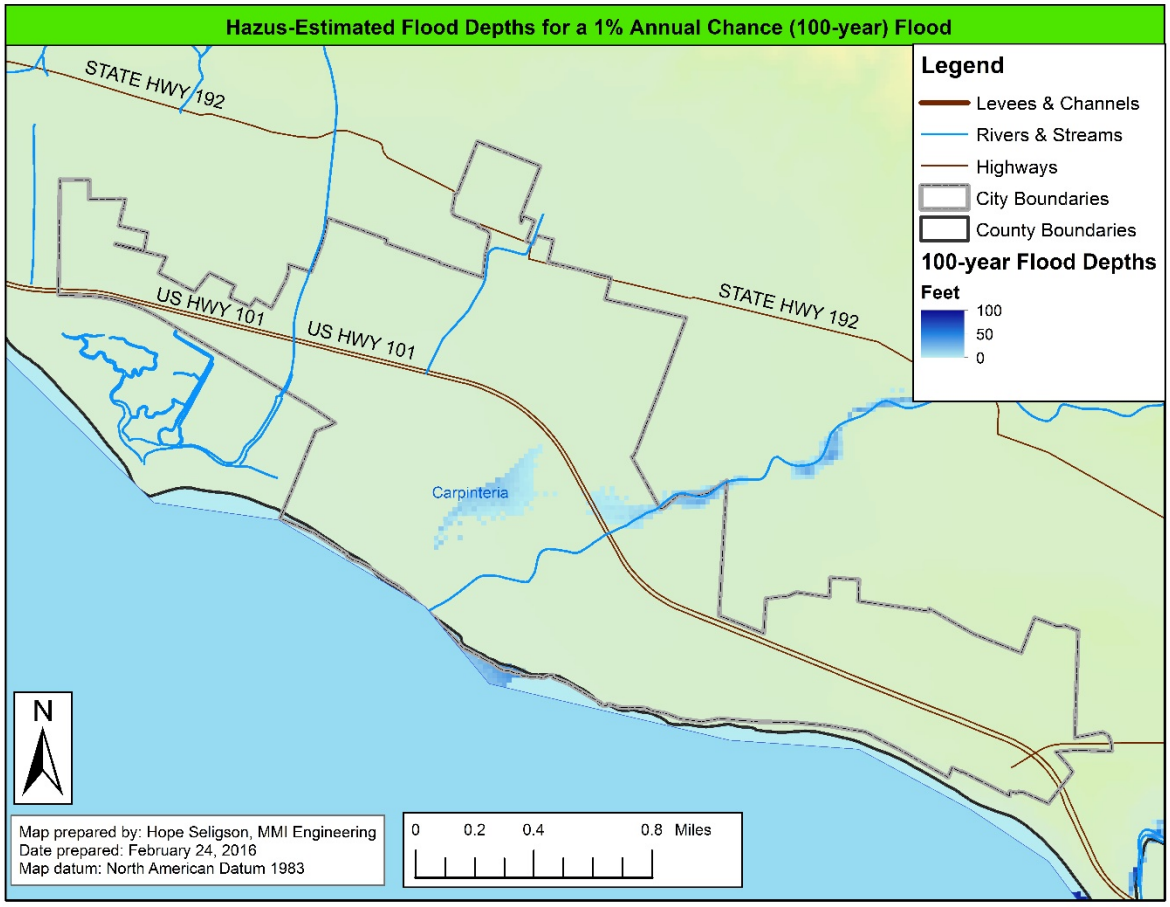


Table 10.21: Hazus-Estimated Impacts for the 1-Percent Annual Chance (100-Year) Flood Scenario Affecting Santa Barbara County and the City of Carpinteria

		Santa Barbara County	City of Carpinteria
Direct Economic Losses for Buildings ($1,000)			
	Total Building Exposure Value	**44,224,855**	**1,490,136**
Capital Stock Losses	Total Building Damage	549,710	1,749
	Building Loss Ratio %	1.2%	0.1%
	Cost of Contents Damage	566,373	1,784
	Inventory Loss	9,022	22
Income Losses	Relocation Loss	1,624	7
	Capital-Related Loss	1,736	13
	Rental Income Loss	472	0
	Wage Losses	2,880	22
	Total Direct Economic Loss	**1,131,817**	**3,597**
	% Of Countywide Loss	100.0%	0.3%
Shelter			
Shelter	Displaced Population	57,963	313
	Number of People Requiring Short-term Shelter	54,248	266
Debris (thousands of tons)			
Debris	Finishes	41.3	0.2
	Structures	7.8	0.0
	Foundations	7.7	0.1
	Total Debris	**56.7**	**0.3**

Table 10.22: Estimated Building Damage (Building Count by General Occupancy, by Percent Damage Range) for a 1-percent Annual Chance (100-year) Flood Scenario Affecting Santa Barbara County and the City of Carpinteria

		Santa Barbara County	City of Carpinteria
Building Damage Count in Flooded Census Blocks by Occupancy			
Single Family Homes	None	2,344	22
	1 - 10%	1,775	10
	11 - 20%	2,472	5
	21 - 30%	867	2
	31 - 40%	662	0
	41 - 50%	276	0
	Substantial Damage	196	0
	TOTAL	**8,592**	**39**
Manufactured Housing	None	208	0
	1 - 10%	14	0
	11 - 20%	29	0
	21 - 30%	31	0
	31 - 40%	0	0
	41 - 50%	19	0
	Substantial Damage	76	0
	TOTAL	**377**	**0**
Other Residential	None	70	0
	1 - 10%	8	0
	11 - 20%	23	0
	21 - 30%	8	0
	31 - 40%	0	0
	41 - 50%	0	0
	Substantial Damage	0	0
	TOTAL	**109**	**0**
Commercial	None	16	0
	1 - 10%	42	0
	11 - 20%	47	0
	21 - 30%	4	0
	31 - 40%	0	0
	41 - 50%	0	0
	Substantial Damage	0	0
	TOTAL	**109**	**0**

Table 10.23: (Continued): Estimated Building Damage (Building Count by General Occupancy, by Percent Damage Range) for a 1-percent Annual Chance (100-year) Flood Scenario Affecting Santa Barbara County

		Santa Barbara County	Unincorporated County
Building Damage Count in Flooded Census Blocks by Occupancy			
Industrial	None	0	0
	1 - 10%	1	0
	11 - 20%	4	0
	21 - 30%	0	0
	31 - 40%	0	0
	41 - 50%	0	0
	Substantial Damage	1	0
	TOTAL	**6**	**0**
Other Occupancies	None	4	0
	1 - 10%	6	0
	11 - 20%	1	0
	21 - 30%	0	0
	31 - 40%	0	0
	41 - 50%	0	0
	Substantial Damage	1	0
	TOTAL	**12**	**0**
ALL OCCUPANCIES	None	2,642	22
	1 - 10%	1,846	10
	11 - 20%	2,576	5
	21 - 30%	910	2
	31 - 40%	662	0
	41 - 50%	295	0
	Substantial Damage	274	0
	TOTAL	**9,205**	**39**

Table 10.24: Predicted Essential Facility Functionality for a 1-percent Annual Chance (100-year) Flood Scenario Affecting the City of Carpinteria

FACILITY TYPE		
Fire Stations	**Carpinteria-Summerland Fire Protection District**	
	Total Number of Facilities in Hazus Default Database*	**2**
	Flood Exposure	
	# facilities located within flooded areas	0
	Damage:	
	# Facilities with Moderate or Greater Damage	0
	# Facilities with Substantial Damage	0
	Functionality:	
	# facilities expected to be non-functional on Day 1	0
Police Stations	**Santa Barbara County Sheriff****	
	Total Number of Facilities in Hazus Default Database	**1 (Coastal Bureau)**
	Flood Exposure	
	# facilities located within flooded areas	0
	Damage:	
	# Facilities with Moderate or Greater Damage	0
	# Facilities with Substantial Damage	0
	Functionality:	
	# facilities expected to be non-functional on Day 1	0
Schools	**Carpinteria Unified School District**	
	Total Number of Facilities in Hazus Default Database	**9 Schools**
	Flood Exposure	
	# facilities located within flooded areas	3
	Damage:	
	# Facilities with Moderate or Greater Damage	3
	# Facilities with Substantial Damage	0
	Functionality:	
	# facilities expected to be non-functional on Day 1	3
	** The default fire station database was revised to include missing stations* *** County Sheriff Station performance is also reported on the Unincorporated County Risk Assessment Report*	

10.7.3 Critical Facilities Analysis

10.7.3.1 Flood Vulnerability

Table 10.25 below presents the mapped critical facilities. The Map ID number for each critical facility corresponds to those found on the following maps showing the location of the critical facilities in relation to the County's profiled hazards. Using a GIS and the data shown in these maps, it was determined which critical facilities are exposed to which hazards by whether or not they fall within the mapped hazard area. **Table 10.26** shows the impact to the City of Carpinteria's critical facilities by threat. It is worth noting that a majority of the City of Carpinteria's critical facilities evaluated were at least moderately impacted by the following threats:

- FEMA Flood Zone
- Wildland Urban Interface
- Fire Threat
- Groundwater/Liquefaction Severity

A full description of the threats in the table below is provided in Section 6 of the countywide mitigation plan. As the City continues to assess its vulnerability to the identified hazards, the collection of better data will help to improve the risk assessment process in order to direct planning and mitigation decisions.

Table 10.25: Critical Facilities List Map ID

Map ID	Critical Facility	Type	Address	Bldg. Value	Contents Value	Total Value
1	CUSD District Office	Education	1400 Linden Ave	$ 781,008		$ 781,008
2	Carpinteria Valley Museum of History	Education	956 Maple Ave			
3	Carpinteria Public Library	Education	5141 Carpinteria Ave			
4	Carpinteria Fire Station 1	Governme nt	911 Walnut Ave	$ 7,000,000	$ 150,000	$ 7,150,000
5	Carpinteria Summerland HQ	Governme nt	1140 Eugenia Pl		$ 60,000	$ 60,000
6	Wastewater Treatment Plant	Governme nt	5300 Sixth St	$ 60,000,000		$ 60,000,000
7	Sewage Pump Station 1	Governme nt	546 Palm Ave	$ 2,000,000		$ 2,000,000
8	Sewage Pump Station 2	Governme nt	4527 Carpinteria Ave	$ 1,500,000		$ 1,500,000

Map ID	Critical Facility	Type	Address	Bldg. Value	Contents Value	Total Value
9	Sewage Pump Station 4	Government	3950 Via Real	$ 1,000,000		$ 1,000,000
10	Sewage Pump Station 7	Government	1488 Linden Ave	$ 5,000,000		$ 5,000,000
11	Water District Main Office	Government	1301 Santa Ynez Ave	$ 1,200,000	$ 200,000	$ 1,400,000
12	Water District Maintenance Building	Government	1301 Santa Ynez Ave	$ 1,800,000	$ 466,000	$ 2,266,000
13	Headquarters Well	Utilities	1301 Santa Ynez Ave	$ 1,500,000		$ 1,500,000
14	Headquarters Filtration Plant	Utilities	1301 Santa Ynez Ave	$ 500,000		$ 500,000
15	Headquarters Well Control Building	Utilities	1301 Santa Ynez Ave	$ 700,000		$ 700,000
16	Headquarters Well Enclosure	Utilities	1301 Santa Ynez Ave	$ 90,000		$ 90,000
17	El Carro Well	Utilities	5315 Foothill Rd	$ 1,500,000		$ 1,500,000
18	El Carro Well Filtration Plant	Utilities	5315 Foothill Rd	$ 1,500,000		$ 1,500,000
19	High School Well	Utilities	4859 Foothill Rd	$ 1,500,000		
20	High School Well Treatment Plant	Utilities	4859 Foothill Rd	$ 800,000		
21	Carpinteria High School	Education	4810 Foothill Rd	$ 28,535,898		$ 28,536,719
22	Carpinteria Middle School	Education	5351 Carpinteria Ave	$ 14,366,233		$ 14,366,805
23	Aliso Elementary	Education	4545 Carpinteria Ave	$ 6,457,908		$ 6,458,376
24	Canalino Elementary	Education	1480 Linden Ave	$ 10,583,606		$ 10,584,175
25	Rincon/Foothill High School	Education	4698 Foothill Rd	$ 210,720		$ 210,800
26	Carpinteria Children's Project @ Main	Education	5201 Eighth St	$ 4,360,870		$ 4,360,908

Map ID	Critical Facility	Type	Address	Bldg. Value	Contents Value	Total Value
27	City Hall (Sheriff's Substation, Maintenance)	Government	5775 Carpinteria Ave	$ 4,084,877	$ 351,910	$ 4,084,907
28	Bridge #51C-0143	Government	4488 Carpinteria Ave	$ 10,000,000		$ 10,000,000
29	Bridge #51C-0172	Government	5454 Carpinteria Ave	$ 10,000,000		$ 10,000,000
30	Bridge #51C-0142	Government	4692 Carpinteria Ave	$ 10,000,000		$ 10,000,000
31	Bridge #51C-0295	Government	4824 Malibu Dr	$ 10,000,000		$ 10,000,000
32	Viola Fields Public Facilities	Government	6145 Carpinteria Ave	$ 262,210		$ 262,210
33	Cavalli Property	Government	5103 Carpinteria Ave	$ 1,320,927		$ 1,320,927
34	Monte Vista Park Public Facilities	Government	1100 Bailard Rd	$ 59,810		$ 59,810
35	Veteran's Memorial Building	Government	941 Walnut Ave			
36	8th Street Bridge (Crossing Carpinteria Ck)	Government	5470 Calle Ocho	$ 1,000,000		$ 1,000,000
37	Highway 101 Corridor & Interchange	Government	1000 Bailard Ave			
38	Highway 101 Corridor & Interchange	Government	1115 Casitas Pass Rd			
39	Highway 101 Corridor & Interchange	Government	1301 Linden Ave			
40	Highway 101 Corridor & Interchange	Government	1234 Cramer Pl			

Map ID	Critical Facility	Type	Address	Bldg. Value	Contents Value	Total Value
41	Highway 101 Corridor & Interchange	Government	4290 Via Real			
42	Highway 101 Corridor & Interchange	Government	6500 Camino Carreta			
43	Downtown "T" Business District	Commercial	4994 Carpinteria Ave	$100,000,000		$ 100,000,000
44	Casitas Pass Road Business District	Commercial	1001 Casitas Pass Rd			
45	Santa Monica Business District	Commercial	4410 Via Real			
46	Southern CA Edison - Substation	Utilities	4918 Foothill Rd			
47	Verizon	Utilities	5115 Ogan Rd			
48	Natural Gas Odorant (Carpinteria Oil & Gas)	Industrial	5675 Carpinteria Ave			

Table 10.26: Impact to Critical Facilities by Threat

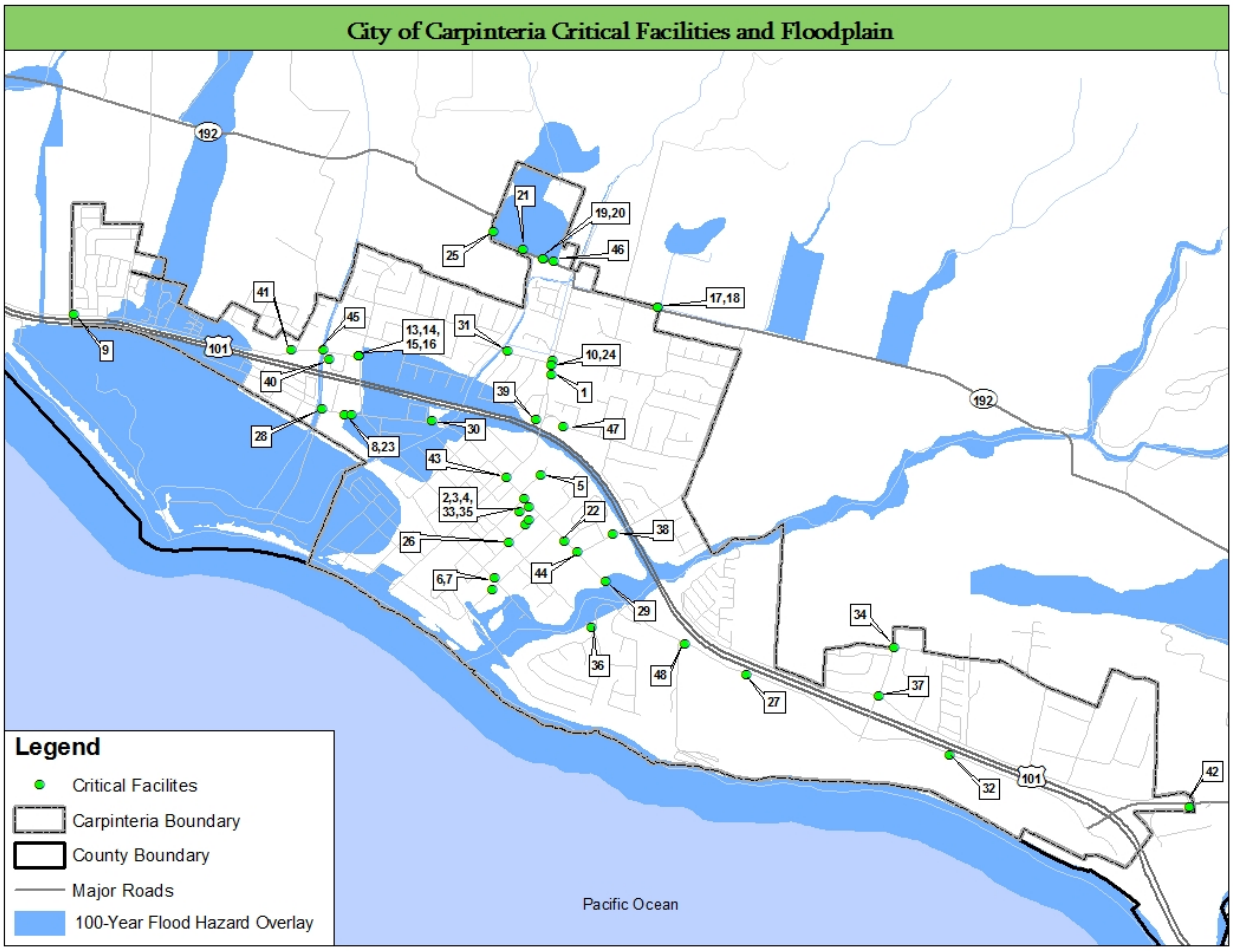
Hazard Type	Specific Risk	Count or (Average)	% of Critical Facilities Impacted	Exposure
Flood				
	FEMA Flood Zone	7	14.5%	$65,205,895
	Flood Overlay Zone	7	14.5%	$65,205,895
Fire				
	Fire Severity Zone	0	0%	$0
	WUI	25	52%	$75,902,822
	Fire Threat	44	92%	$294,981,845
Dam Inundation	Dam inundation zone	0	0%	$0
Landslide	Landslide incidence	0	0%	$0
Earthquake				
	Groundwater/Liquefaction Severity	48	100%	$298,192,645

Hazard Type	Specific Risk	Count or (Average)	% of Critical Facilities Impacted	Exposure
	Peak Ground Acceleration	(2.45)	N/A	N/A
Tsunami	Tsunami inundation area	0	0%	$0

10.7.4 Flood and Coastal Storm Surge (Medium Impact/High Probability)

Although Flood and Coastal Surge damage was well delineated in the previous section (Scientific Loss Estimation modeling), the Local Planning Team and the MAC wanted to include additional vulnerability data for the Critical Facilities. The exposure of the critical facilities to 100 Year flood zone is depicted on **Figure 10.35**.

Figure 10.35: City of Carpinteria Critical Facilities in 100 Year Flood Zone

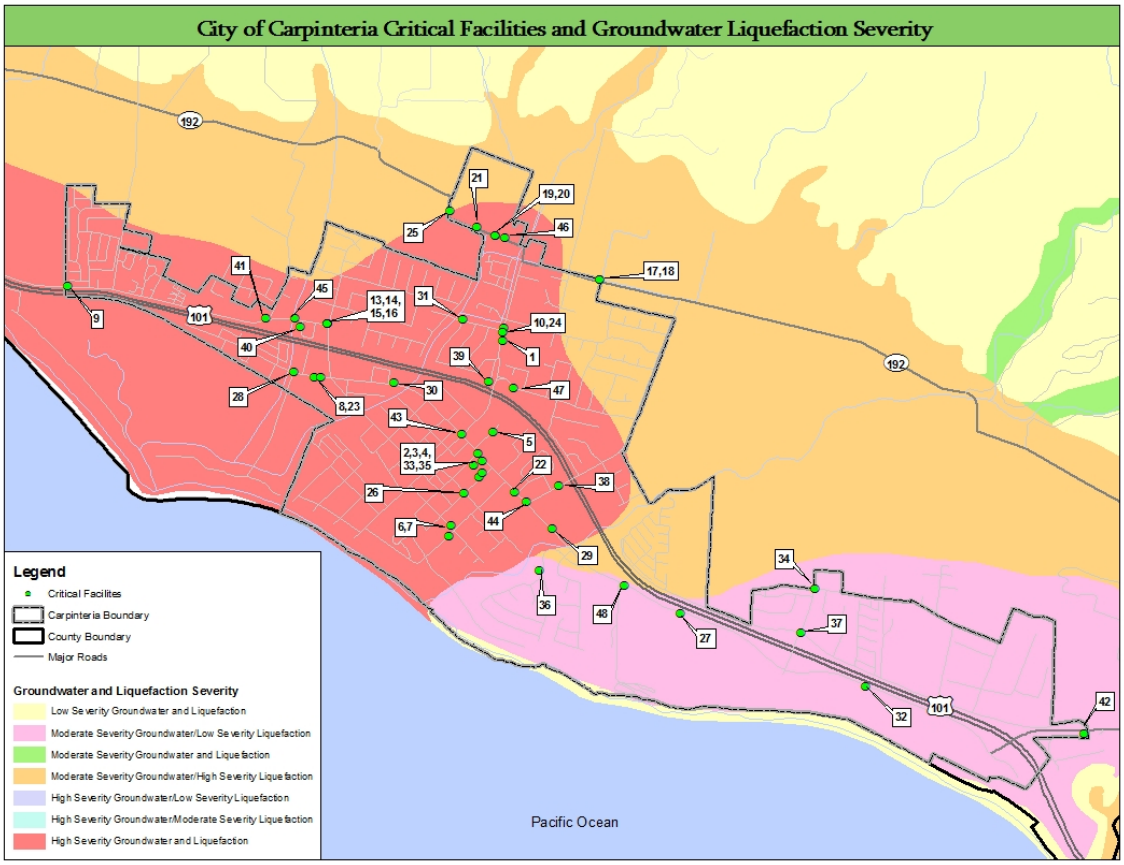


Source: Overlay – Flood Hazard, Santa Barbara County GIS, available at http://www.countyofsb.org/itd/gis/default.aspx?id=2802, November 23, 2010

10.7.5 Groundwater Liquefaction (High Impact/Medium Probability)

Although Earthquake damage was well delineated in the previous section (Scientific Loss Estimation modeling), the Local Planning Team and the MAC wanted to include additional vulnerability data for Groundwater Liquefaction Severity for Critical Facilities. The exposure of the critical facilities to flood zones is depicted in **Figure 10.36**.

Figure 10.36: Groundwater Liquefaction Severity Zones



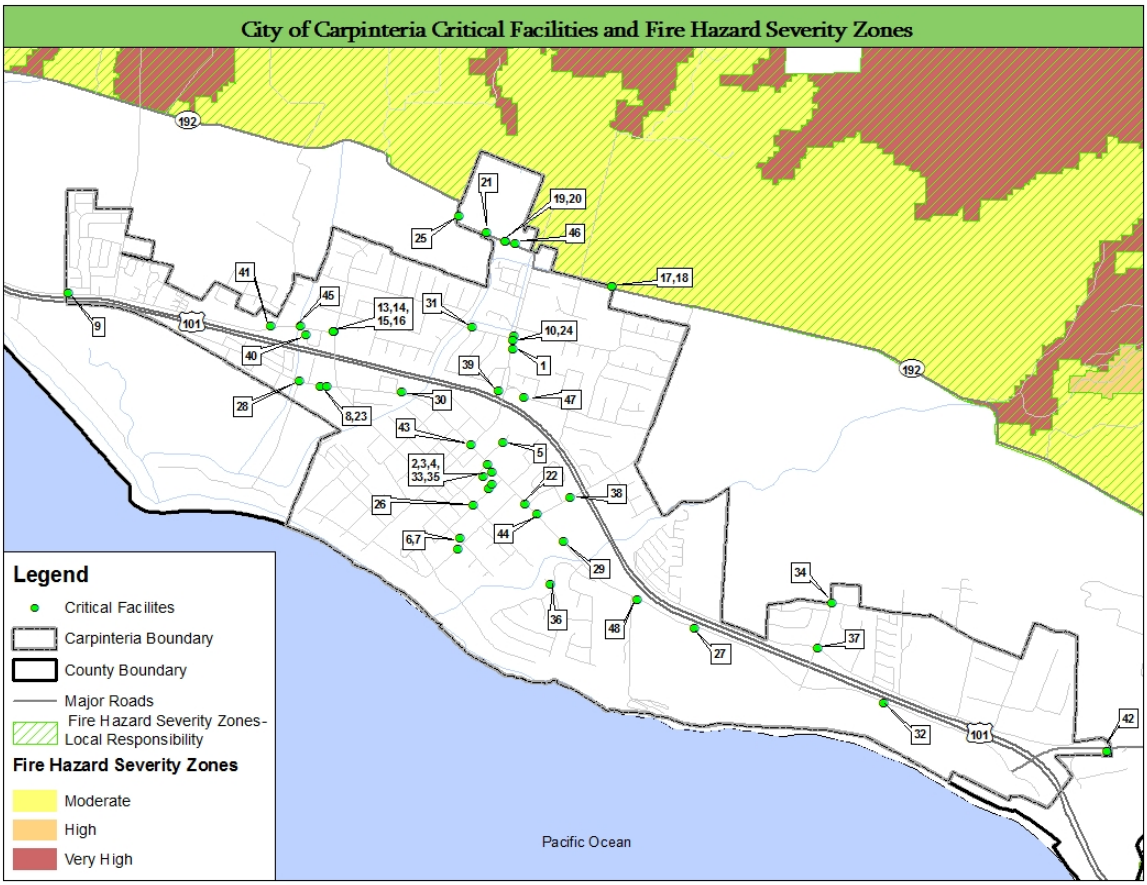
Source: Groundwater Liquefaction, Santa Barbara County GIS, available at http://www.countyofsb.org/itd/gis/default.aspx?id=2802, July 15, 2010, originally prepared by Moore and Taber in 1974.

10.7.6 Wildfire (Medium Impact/High Probability)

In looking at critical facilities' vulnerability to wildfire, there were three measures that were evaluated. The first is whether a critical facility is within the Fire Severity Zone (FSZ). The FSZ is mapped by the CA Department of Forestry and Fire Protection. It shows the geographic extents for areas of significant fire hazards based on fuels, terrain, weather, and other relevant factors. The second measure for vulnerability is the Wildland Urban Interface which is the potential treatment zone where projects could be conducted to reduce wildland fire threats to people. For the purposes

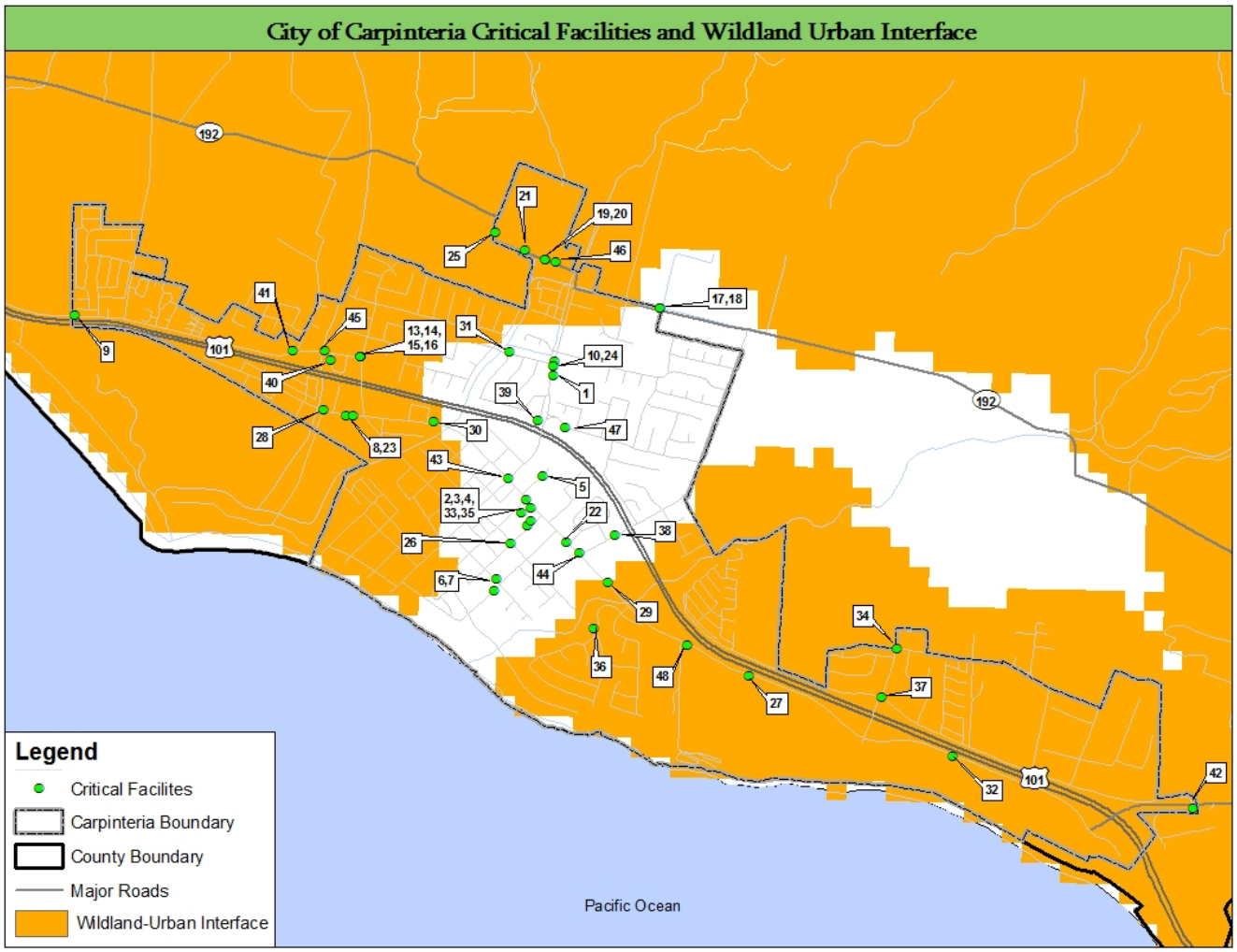
of this analysis, "within the WUI" represents those critical facilities that are in the geographical area where the three factors of "threat to people", "communities at risk", and "distance to developed areas" intersect. The final measure is that of "Fire Threat". Fire Threat is a combination of the factors of fire frequency and potential fire behavior. The two factors are combined to create five (5) threat classes ranging from "Little or No Threat" to "Extreme". The exposure of the critical facilities to these three measures is indicated in figures (**Figure 10.37**, **Figure 10.38**, and **Figure 10.39**) below. It is worth noting that all critical facilities have at least some threat from one or more of the three measures. Because of this, the exposure has been color coded low too high in a yellow, orange, red scheme to make it easier for the reader to discern the different designations.

Figure 10.37: City of Carpinteria Critical Facilities and Fire Hazard Severity Zones



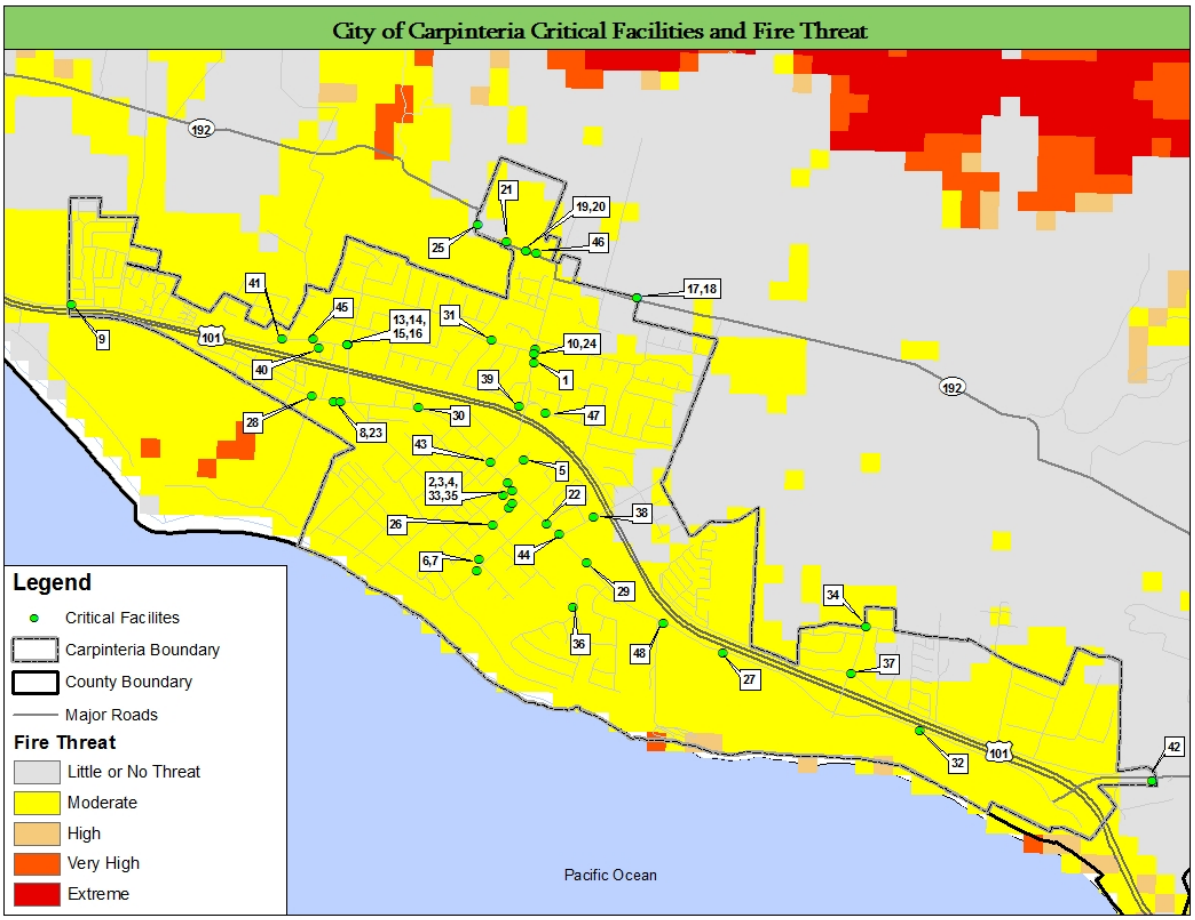
Source: County of Santa Barbara Fire GIS

Figure 10.38: City of Carpinteria Critical Facilities and Wildland Urban Interface



Source: Wildland Urban Interface (WUI) Fire Threat, Fire and Resource Assessment Program (FRAP) available at http://frap.cdf.ca.gov/data/frapgisdata/select.asp?theme=5

Figure 10.39: City of Carpinteria Critical Facilities and Fire Threat

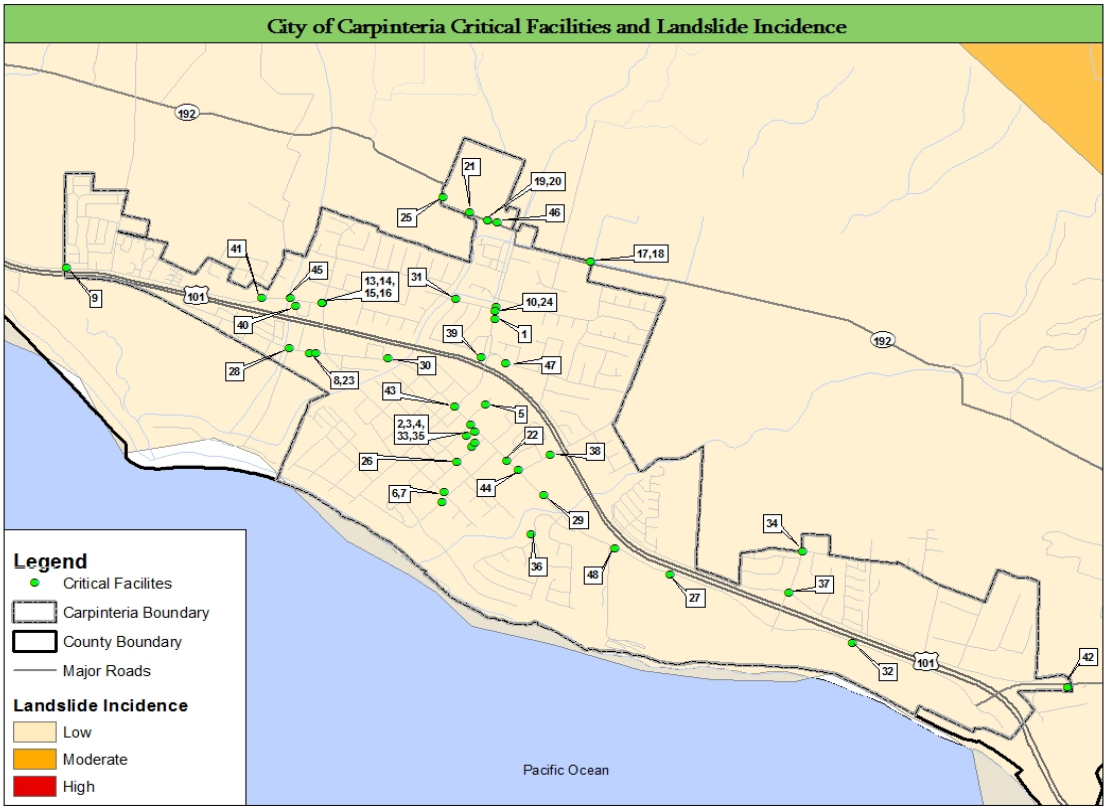


Source: Fire Threat, Fire and Resource Assessment Program (FRAP) available at http://frap.cdf.ca.gov/data/frapgisdata/select.asp?theme=5, 2004

10.7.7 Landslide and other Earth Movement *(Medium Impact/High Probability)*

In an effort to assess vulnerability for landslides, data was collected from the United States Geological Survey (USGS) that represents landslide incidence and susceptibility. The geographies impacted are categorized into low, moderate, and high zones. These layers were intersected with the critical facilities to estimate exposure and show that there is at least a moderate risk to landslides. **Figure 10.40** depicts the location of those facilities that fall into a moderate risk. None of the City's critical facilities have a high risk of landslide vulnerability.

Figure 10.40: City of Carpinteria Critical Facilities and Landslide Incidence

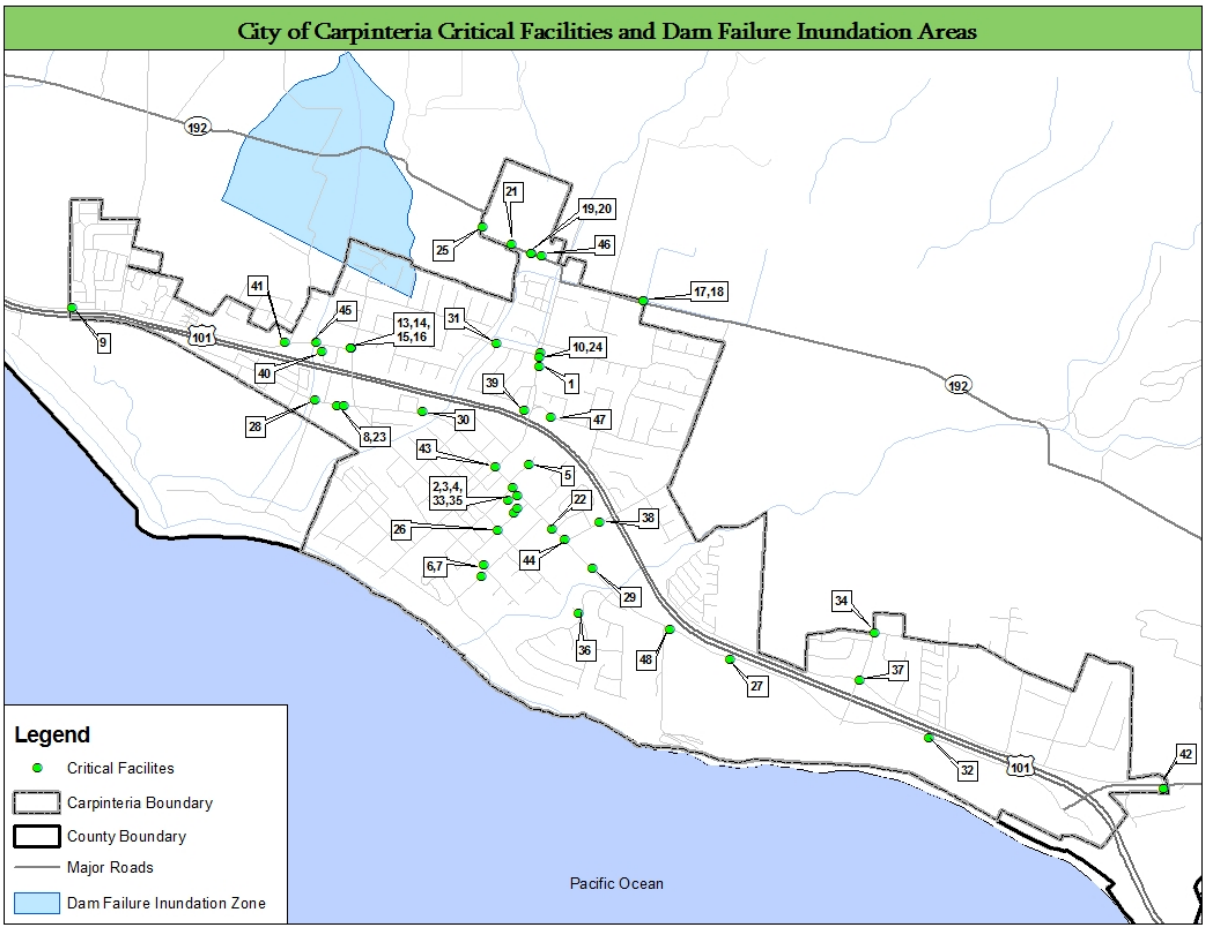


Source: Landslide Incidence and Susceptibility in the Conterminous US, National Atlas available at http://www.nationalatlas.gov/atlasftp.html#lsoverp, September 2002, Prepared by USGS

10.7.8 Dam Failure (High Impact/Low Probability)

There are nine major dams in the County: Alisal Creek, Bradbury, Dos Pueblos, Gibraltar, Glen Anne, Juncal, Ortega, Rancho Del Ciervo, and Twitchell. Bradbury dam has the largest concern of failure because floodwaters from this dam would affect Cachuma Village, Solvang, Buellton, Lompoc City, Lompoc Valley, and south Vandenberg AFB. A failure of the remaining eight (8) dams would affect portions of populated cities and communities, forest and agricultural lands, roads, and highways. The dam failure vulnerability is simply a look at those critical facilities exposed to risk as indicated by whether they fall into a geographic region that represents a dam inundation zone. **Figure 10.41** shows that there are no critical facilities within the dam inundation zones near the City of Carpinteria.

Figure 10.41: City of Carpinteria Critical Facilities and Dam Failure Inundation Areas



10.7.9 Tsunami (Medium Impact/Low Probability)

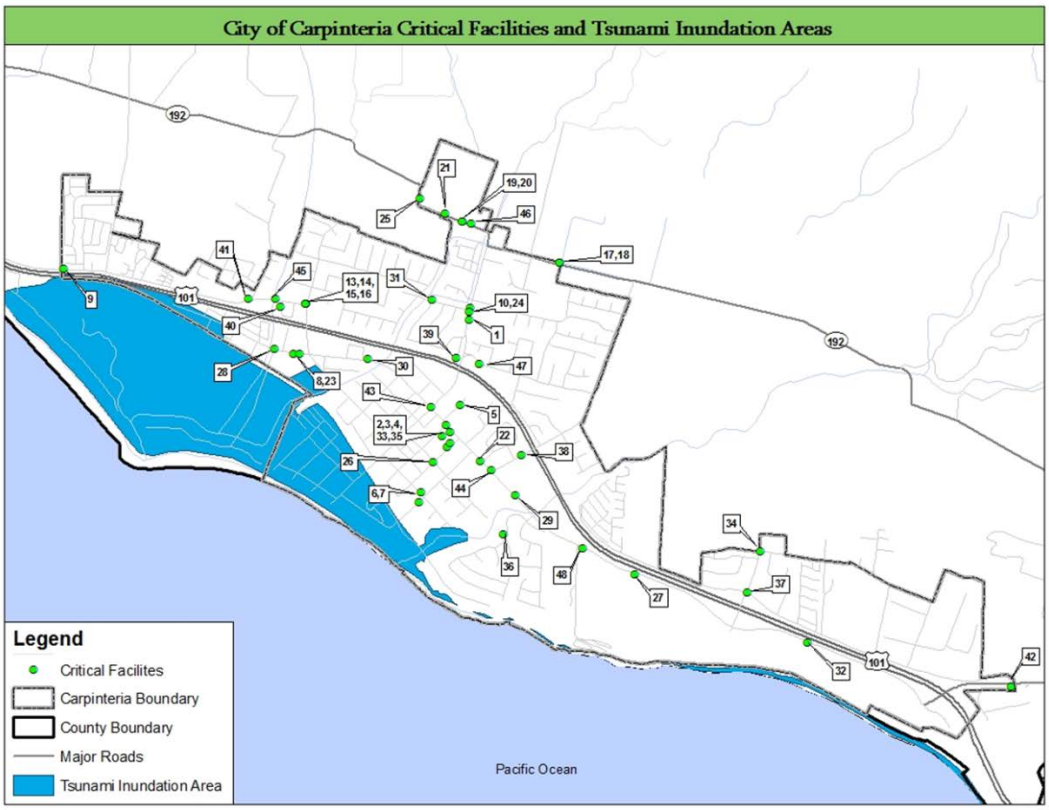
Tsunami waves travel at speeds averaging 450 to 600 miles per hour. As a tsunami nears the coastline, its speed diminishes, its wavelength decreases, and its height increases. Depending on the type of event that creates the tsunami, as well the remoteness of the event, the tsunami could reach

land within a few minutes or after several hours. Low-lying areas could experience severe inland inundation of water and deposition of debris more than 3,000 feet inland.

The University Of Southern California Tsunami Research Group has modeled areas in Santa Barbara County that could potentially be inundated in the event of a tsunami. This model is based on potential earthquake sources and hypothetical extreme undersea, near-shore landslide sources were mapped and used to profile maximum potential exposure.

Critical facilities provided by the City were compared against the extreme tsunami inundation zone overlay to see whether they fell within the geographic extent of the hazard. When the structures were compared to the tsunami hazard areas, only one facility borders the risk area. **Figure 10.42** depicts the location of the critical facilities in relation to the extreme tsunami inundation zone.

Figure 10.42: City of Carpinteria Critical Facilities and Tsunami Inundation Areas



Source: Tsunami Run-up Limits, Santa Barbara County GIS available at http://www.countyofsb.org/itd/gis/default.aspx?id=2802&ekmensel=e2f22c9a_486_496_btnlink, September 2009.

10.8 MITIGATION STRATEGY

10.8.1 Mitigation Goals and Objectives

After FEMA approval, the City Council adopted the 2011 HMP by Council Resolution. City planning efforts and Capital Projects directed by the City were influenced by the information taken from the 2011 HMP. The 2011 HMP was also utilized and referenced to update the 2014 City Emergency Operations Plan, the City General Plan, and the Coastal Plan update.

The county-wide mitigation priorities are represented by identifying common goals and objectives shown in **Table 10.27**. Using the 2011 HMP, the MAC reviewed and revised the goals and objectives to reflect the current county-wide capabilities, exposure to hazards, and vulnerability assessment findings. As part of the planning process, the City Local Planning Team reviewed and validated these goals and objectives.

Table 10.27: Goals and Objectives

Goal 1: Promote disaster-resiliency for future development to help them become less vulnerable to hazards
Objective 1.A Facilitate the development (or updating) of the County's Comprehensive Plan, City General Plans, and zoning ordinances to limit (or ensure safe) development in hazard areas
Objective 1.B: Facilitate the incorporation and adoption of building codes and development regulations that encourage disaster resistant design
Objective 1.C: Facilitate consistent implementation of plans, zoning ordinances, and building and fire codes
Goal 2: Promote disaster resiliency for existing assets (critical facilities/infrastructure and public facilities) and people to help them become less vulnerable to hazards
Objective 2.A: Mitigate vulnerability structures and public infrastructure including facilities, roadways, and utilities
Objective 2.B: Mitigate vulnerability populations
Objective 2.C: Support a coordinated permitting processes and consistent enforcement
Goal 3: Enhance hazard mitigation coordination and communication
Objective 3.A: Address data limitations identified in Hazard Profiling and Risk Assessment

Objective 3.B: Increase awareness and knowledge of hazard mitigation principles and practice among local government officials
Objective 3.C: Provide technical assistance to local governments to implement their mitigation plans
Objective 3.D: Educate the public to increase awareness of hazards, potential impact, and opportunities for mitigation actions
Objective 3.E: Monitor and publicize the effectiveness of mitigation actions implemented countywide
Objective 3.F: Educate the professional community on design and construction techniques that will minimize damage from the identified hazards
Objective 3.G: Participate in initiatives that have mutual hazard mitigation benefits for the County, cities, state, tribal, and federal governments
Objective 3.H: Encourage other organizations, within the public, private, and non-profit sectors, to incorporate hazard mitigation activities into their existing programs and plans
Objective 3.I: Continue partnerships between the state, local, and tribal governments to identify, prioritize, and implement mitigation actions
Objective 3.J: Continuously improve the County's capability and efficiency at administering pre- and post-disaster mitigation programs, including providing technical support to cities and special districts

No development occurred in the City of Carpinteria in hazard prone areas. There were no impacts to the overall vulnerability in the hazard prone area.

10.8.2 MITIGATION ACTION/PROGRESS

The City Local Planning Team reviewed the mitigation actions identified in the 2011 HMP to determine the status of each mitigation action. **Table 10.28** provides an overview and the status of each mitigation action. All incomplete projects will be reassessed by the City and if deemed necessary will be included in the new mitigation actions section (Section 7.4).

Table 10.28: Previous Mitigation Actions

Action #	Mitigation Action Description	Status	Completion Date	Comments
EQ-1	Work with Venoco, Inc. to research Earthquake Related	Not started		Will research regulatory requirements pertaining to earthquake preparedness by

	Risks at the Venoco Oil and Gas Processing Facility			2017
EQ-2	Work with So. Calif. Gas Company and the State PUC to review gas pipeline safety documents and to conduct public outreach related to gas pipeline safety	Not started		Will review safety documents and conduct public outreach and education related to pipeline safety on an ongoing basis by 2015
FLD-1	Update Master Drainage Plan	Completed	2015	2007 plan completed in 2015
FLD-2	Update Floodplain Management Ordinance	Completed	2015	Will update current plan as necessary.
FLD-3	Expand participation in NFIP Community Rating System (CRS)	On-going		The City will work actively to expand their participation in the NFIP CRS.
FLD-4	Carpinteria Avenue Bridge Replacement	On-going		The Carpinteria Avenue Bridge Replacement project began in 2011. The projected completion is 2018
GEN-1	Community Emergency Response Team (CERT) Training	On -going		Over 300 CERT Graduates. Two Basic classes offered each year. Advanced classes and refresher classes offered yearly
GEN-2	Create a disaster response supplies warehouse for emergency supplies at City Hall	Consideration for future		Will secure location and update supplies and materials - budgetary restrictions may apply
GEN-3	Provide information to residents to increase community awareness of early warning systems	On-going		Provide information to residents on Reverse 911/NIXLE/Home Alert/RadioReady on an ongoing basis. Santa Barbara County upgraded to a new alert system, Everbridge, in 2016
GEN-4	Conduct Critical Facility Audit	Not started		Will conduct critical facility update by 2017
GEN-5	Update Comprehensive Emergency Response Plan	Completed	2015	The updated plan was completed in 2015. Will continue to update as needed

GEN-6	Conduct community disaster education programming related to general disaster preparedness	Ongoing		Will conduct public outreach related to general disaster preparedness on an ongoing basis.
WDF-3	Perform a Comprehensive Evaluation of all Wildfire Hazard Reduction Programs	Not started		Programs driven by federal grant moneys and ongoing in various phases based on funding
WDF-4	Firewise Community Planning and Prevention Techniques	Completed	2012	The plan was completed in 2012

10.8.3 MITIGATION ACTIONS

The local planning team used the STAPLE/E Criteria (Social, Technical, Administrative, Political, Legal, Economic, and Environmental) to evaluate and prioritize the mitigation actions. Based on the evaluation score of each of STAPLE/E Criteria, mitigation actions received a cumulative score. The cumulative score was then used to prioritize the mitigation actions.

The following table (**Table 10.29**) presents the list of mitigation actions which will be considered and implemented during the life of this plan update.

Table 10.29: Prioritized and Recommended Mitigation Actions

Action #	Mitigation Action Description	Status	Completion Date	Comments
EQ-1	Work with Venoco, Inc. to research Earthquake Related Risks at the Venoco Oil and Gas Processing Facility	Not started		Will research regulatory requirements pertaining to earthquake preparedness by 2017
EQ-2	Work with Southern California Gas Company and the State Public Utilities Commission to review gas pipeline safety documents and to conduct public outreach related to gas	Not started		Will review safety documents and conduct public outreach and education related to pipeline safety on an ongoing basis by 2017

	pipeline safety			
FLD-3	Expand participation in NFIP Community Rating System	On-going		The City continues to work actively to expand their participation in the NFIP
FLD-4	Carpinteria Avenue Bridge Replacement	In progress		The Carpinteria Avenue Bridge Replacement project began in 2011. The projected completion is projected to be 2018
FLD-5	Linden/Casitas Interchanges	In progress		The Linden Ave and Casitas Pass Road Interchanges Project began in 2009. The projected completion date is 2020
FLD-6	General Plan/Coastal Land Use Plan Update	In Progress		Grant funded program to include analysis of climate change impacts and development of policies addressing sea level rise, drought habitat changes and increased weather related hazards.
GEN-1	Community Emergency Response Team (CERT) Training	On -going		Over 300 CERT Graduates. Two Basic classes offered each year. Advanced classes and refresher classes offered yearly.
GEN-2	Create a disaster response supplies warehouse for emergency supplies at City Hall	Consideration for future		Will secure location and update supplies and materials - budgetary restrictions may apply
GEN-3	Provide information to residents to increase community awareness of early warning systems	On-going		Provide information to residents on County alert system “Aware & Prepare”. The new system was implemented in 2016
GEN-4	Conduct Critical Facility Audit	On-going		An audit was conducted completed in 2011. Updates are made to the existing list as needed.
GEN-5	Update Comprehensive Emergency Response Plan	Completed	2015	The updated plan was completed in 2015. Will continue to update as needed
GEN-6	Conduct community	On-going		Will conduct public outreach

	disaster education programming related to general disaster preparedness			related to general disaster preparedness on an ongoing basis.
GEN-7	Host Annual Oil & Gas System Safety Review Group Meeting	On-going		Facilitate dialogue between various local, state, and regulatory agencies and oil & gas producers.
GEN-8	Participate on County Drought Task Force	On-going		Multi-jurisdictional drought task force to assess vulnerabilities and monitor drought conditions, water supply.
WDF-3	Perform a Comprehensive Evaluation of all Wildfire Hazard Reduction Programs	On-going		Programs driven by federal grant moneys and ongoing in various phases based on funding.

10.8.4 IMPLEMENTATION PLAN

Mitigation Action # EQ-1		
Project Description: Work with Venoco, Inc. to research earthquake related risks at the Venoco Oil and Gas Processing Facility.		
Applicable Hazards		
High ☐ Drought/Water Shortage ☐ Energy Shortage ☐ Flooding/Sea level rise/coastal flooding ☐ Landslide/other earth movements ☒ Oil spill ☐ Severe Weather ☐ Train Accident ☐ Wildfire ☒ Earthquake	**Medium** ☐ Agriculture (pests and disease) ☐ Dam Failure ☐ HazMat Release ☐ Natural Gas Pipeline/Storage ☐ Terrorism	**Low** ☐ Civil Disturbance ☐ Tsunami
Existing and potential resources: Regulatory agencies that oversee oil and gas processing facilities will serve as valuable resources related to information collection and dissemination.		

Responsible department: Emergency Services
Funding source: General Fund
Target completion date: 2017
Additional Comments / Status Report:

Mitigation Action # EQ-2		
Project Description: Work with Southern California Gas Company and the Public Utilities Commission to review pipeline safety documents and to conduct public outreach and education related to pipeline safety.		
Applicable Hazards		
High	**Medium**	**Low**
☐ Drought/Water Shortage ☒ Energy Shortage ☐ Flooding/Sea level rise/coastal flooding ☐ Landslide/other earth movements ☐ Oil spill ☐ Severe Weather ☐ Train Accident ☐ Wildfire ☒ Earthquake	☐ Agriculture (pests and disease) ☐ Dam Failure ☐ HazMat Release ☒ Natural Gas Pipeline/Storage ☐ Terrorism	☐ Civil Disturbance ☐ Tsunami
Existing and Potential Resources: Southern California Gas Company and the State Public Utilities Commission will serve as valuable resources related to information collection and dissemination.		
Responsible Department: Emergency Services		
Funding Source: General Fund		
Target Completion Date: 2017		
Additional Comments / Status Report:		

Mitigation Action # FLD-3		
Project Description: Expand participation in NFIP Community Rating System (CRS).		
Applicable Hazards		
High	**Medium**	**Low**
☐ Drought/Water Shortage ☐ Energy Shortage ☒ Flooding/Sea level rise/coastal flooding ☐ Landslide/other earth movements ☐ Oil spill ☐ Severe Weather ☐ Train Accident ☐ Wildfire ☐ Earthquake	☐ Agriculture (pests and disease) ☐ Dam Failure ☐ HazMat Release ☐ Natural Gas Pipeline/Storage ☐ Terrorism	☐ Civil Disturbance ☐ Tsunami
Existing and Potential Resources:		
Responsible Department: Public Works		
Funding Source:		
Target Completion Date: Ongoing		
Additional Comments / Status Report: The City continues to work actively to expand their participation in the NFIP CRS.		

Mitigation Action # FLD-4		
Project Description: Carpinteria Avenue Bridge Replacement		
Applicable Hazards		
High	**Medium**	**Low**
☐ Drought/Water Shortage ☐ Energy Shortage ☒ Flooding/Sea level rise/coastal flooding ☐ Landslide/other earth movements ☐ Oil spill ☐ Severe Weather ☐ Train Accident ☐ Wildfire ☒ Earthquake	☐ Agriculture (pests and disease) ☐ Dam Failure ☐ HazMat Release ☐ Natural Gas Pipeline/Storage ☐ Terrorism	☐ Civil Disturbance ☐ Tsunami
Existing and Potential Resources: Federal Highway Administration – Highway Bridge Program		
Responsible Department: Public Works		
Funding Source: Local highway, interchanges, and bridges development impact fees		
Target Completion Date: 2020		
Additional Comments / Status Report: The Carpinteria Avenue Bridge Replacement Project began in 2011. Bridge construction is expected to begin in 2018 with projected completion in 2020.		

Mitigation Action # FLD-5		
Project Description: Linden/Casitas Interchanges		
Applicable Hazards		
High	**Medium**	**Low**
☐ Drought/Water Shortage ☐ Energy Shortage ☒ Flooding/Sea level rise/coastal flooding ☐ Landslide/other earth movements ☐ Oil spill ☐ Severe Weather ☐ Train Accident ☐ Wildfire ☒ Earthquake	☐ Agriculture (pests and disease) ☐ Dam Failure ☐ HazMat Release ☐ Natural Gas Pipeline/Storage ☐ Terrorism	☐ Civil Disturbance ☐ Tsunami
Existing and Potential Resources: Federal Highway Administration – Highway Bridge Program		
Responsible Department: Public Works		
Funding source: Federal HBR grant		
Target Completion Date: 2020		
Additional Comments / Status Report: The Linden Ave and Casitas Pass Road Interchanges Project began in 2009. The projected completion date is 2020		

Mitigation Action # FLD-6		
Project Description: General Plan/Coastal Land Use Plan Update		
Applicable Hazards		
High	**Medium**	**Low**
☒ Drought/Water Shortage ☐ Energy Shortage ☒ Flooding/Sea level rise/coastal flooding ☐ Landslide/other earth movements ☐ Oil spill ☒ Severe Weather ☐ Train Accident ☐ Wildfire ☐ Earthquake	☐ Agriculture (pests and disease) ☐ Dam Failure ☐ HazMat Release ☐ Natural Gas Pipeline/Storage ☐ Terrorism	☐ Civil Disturbance ☐ Tsunami
Existing and Potential Resources: The grant funded project will include an analysis of the climate change impacts and development of General Plan/Local Coastal Land Use Plan policies that addresses sea level rise, drought, habitat changes and increased weather related hazards.		
Responsible Department: Community Development Department		
Funding Source: California Coastal Commission grant		
Target Completion Date: 2020		
Additional Comments / Status Report:		

Mitigation Action # GEN-2		
Project Description: Create a disaster response supplies warehouse for emergency supplies at City Hall.		
Applicable Hazards		
High	**Medium**	**Low**
☐ Drought/Water Shortage ☐ Energy Shortage ☒ Flooding/Sea level rise/coastal flooding ☒ Landslide/other earth movements ☐ Oil spill ☒ Severe Weather ☒ Train Accident ☒ Wildfire ☒ Earthquake	☐ Agriculture (pests and disease) ☒ Dam Failure ☐ HazMat Release ☐ Natural Gas Pipeline/Storage ☒ Terrorism	☐ Civil Disturbance ☒ Tsunami
Existing and Potential Resources: Work with other city jurisdictions to compile information on how they warehouse disaster response supplies at city facilities for staff and visitors.		
Responsible Department: Emergency Services		
Funding Source: General Fund		
Target Completion Date: 2018		
Additional Comments / Status Report: Budgetary restrictions have made this project a future consideration.		

Mitigation Action # GEN-3		
Project Description: Increase community awareness of early warning systems by providing residents information on County alert systems.		
Applicable Hazards		
High	**Medium**	**Low**
☒ Drought/Water Shortage ☒ Energy Shortage ☒ Flooding/Sea level rise/coastal flooding ☒ Landslide/other earth movements ☒ Oil spill ☒ Severe Weather ☒ Train Accident ☒ Wildfire ☒ Earthquake	☐ Agriculture (pests and disease) ☒ Dam Failure ☒ HazMat Release ☒ Natural Gas Pipeline/Storage ☒ Terrorism	☒ Civil Disturbance ☒ Tsunami
Existing and Potential Resources: We have provided early warning systems information at community disaster education presentations through *Don't Panic! Prepare!* since 2008. We will continue to utilize every opportunity to register residents at AwareandPrepare.org, a new alert system adopted by Santa Barbara County.		
Responsible Department: Emergency Services		
Target Completion Date: On-going		
Funding Source:		
Additional Comments / Status Report: In December 2015, the Santa Barbara County Office of Emergency Management adopted a new emergency alert system from Everbridge. This system is using AwareandPrepare.org, a familiar emergency preparedness program name, encouraging the community to opt-in for alerts.		

Mitigation Action # GEN-4		
Project Description: Audit and update the City of Carpinteria's Critical Facility list.		
Applicable Hazards		
High	**Medium**	**Low**
☐ Drought/Water Shortage ☐ Energy Shortage ☒ Flooding/Sea level rise/coastal flooding ☒ Landslide/other earth movements ☐ Oil spill ☐ Severe Weather ☐ Train Accident ☒ Wildfire ☒ Earthquake	☐ Agriculture (pests and disease) ☒ Dam Failure ☐ HazMat Release ☐ Natural Gas Pipeline/Storage ☐ Terrorism	☐ Civil Disturbance ☒ Tsunami
Existing and Potential Resources:		
Responsible Department: Community Development Department		
Funding Source:		
Target Completion Date: 2020		
Additional Comments / Status Report: The Critical Facility list was audited and updated in 2011. Updates are made to the existing list as needed.		

Mitigation Action # GEN-5		
Project Description: Update the City of Carpinteria's Emergency Response Plan.		
Applicable Hazards		
High	**Medium**	**Low**
☐ Drought/Water Shortage ☐ Energy Shortage ☒ Flooding/Sea level rise/coastal flooding ☒ Landslide/other earth movements ☐ Oil spill ☐ Severe Weather ☐ Train Accident ☒ Wildfire ☒ Earthquake	☐ Agriculture (pests and disease) ☒ Dam Failure ☐ HazMat Release ☐ Natural Gas Pipeline/Storage ☐ Terrorism	☐ Civil Disturbance ☒ Tsunami
Existing and Potential Resources:		
Responsible Department: Emergency Services		
Funding Source: General Fund		
Target Completion Date: 2020		
Additional Comments / Status Report: The Emergency Response Plan was updated in 2015. Updates are made to the existing plan as needed.		

Mitigation Action # GEN-6		
Project Description: *Don't Panic! Prepare!* is a public education and awareness campaign designed to increase preparedness at home, school and work. We will deliver emergency preparedness presentations to residents on an ongoing basis with community partners.		
Applicable Hazards		
High	**Medium**	**Low**
☐ Drought/Water Shortage ☐ Energy Shortage ☒ Flooding/Sea level rise/coastal flooding ☒ Landslide/other earth movements ☐ Oil spill ☐ Severe Weather ☐ Train Accident ☒ Wildfire ☒ Earthquake	☐ Agriculture (pests and disease) ☒ Dam Failure ☐ HazMat Release ☐ Natural Gas Pipeline/Storage ☐ Terrorism	☐ Civil Disturbance ☒ Tsunami
Existing and Potential Resources: The *Don't Panic! Prepare!* campaign was started in 2008. Presentations and materials have already been developed. Community relationship building has been strong and we will continue to leverage community resources to reach residents and visitors with life-saving information.		
Responsible Department: Emergency Services		
Funding Source: Local grant		
Target Completion Date: Ongoing		
Additional Comments / Status Report: Presentations will be included in the Neighbor to Neighbor outreach program in development. The City plans to launch this new program in 2017. Presentations and materials are updated as needed.		

Mitigation Action # GEN-7		
Project Description: Annual Carpinteria Oil & Gas System Safety Review Group Meeting		
Applicable Hazards		
High	**Medium**	**Low**
☐ Drought/Water Shortage ☒ Energy Shortage ☐ Flooding/Sea level rise/coastal flooding ☐ Landslide/other earth movements ☒ Oil spill ☐ Severe Weather ☐ Train Accident ☐ Wildfire ☐ Earthquake	☐ Agriculture (pests and disease) ☐ Dam Failure ☐ HazMat Release ☒ Natural Gas Pipeline/Storage ☐ Terrorism	☐ Civil Disturbance ☐ Tsunami
Existing and Potential Resources:		
Responsible Department: Emergency Services		
Funding Source: General Fund		
Target Completion Date: Ongoing		
Additional Comments / Status Report: The purpose of this annual meeting is to facilitate dialogue between the various local, state and federal regulatory agencies and oil and gas producers/distributors/operators in the City, as it relates to issues of public health and safety.		

Mitigation Action # GEN-8		
Project Description: Participate on the Santa Barbara County Drought Task Force		
Applicable Hazards		
High	**Medium**	**Low**
☒ Drought/Water Shortage ☐ Energy Shortage ☐ Flooding/Sea level rise/coastal flooding ☐ Landslide/other earth movements ☐ Oil spill ☐ Severe Weather ☐ Train Accident ☐ Wildfire ☐ Earthquake	☒ Agriculture (pests and disease) ☐ Dam Failure ☐ HazMat Release ☐ Natural Gas Pipeline/Storage ☐ Terrorism	☐ Civil Disturbance ☐ Tsunami
Existing and Potential Resources: Establish and maintain a multi-jurisdictional Drought Task Force to: 1) Assess vulnerability to drought risk; 2) Monitor drought conditions; 3)monitor water supply; 4) Plan for drought; 5) Develop related mitigation projects and programs		
Responsible Department: Santa Barbara County Chief Executive Office		
Funding Source: Unknown/ Ongoing Salaries, General Fund, Special District Budgets, Acquire HMA Grant, PDM Grant		
Target Completion Date: Ongoing		
Additional Comments / Status Report: Once Task Force is established, this will remain an on-going mitigation action.		

Mitigation Action # WDF-3		
Project Description: Community Wildfire Protection Plan		
Applicable Hazards		
High	**Medium**	**Low**
☐ Drought/Water Shortage ☐ Energy Shortage ☐ Flooding/Sea level rise/coastal flooding ☐ Landslide/other earth movements ☐ Oil spill ☐ Severe Weather ☐ Train Accident ☒ Wildfire ☐ Earthquake	☐ Agriculture (pests and disease) ☐ Dam Failure ☐ HazMat Release ☐ Natural Gas Pipeline/Storage ☐ Terrorism	☐ Civil Disturbance ☐ Tsunami
Existing and Potential Resources: This plan is a community collaborative that seeks to clarify and prioritizes actions that will protect life, property and infrastructure from wildfire.		
Responsible Department: Carpinteria-Summerland Fire District		
Funding Source: Vegetation management funds/grants		
Target Completion Date: Ongoing		
Additional Comments / Status Report:		

10.9 PLAN MAINTENANCE

10.9.1 Plan Progress

The 2011 Hazard Mitigation Plan was reviewed and project status was updated in 2012 and 2015. Project WDF-4, Fire-wise Community Planning and Prevention Techniques was completed through the creation of Community Wildfire Protection Plan in 2012. The following projects were completed in 2014 and 2015:

- FLD-1, Update Master Drainage Plan
- FLD-2, Update Floodplain Management Ordinance
- GEN-5, Update Comprehensive Emergency Response Plan

10.9.2 Plan Maintenance

The City of Carpinteria will be responsible for ensuring that this annex is monitored on an on-going basis. The City will convene the Local Planning Team on a yearly basis to discuss the HMP. Additionally, actions identified in the HMP will be tracked and discussed during other regular city department meetings. The city will also ensure that as new hazard information is discovered or produced, the Local Planning Team will review and determine the appropriateness of incorporation. As part of this effort, as major disasters and other significant events affect the City of Carpinteria, the Local Planning Team will be convened to review and assess the HMP. Additionally, Local Planning Team members will be ensuring that lessons learned from the HMP planning process are incorporated and/or leverage in other plans and planning efforts.

The City will continue to participate in the countywide Mitigation Advisory Committee and attend the annual meeting organized by the County Office of Emergency Management to discuss items to be updated/added in future revisions of this plan.

The public will continue to be involved whenever the plan is updated and as appropriate during the monitoring and evaluation process. Prior to adoption of updates, the City will provide the opportunity for the public to comment on the updates. A public notice will be published prior to the meeting to announce the comment period and meeting logistics. Moreover, the City will engage stakeholders in community emergency planning.

10.9.3 Point of Contact

Comments or suggestions regarding this plan may be submitted at any time to Mimi Audelo, Program Manager using the following information:

Mimi Audelo, Program Manager
City of Carpinteria
5775 Carpinteria Avenue
Carpinteria, CA 93013,
mimia@ci.carpinteria.ca.us,
805-755-4401

APPENDIX A

Attachment 1 Meeting Documentation

This attachment includes documentation of the meetings conducted within Carpinteria's Local Planning Team separately from the County Mitigation Advisory Committee.

Santa Barbara County Operational Area
2016 Hazard Mitigation Plan Update
Meeting Log

Agenda & Notes

City of Carpinteria

Date: 2/10/16

Time: 4-5pm

Attendees:
Dave Durflinger, City Manager
Charlie Ebeling, Public Works Director
Steve Goggia, Community Development Director
Matt Roberts, Parks and Recreation Director
Kevin Silk, Assistant to the City Manager
Mimi Audelo, Program Manager

Discussion Topics:

- Overview of MAC meeting
- Review 2011 plan and tasks to be updated/completed.
- Divide tasks into appropriate departments.
- Establish a submittal deadline.

Meeting Outcomes:

Reviewed MAC meeting information
Established community outreach plan
No prior events to report
Reviewed City plan
Assigned stated projects for update/completion dates

Santa Barbara County Operational Area
2016 Hazard Mitigation Plan Update
Meeting Log

Agenda & Notes

City of Carpinteria

Date: 3/21/16

Time: 3:30-4:30pm

Attendees:

Charlie Ebeling, Public Works Director
Steve Goggia, Community Development Director
Kevin Silk, Assistant to the City Manager
Mimi Audelo, Program Manager

Discussion Topics:

- Overview of MAC meeting
- Review projects status
- Review critical facilities list
- Review MAC Hazard Prioritization Rating List

Meeting Outcomes:

Reviewed MAC meeting information
Agreed on MAC Hazard Prioritization List with minor change
No changes to the critical facilities list
Status on all listed projects submitted

Santa Barbara County Operational Area
2016 Hazard Mitigation Plan Update
Meeting Log

Agenda & Notes

City of Carpinteria

Date: 5/31/16

Time: 1:00-1:30pm

Attendees:

Charlie Ebeling, Public Works Director
Mimi Audelo, Program Manager

Discussion Topics:

- Overview of MAC meeting
- Review public works projects
- Discuss possible hazards

Meeting Outcomes:

Reviewed MAC meeting information
Reviewed public works projects current and future
Discussed possible hazards in relation to projects

Santa Barbara County Operational Area
2016 Hazard Mitigation Plan Update
Meeting Log

Agenda & Notes

City of Carpinteria

Date: 6/21/16

Time: 3:00-3:30pm

Attendees:

Dave Durflinger, City Manager
Mimi Audelo, Program Manager

Discussion Topics:

- Overview of MAC meeting
- Review development history and infill projects

Meeting Outcomes:

Development is focused on under developed areas

Attachment 2: Outreach Materials

This attachment includes website postings, press releases, and newspaper articles demonstrating the City's efforts to engage the public and interested stakeholders in the mitigation planning process.

CITY OF CARPINTERIA
NOTICE OF PUBLIC REVIEW
Review Draft of the City of Carpinteria annex
to the Santa Barbara County Local Hazard Mitigation Plan 2016 Update

Notice is hereby given that public review and comment is being solicited for the Review Draft of the City of Carpinteria annex to the Santa Barbara County Local Hazard Mitigation Plan 2016 update.

A public review draft may be downloaded from www.carpinteria.ca.us or can be viewed at City Hall and the Public Library. All interested persons are invited to review and comment. Written comments can be submitted to Mimi Audelo, Program Manager, City Hall, 5775 Carpinteria Avenue, Carpinteria, CA 93013 or mimia@ci.carpinteria.ca.us

Comments received by May 10th will be considered for incorporation in the plan prior to adoption by the City Council. Comments received after this date will be held for consideration in future updates to this plan.

For the webpage:
The City of Carpinteria is requesting public review and comment during the Local Multi-jurisdiction Hazard Mitigation Plan 2016 Update process. This plan identifies the primary natural hazards of risk and presents measures to increase resiliency throughout the City of Carpinteria. Please submit your comments and questions to Mimi Audelo at (805)755-4401 or mimia@ci.carpinteria.ca.us.
Comments received prior to May 10th will be considered for incorporation in the plan prior to adoption by the City Council. Comments received after this date will be held for consideration in future updates to this plan.

Hazard Mitigation Plan Update

Local governments are required to create a plan that identifies risks and ways to minimize damage from natural and manmade disasters in order to qualify for federal disaster aid.

How can you help? The City would like the community to review and provide input on the current Mitigation Plan. To review the current plan visit **http://carpinteria.ca.us** under *What's New?* Hard copies are available at City Hall and the Carpinteria Library.

Please submit your comments and questions to Mimi Audelo at (805)755-4401 or mimia@ci.carpinteria.ca.us. Comments received prior to May 10th will be considered for incorporation in the plan prior to adoption by the City Council. Comments received after this date will be held for consideration in future updates to this plan.

City Invites Input on Hazard Mitigation Plan Update

The Federal Disaster Mitigation Act of 2000 requires all local governments to create a plan that identifies risks and ways to minimize damage from natural and manmade disasters in order to qualify for federal mitigation funds in the future. This plan identifies the primary natural hazards of risk and presents measures to increase resiliency throughout the City of Carpinteria. The City is inviting the public to review and comment on the City's local multi-jurisdiction Hazard Mitigation Plan 2016 update and is participating with Santa Barbara County in this process; it is anticipated that the plan will be available for review in August. The public will be able to download the updated plan at **http://www.carpinteria.ca.us** in the near future. Hard copies will also be available at City Hall. For additional information regarding the comment process please contact Mimi Audelo at (805)755-4401 or mimia@ci.carpinteria.ca.us. Your input is invaluable to increasing disaster resiliency in our community.

References

Emergency Operations Plan
http://www.carpinteria.ca.us/PDFs/Emer%20Oper%20Plan.pdf

General Plan (Local Coastal Land Use Plan & Environmental Impact Report)
http://www.carpinteria.ca.us/PDFs/cd_GP%20Annual%20Report.pdf (Update)
http://www.carpinteria.ca.us/PDFs/cd_General%20Plan.pdf (Original)

Zoning District Map
http://www.carpinteria.ca.us/PDFs/cd_zoning%20map.pdf

Land Use Map
http://www.carpinteria.ca.us/PDFs/cd_Land%20Use%20Map.pdf

Storm Water Management Plan
http://www.carpinteria.ca.us/PDFs/pw_2009%20SWMP.pdf

New Projects (Housing Plans)
http://www.carpinteria.ca.us/edd/new_projects.shtml

Cumulative Projects List (Future Development)
http://www.carpinteria.ca.us/PDFs/cd_Cumulative%20Projects.pdf

Economic Profile
http://www.carpinteria.ca.us/edd/economic_profile.shtml

Santa Barbara County Multi-Jurisdictional Hazard Mitigation Plan

City of Goleta Annex

Prepared By:
City of Goleta
Neighborhood Services & Public Safety Department

July 2017

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CITY OF GOLETA

1. INTRODUCTION

This Annex was prepared as part of a 2016-2017 update to the Santa Barbara County Multi-Hazard Multi-Jurisdictional Hazard Mitigation Plan. The City of Goleta participated in the County wide Mitigation Advisory Committee, reviewed all portions of the previous hazard mitigation plan pertaining to the City, and incorporated relevant components into this annex. This annex serves as a complete hazard mitigation planning tool for the City of Goleta. It contains updated capability assessment information, vulnerability assessment, and an updated/revised mitigation strategy. The methodology and process for developing this annex is explained throughout the following sections.

The City of Goleta is mostly suburban residential with a population of approximately 30,000 people and is part high-tech entrepreneurial business area. The city is located in the commercial and industrial heart of the County and has in recent years drawn many high technology companies to the area. The City is now home to approximately 80 research and development firms in the hi-tech field including those that specialize in electronics, telecommunications, medical research, national security and remote sensing manufacturing that contribute significantly to the local economy. The City is also a regional shopping hub with several "big box" retailers not found elsewhere in the south coast area.

The City is located about eight miles west of the City of Santa Barbara, with a swath of unincorporated urban area between the two cities, and is adjacent to the Santa Barbara Airport and the University of California at Santa Barbara (UCSB). Located along the coast, the town has 7.9 square miles of land area, comprising a total of 5,075 acres. Goleta is in an excellent position, as it develops its policies and governance through planning and regulatory development, to institutionalize mitigation into its government operations.

RESOLUTION NO. 17-32

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF GOLETA ADOPTING THE CITY OF GOLETA ANNEX OF THE 2017 SANTA BARBARA COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

WHEREAS, the Federal Disaster Mitigation Act of 2000 ("Act"), as described in 44 Code of Federal Regulations Section 201.6 (44 CFR § 201.6) mandates local governments to submit and maintain a Federal Emergency Management Agency ("FEMA") approved local Hazard Mitigation Plan; and

WHEREAS, the City of Goleta has participated in a county-wide Multi-Jurisdictional Hazard Mitigation Plan with the Santa Barbara County Office of Emergency Management as the Operational Area and lead agency; and,

WHEREAS, the 2017 Santa Barbara County Multi-Jurisdictional Hazard Mitigation Plan, ("Plan") identifies each jurisdiction's risk assessment and mitigation strategies to reduce the impacts of natural, technological, or intentional disasters on the public and local government; and

WHEREAS, the Goleta Annex to the Plan identifies a citywide risk assessment and mitigation strategies to reduce the potential impacts of natural, technological, or intentional disasters on the public and local government as it pertains to the City of Goleta; and

WHEREAS, identification of hazards in the City assists with response planning, exercise development, public education and awareness, and other emergency management functions; and

WHEREAS, FEMA approved the 2017 Santa Barbara County Multi-Jurisdictional Hazard Mitigation Plan and City of Goleta Annex, and

WHEREAS, the Federal Disaster Mitigation Act of 2000 requires the Plan to be formally adopted by the City Council.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF GOLETA DOES RESOLVE, DETERMINE, AND ORDER AS FOLLOWS:

SECTION 1:
The City Council approves and adopts the City of Goleta Annex of the 2017 Santa Barbara County Multi-Jurisdictional Hazard Mitigation Plan in accordance with the Federal Disaster Mitigation Act of 2000.

SECTION 2.
The City Clerk shall certify to the adoption of this Resolution and enter it into the book of original resolutions.

PASSED, APPROVED AND ADOPTED this 5th day of September, 2017.

PAULA PEROTTE
MAYOR

ATTEST:

DEBORAH LOREZ
CITY CLERK

APPROVED AS TO FORM:

WINNIE CAI
DEPUTY CITY ATTORNEY

RESOLUTION NO. 17-33

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF GOLETA INTEGRATIING BY REFERENCE THE CITY OF GOLETA ANNEX OF THE 2017 SANTA BARBARA COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN INTO THE SAFETY ELEMENT OF THE CITY OF GOLETA GENERAL PLAN/COASTAL LAND USE PLAN

WHEREAS, the Governor's Office of Emergency Services (CalOES) Mitigation Division requires a City Council Resolution recognizing the adoption of the City of Goleta Annex of the 2017 Santa Barbara County Multi-Jurisdictional Hazard Mitigation Plan into the Safety Element of the City's General Plan/Coastal Land Use Plan, and;

WHEREAS, the City Council of the City of Goleta adopted the Safety Element to the General Plan/Coastal Land Use Plan on October 2, 2006, and;

WHEREAS, the City Council of the City of Goleta adopted the FEMA approved Goleta Annex of the 2017 Santa Barbara County Multi-Jurisdictional Hazard Mitigation Plan on September 5, 2017 and;

WHEREAS, this Resolution enables the City of Goleta to qualify for additional mitigation funding after a disaster.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF GOLETA DOES RESOLVE, DETERMINE, AND ORDER AS FOLLOWS:

SECTION 1:
Accepts and adopts the Goleta Annex of the 2017 Santa Barbara Multi Jurisdictional Hazard Mitigation Plan by reference into the Safety Element of the General Plan/Coastal Land Use Plan in accordance with California Government Code Sections 8685.9 and 65302.6; and

SECTION 2:
Finds that there is no possibility that the activity in question may have a significant impact on the environment and is therefore exempt from the provisions of CEQA pursuant to CEQA Guidelines 15061(b)(3) (14 California Code of Regulations (CCR), §15061, subdivision (b)(3)).

SECTION 3:
The City Clerk shall certify to the adoption of this Resolution and enter it into the book of original resolutions.

PASSED, APPROVED AND ADOPTED this 5th day of September, 2017.

PAULA PEROTTE
MAYOR

ATTEST:

DEBORAH LOPEZ
CITY CLERK

APPROVED AS TO FORM:

WINNIE CAI
DEPUTY CITY ATTORNEY

2. PLAN PURPOSE AND AUTHORITY

Authority to create this Plan is derived from the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Public Law 93-288), as amended by the Disaster Mitigation Act of 2000 (DMA 2000). The requirements and procedures for mitigation plans are found in the Code of Federal Regulations (CFR) at Title 44, Chapter 1, Part 201 and the associated Interim Final Rule changes. The federal law and associated rule changes and regulations establish planning and funding criteria for states and local communities.

Enhance Public Awareness and Understanding – to help residents of the City better understand the natural hazards that threaten safety and welfare; economic vitality; and the operational capability of critical infrastructure;

Create a Decision Tool for Management – to provide information that managers and leaders of local government, business and industry, community associations, and other key institutions and organizations need to take action to address vulnerabilities to future disasters;

Promote Compliance with State and Federal Program Requirements – to ensure that the City of Goleta can take full advantage of state and federal grant programs, policies, and regulations that encourage or mandate that local governments develop comprehensive hazard mitigation plans;

Enhance Local Policies for Hazard Mitigation Capability – to provide the policy basis for mitigation actions that should be promulgated by participating jurisdictions to create a more disaster-resistant future; and

Provide *Inter-Jurisdictional Coordination of Mitigation-Related Programming* – to ensure that proposals for mitigation initiatives are reviewed and coordinated among the participating jurisdictions within the County.

Achieve *Regulatory Compliance* – To qualify for certain forms of federal aid for pre- and post-disaster funding, local jurisdictions must comply with the federal DMA 2000 and its implementing regulations (44 CFR Section 201.6). DMA 2000 intends for hazard mitigation plans to remain relevant and current. Therefore, Local plans (including the City of Goleta's) are updated every five years. This means that the Hazard Mitigation Plan for Santa Barbara County and the City of Goleta uses a "five-year planning horizon". It is designed to carry the County and its participating jurisdictions, including the City of Goleta, through the next five years, after which its assumptions, goals, and objectives will be revisited and the Plan resubmitted for approval. Section 7 details specific goals and objectives with regard to implementing mitigation activities over the life of this Plan. In Section 8, the City of Goleta has outlined a more aggressive approach to ensuring the Plan is implemented, evaluated, monitored and updated.

3. PLANNING PROCESS

i. Overview

The planning process implemented for updating the Santa Barbara County Multi-jurisdictional Hazard Mitigation Plan (HMP) utilized two (2) different planning teams. The first team is the Mitigation Advisory Committee (MAC) and the second is the Local Planning team. All eight (8) incorporated cities (including the City of Goleta,) joined the County of Santa Barbara in the

preparation of this Multi-Jurisdictional Hazard Mitigation Plan. Each of the participating jurisdictions had representation on the MAC and was responsible for the administration of their own Local Planning Team.

The planning process followed the concepts and principles outlined in the Comprehensive Preparedness Guide (CPG) 101. Both the MAC and the Local Planning teams focused on these underlining philosophies:

Focus on the mitigation strategy: The mitigation strategy is the plan's primary purpose. All other sections contribute to and inform the mitigation strategy and specific hazard mitigation actions.

Process is as important as the plan itself: In mitigation planning, as with most other planning efforts, the plan is only as good as the process and people involved in its development. The plan should also serve as the written record, or documentation, of the planning process.

This is the community's plan: To have value; the plan must represent the current needs and values of the community and be useful for local officials and stakeholders. Develop the mitigation plan in a way that best serves your community's purpose and people.

Intent is as important as Compliance: Plan reviews will focus on whether the mitigation plan meets the intent of the law and regulation; and ultimately that the plan will make the community safer from hazards.

The planning process for the Santa Barbara County Multi-jurisdictional Hazard Mitigation Plan (HMP) incorporated the following steps:

Plan Preparation:

- Form/Validate planning team members
- Establishing common project goals
- Setting expectations and timelines

Plan Development

- Validate and revise the existing conditions/situation within planning area; the *Capabilities Assessment and Hazard Assessment Sections* in the HMP
- Develop and review the risk to hazards (exposure and vulnerability) within the planning area; the *Vulnerability Assessment Section* in the HMP
- Review and identify mitigation actions and projects within the planning area; the Mitigation Strategy in the HMP

Finalize the Plan

- Review and revise the plan
- Approve the plan
- Adopt and disseminate the plan

Throughout this process, and though other standard practices, opportunities for public involvement was offered and encouraged. More details about public engagement are provided under Section 3.4.

The MAC team was guided through the planning process; and as material was shared and decisions were made, it was the MAC team's responsibility to bring these findings back to their

Local Planning Team. Below is a summary of the collaborative planning process of the MAC and Local Planning team.

During the 2017 update of the HMP, the MAC reviewed several other plans, utilized the information provided, and cross referenced where applicable; including:

- 2011 Santa Barbara County Multi-Jurisdictional Hazard Mitigation Plan
- 2013 Santa Barbara County Emergency Management Plan
- 2009 Santa Barbara County Comprehensive Plan-Safety Element
- 2016 Santa Barbara County Operational Area THIRA
- 2013 California Enhanced Hazard Mitigation Plan
- 2015 Ventura County Hazard Mitigation Plan
- 2014 San Luis County LHMP

ii. Mitigation Advisory Committee (MAC)

The Mitigation Advisory Committee (MAC) is a standing committee that works together throughout the year to discuss and provide input on a variety of activities. The MAC provides an opportunity for neighboring communities to be part of the planning process. This includes local and regional agencies involved in hazard mitigation, including floodplain administrators and special districts. The MAC is led by Santa Barbara County Office of Emergency Management and has representation from all of the local jurisdictions, as well as County Departments and CalOES.

The MAC was utilized for the updating of the Santa Barbara County Multijurisdictional Hazard Mitigation Plan. To assist with this effort Santa Barbara County Office of Emergency Management hired a consultant to support and assist each jurisdiction with their Local Hazard Mitigation Plan; contained as an annex in the Santa Barbara County Multijurisdictional Hazard Mitigation Plan.

Table 3.1 Members of the 2017 Mitigation Advisory Committee

Name	Organization	MAC Member Status
Michael Dyer	Santa Barbara County – Emergency Manager	New Member
Shannon McCrone	Santa Barbara County – Emergency Services Planner	New Member
Robert Troy	Santa Barbara County – Deputy Director Emergency Management	New Member
Tylor Headrick	Santa Barbara County- GIS/Emergency Services Planner	New Member
Rob Hazard	Santa Barbara County Fire – Battalion Chief	New Member
Rudy Martel	Santa Barbara County Agricultural Commissioner	New Member
Joyce Tromp	Santa Barbara County Flood Control	New Member
Jon Frye	Santa Barbara County Flood Control	New Member
Jan Koegle	Santa Barbara County Health	Returning Member
Marc Bierdzinski	City of Buellton – City Manager/Planning Director	Returning Member
Mimi Audelo	City of Carpinteria – Program Manager	New Member
Claudia Dato	City of Goleta – Senior Project Manager (Public Safety)	Returning Member
Gary Hoving	City of Guadalupe – Public Safety Director	New Member
Kurt Latipow	City of Lompoc – Fire Chief	New Member
Yolanda McGlinchey	City of Santa Barbara – Emergency Services Manager	Returning Member
Roy Dugger	City of Santa Maria – Emergency Preparedness Coordinator	Returning Member
Lisa Martin	City of Solvang	New Member
Yvette LaDuke	Cal OES – Emergency Services Coordinator	New Member
Andrew Petrow	Consultant	New Member

The MAC meetings were arranged and scheduled to follow the planning process steps outlined in Section 3.1. Each meeting was designed to walk the MAC members through sections of the Santa Barbara County Multijurisdictional Hazard Mitigation Plan and annexes. In addition to reviewing and validating material, the intent was to also educate MAC members on the planning process and purpose of each section. By taking this step it will help ensure that each MAC member could bring this knowledge back to their Local Planning Teams. The table below provides a list and the main purpose of each of the MAC meetings.

Table 3.2 Mitigation Advisory Committee (MAC) Meetings Summary

Date	Purpose
April 2015	**Kick Off (in person)** • Reviewed and discussed the hazards in the Plan; including initial ranking. • Each jurisdiction was asked to review their previous goals and objectives with a local planning team.
December 2015	**MAC Meeting (in person)** • Recap of previous MAC meeting • Goal of the project • Understanding of HMP update requirements • Validation of team members • Proposed Planning Process • Review of Capabilities Assessment Section
January 2016	**MAC Meeting (conference call)** • Recap of previous MAC meeting • Review of Capabilities Assessment Section • Discussion of public outreach efforts • Preparation for next MAC meeting
February 2016	**MAC Meeting (in person)** • Recap of previous MAC meeting • Review of Hazard Assessment Section • Presentation of Vulnerability Assessment results • Discussion of public outreach efforts • Preparation for next MAC meeting
March 2016	**MAC Meeting (conference call)** • Recap of previous MAC meeting • Review of Capabilities Assessment and Vulnerability Assessment Sections • Preparation for next MAC meeting
April 2016	**MAC Meeting (in person)** • Recap of previous MAC meeting • Initial discussion of mitigation projects and actions
May 2016	**MAC Meeting (conference call)** • Recap of previous MAC meeting • Discussion of mitigation actions and projects • Discussion of update process • Preparation for next MAC meeting
June 2016	**MAC Meeting (in person)** • Recap of previous MAC meeting • Discussion of mitigation actions and projects • Discussion of update process

iii. City of Goleta Local Planning Team

A Local Planning Team was created to review and arrive at a consensus relating to the implementation of the Goleta Annex of the Hazard Mitigation Plan. The team was created from key management and supervisory staff. Meetings of the Local Planning Team were conducted to review the existing Hazard Mitigation Plan, update the capabilities and hazard assessments, and discuss existing, recurring, or new mitigation strategies. This Annex was developed as a city-wide hazard mitigation plan focusing on collaboration to implement mitigation strategies throughout the City of Goleta, while maintaining accountability to identify and track specific mitigation actions.

Each of the following sections detail the methodologies for development and updates since the 2011 Plan. The *Capability Assessment* (Section 4) has been updated to reflect changes in city departments and organizational structure. As necessary, the discussions of local planning documents have been revised to reflect updates since 2011.

The *Hazard Assessment,* detailed in Section 5, presents the methodology in which the Local Planning team reviewed the previously identified hazards and discussed revisions to their prioritization. A profile for each hazard is included which summarizes the type of hazard, location and extent, history of past occurrences, and probability of future occurrences. The hazard identification and ranking documented in this section form the foundation for prioritizing mitigation actions.

The Local Planning team reviewed the previous *Mitigation Strategy* and reported on progress made in implementing the listed actions. In addition, based on updates to the hazard identification, profiles, vulnerability assessments, and the capability assessment new mitigation actions were identified. The progress report and new mitigation actions are presented in the updated *Mitigation Strategy* (Section 7).

The Local Planning team held regular meetings and continually worked on the Plan. The Local Planning team coordinated and consulted with other entities and stakeholders to identify and delineate natural hazards within the City to assess the risks and vulnerable property in identified hazard areas. From the start, every attempt was made to establish an open public process to provide an opportunity for all sectors of the overall community to be involved in the planning process. Most of the public input was sought through social media outlets, such as Nextdoor, Facebook, City Gov Delivery email notifications seeking comments related to the plan, and the City's website. There were also social media notices, press releases and website notices regarding locations to review the Plan. The City's social media followers have grown substantially over the past few years creating a successful platform for sharing information. The City also co-hosted a meeting at the Goleta Community Center to solicit public input on the Plan. In some cases direct public input was successful and in others the residents were represented in the process by their jurisdictions staff, by necessity.

Table 13.3 lists the City of Goleta Local Planning Team. These individuals collaborated to identify the City's critical facilities, provide relevant plans, report on progress of City mitigation actions and provide suggestions for new mitigation actions.

Table 3.3 City of Goleta Local Planning Team 2016

Name	Title/Department	Responsibility
Vyto Adomaitis	Director of Neighborhood Services & Public Safety	Emergency Preparedness, Operations and Disaster Planning
Claudia Dato	Senior Project Manager (Neighborhood Services & Public Safety Department)	Special Projects Management
Rosemarie Gaglione	Public Works Director	Public Works, Engineering City Engineer
Kathy Garcia	Deputy Public Works Director	Public Works, Engineering
James Winslow	Senior Project Engineer (Public Works)	Public Works, Engineering Capital Projects
Teresa Lopes	Senior Project Engineer (Public Works)	Public Works, Engineering Capital Projects
Anne Wells	Advanced Planning Manager (Planning and Environmental Review Department)	Planning/Zoning/Building General Plan/Coastal Land Use Plan
Dennis Loyst	JDL Mapping	Contract Mapping and GIS
Tim Giles	City Attorney	Legal Review

The City of Goleta Local Planning Team (LPT) met as needed during the planning process to discuss data collection, identify mitigation projects that have been implemented or completed since the 2011 Plan Update, and to identify new projects needed for the coming five year period. In addition, electronic communication was conducted with the LPT during the course of the Plan Update as needed. The draft Plan was also distributed to the LPT electronically for final review and comment before submitting to the County of Santa Barbara.

Table 3.4 City of Goleta Internal Collaboration Meetings Summary

Meeting Dates	Summary of Discussions
2/3/2016	Discussion of critical facilities, status of 2011 mitigation projects and future mitigation measures.
2/9/2016	Discuss plans and other hazards assessment completed since 2011 (e.g. 2015 Coastal Hazards Vulnerability Assessment) and updating all the maps.
6/10/2016 6/15/2016	Discuss mapping and critical facilities updates.

iv. Public Outreach/Involvement

There were two different Public Outreach campaigns used during the Santa Barbara County Multijurisdictional Hazard Mitigation Plan update process: the first informing the Community of HMP Update, and the second educating the Community of Hazards. The second campaign (educating of the Community of Hazards) is an ongoing campaign that was leveraged during the Santa Barbara County Multijurisdictional Hazard Mitigation Plan update process.

In July 2015, Santa Barbara County Office of Emergency Management issued a press release (in Spanish and English) announcing the commencement of the hazard mitigation planning process. This announcement invited the public to notify the County of their interest to participate in the planning process or submit comments. Also in July 2015, an online survey was distributed county-wide to solicit public input regarding the concern for risk to natural hazard events and suggestions for how local government could minimize the risk. The City of Goleta notified residents and businesses of the opportunity to participate in the survey through a press release and sending an email to past graduates and present enrollees of the City's Community Emergency Response Team (CERT) training program. Survey results are summarized below.

In January 2016, the City issued another press release asking for public comments related to the update of this Plan. In response to the press release, the City did receive one detailed comment letter. Copies of the City's outreach materials and the comment letter are included in Section 11.8 (Appendix) Attachment 2: Outreach Materials and Attachment 3: Comments.

Additionally, final drafts of the Santa Barbara County Multijurisdictional Hazard Mitigation Plan, Goleta Annex were also made available to the public on the Aware and Prepare Website and additional comments were solicited through a public workshop held at the Goleta Community Center on July 15, 2016. Hard copies were made available to the public at the Goleta City Hall. Input from the public was presented to both the MAC and the Local Planning Team for consideration of incorporation into the HMP.

Ongoing Public Outreach

The City of Goleta utilizes several platforms to educate the public about hazards in the community, relevant programs to safeguard and protect themselves from disaster, and actions they can take to prepare themselves for events. Below is a list of the different platforms used and a brief summary of the some of the programs:

- Aware and Prepare Website
- Social Media (Facebook, Twitter)
- Meetings/Workshops
- Public Service Announcements- radio and television
- Public Surveys
- Community Emergency Response Team Training (CERT) and CERT Graduate Newsletters
- Monthly Community Online Newsletter, *The Monarch Press*

Survey Results

Of the 220 people who responded to the survey Countywide, nearly 12% or 26 respondents said they live in the City of Goleta. The survey respondents identified wildfire, earthquake, the drought and climate change as the hazards of primary concern. Previously flooding and tsunami were significant concerns; drought and climate change did not make the prior list of hazards people were concerned about. With the prolonged drought affecting the region, the perceived hazards concerns have shifted as a result. Despite the survey responses, the City of Goleta's Local Planning Team still deemed flooding as a significant planning consideration, especially given the high rain predictions in association with the strong El Nino system (although as of yet, significant rain totals have yet to materialize). The responses regarding hazard concerns will help the City improve messaging and outreach efforts regarding realistic risk of these hazards. The table below identifies survey responses to the question of what hazards are of most concern to your neighborhood or home:

Hazards of Most Concern	**Number of Responses**	**Percentage of Respondents**
Earthquake	154	72%
Wildfire	147	69%
Drought	146	68%
Climate Change	59	28%
Flooding (including Coastal Surge)	48	22%
Agriculture (pests and disease)	38	18%
Tsunami	27	13%
Landslide/Coastal Erosion	23	11%
Dam Failure	11	5%

More than 70% of the survey respondents indicated they have made improvements to their property to reduce risk of damage. The majority of these respondents has implemented and/or maintain defensible space around their properties to reduce damage from wildfires. Others have retrofitted their roofs using fire resistant materials; have performed seismic retrofits; have strengthened openings; have installed fire sprinklers; or have installed backflow prevention devices. The results of the survey provide valuable information for the City of Goleta as it continues in its mitigation efforts. These responses may be used as a bench mark for future measurements of improvement. For example, the City may choose to focus on educational outreach about what homeowners and renters can do to reduce future damage from natural hazards. After this type of implementation, a similar survey may be administered to validate the progress and confirm that more residents have implemented mitigation practices.

Respondents were asked what they are doing to their property or within their home to reduce future damage from the hazards identified above. Below is a summary of responses:

Property Mitigation	**Number of Responses**	**Percentage of Respondents**
Defensible space landscaping (clear vegetation around house to reduce wildfire risk)	85	71%
Roof retrofit using fire resistant materials	35	29%
Strengthened openings (Doors, windows, and/or garage door to reduce high-hazard wind risk)	29	24%
Seismic retrofit of the structure and/or foundation	21	18%
Installed backflow prevention device(s)	17	14%
Installation of fire sprinklers	17	14%
Installation of fire hydrant or above ground water storage tank	9	8%
House elevation or first floor modification to prevent flood damage	2	2%

Respondents were asked if a severe hazard event occurred today, such that all services were cut off from their home and they were unable to leave or access a store for 72 hours, which items they would have readily available. Below is a summary of responses from Goleta respondents:

Item that is Readily Available	**Number of Responses**	**Percentage of Respondents**
Can Opener	189	94%
Flashlight (with batteries)	172	86%
First Aid Kit/Supplies	174	87%
Cooking and eating utensils	178	89%
Canned / Non-perishable Foods (ready to eat)	163	81%
Blanket(s)/ Sleeping Bag(s)	165	82%

Item that is Readily Available	Number of Responses	Percentage of Respondents
Gas grill / Camping stove	138	69%
Extra Clothes and Shoes	151	75%
Extra Medications	122	61%
Portable AM/FM Radio (solar powered, hand crank, or batteries)	119	59%
Potable Water (3 gallons per person)	127	63%
Telephone (with batteries)	110	55%
Cash	95	47%
Pet Supplies	97	48%
Important Family Photos/Documentation in a water and fire proof container	54	27%
Handheld "Walkie-Talkie" Radios (with batteries)	55	27%
Gasoline	44	22%

Respondents were asked if they have a plan for evacuating large animals and pets. Below is a summary of responses:

- **72**, or **35%** of respondents, answered that they **have a plan for evacuating their pets (cats, dogs, etc).**
- **5**, or **2%** of respondents, answered that they **have a plan for evacuating large animals (horses, cows, etc).**
- **27**, or **13%%** of respondents, answered that **they have pets but have not planned for their evacuation.**
- **3**, or **1%** of respondents, answered that **they have large animals but have not planned for their evacuation.**
- **99**, or **48% of respondents,** answered that **they have no large animals or pets.**

Respondents were asked if they are familiar with the special needs of their neighbors in the event of a disaster situation. Below is a summary of responses:

- 82, or **40%** of respondents, indicated that they **are familiar with the special needs of their neighbors**.
- 123, or **60%** of respondents, indicated that they **are not** familiar with the special needs of their neighbors.
- 24 respondents skipped this question.

Respondents were asked if they are a trained member of their Community Emergency Response Team (CERT). Below is a summary of responses:

- 48, or **24 %** of respondents, indicated that **they are part of CERT**.
- 81, or **41%** of respondents, indicated that **they are not a part of CERT, but would like to learn more about CERT.**
- 70, or **35%** of respondents, indicated that **they are not interested in being a trained CERT**.
- 30 respondents skipped this question.

Respondents were asked what the most important thing local government can do to help communities be more prepared for a disaster. Below is a summary of responses:

Things Local Government can do to help prepare	**Number of Responses**	**Percentage of Respondents**
Disseminate effective emergency notifications and communication	160	82%
Community outreach regarding emergency preparedness	129	66%
Make a plan to use volunteer residents to help in a disaster	106	54%
Provide training and education to residents and business owners on how they can reduce future damage	109	56%
Being aware of special needs and vulnerable populations	96	49%
Skipped Question	33	14%

Respondents were asked if they live in an apartment building or home with a living space above a garage or parking area.

- 163, or **81.5%** of respondents, indicated that they **do not** live in an apartment or home with living space above a garage or parking area.
- 37, or **18.5%** of respondents, indicated that they **do** live in an apartment building or home with living space above a garage or parking area.
- 29 respondents skipped this question.

Those respondents who indicated that they do live in an apartment building or home with living space above the garage or parking area were asked to describe their level of concern for the building to collapse in a large earthquake event:

- 7 respondents or 4% indicated that they are "Extremely Concerned"
- 13 respondents or 7% have a "High Concern"
- 29 respondents or 15% have a "Moderate Concern"
- 22 respondents or 12% indicated that they have "Little Concern"
- 15 respondents or 8% indicated that they have "No Concern, I feel safe in my home"
- 102 respondents or 54% indicated the questions was not applicable and 41 respondents or 18% skipped this question

Respondents who are homeowners were asked if they have adequate homeowners insurance to cover the hazards that could impact their home. Below is a summary of responses:

Answer	Number of Responses	Percentage of Respondents
Yes, my insurance coverage should be adequate	93	48%
No, I don't believe my insurance coverage would be adequate for a major disaster	20	10%
Unsure	22	11%
I do not have an insurance policy	4	2%
Not applicable, I rent my current residence	55	28%
Skipped Question	35	15%

Respondents who are renters were asked if they have renter's insurance. Below is a summary of responses:

Answer	Number of Responses	Percentage of Respondents
Yes	32	16%
No	32	16%
Not applicable, I own my residence.	130	67%
Skipped Question	35	15%

Respondents were asked if they have earthquake insurance. Below is a summary of responses:

Answer	Number of Responses	Percentage of Respondents
Yes, I own my home and have earthquake insurance.	43	23%
Yes, I rent my home and have earthquake insurance.	9	5%
No, but I am interested in reviewing earthquake insurance options. (http://www.earthquakeauthority.com)	26	14%
No, earthquake insurance is too expensive.	89	47%
No, I do not need earthquake insurance.	22	12%
Skipped Question	40	17%

Respondents were asked if they have flood insurance. Below is a summary of responses:

Answer	Number of Responses	Percentage of Respondents
Yes, I own my home and have flood insurance.	27	15%

Answer	Number of Responses	Percentage of Respondents
Yes, I rent my home and have flood insurance.	7	4%
No, but I am interested in reviewing flood insurance options. (http://www.floodsmart.gov/floodsmart/)	25	14%
No, I do not need flood insurance	126	68%
Skipped Question	44	19%

Respondents were asked if they work in Santa Barbara County:

- 161, or **83%** of respondents, indicated that they **do** work in Santa Barbara County.
- 33, or **17%%** of respondents, indicated that they **do not** work in Santa Barbara County.
- 35, or 15% of the respondents, skipped this question.

Respondents were asked if their place of work is in an area susceptible to natural hazards. Below is a list of natural hazards and responses from survey respondents:

Natural Hazard	Number of Responses	Percentage of Respondents
Earthquake fault zone	64	39%
High-risk flood zone	19	12%
Landslide Risk Area	12	7%
Wildland urban interface (wildfire risk area)	43	26%
Liquefaction zone	13	8%
Sea level rise area	20	12%
I don't know	75	46%
Skipped Question	66	28%

Respondents were asked: Does your employer have a workforce communication plan to implement following a disaster so they may contact you?

- 111, or **64%** of respondents, **indicated that their employer does have a workforce communication plan to implement following a disaster.**
- 20, or **11%** of respondents, **indicated that their employer does have a workforce communication plan to implement following a disaster.**
- 43, or 25% of respondents, were **unsure** if their employer has **a workforce communication plan to implement following a disaster**.
- 55 respondents skipped this question.

Respondents were asked what recommendations they have for Santa Barbara County and the incorporated cities to improve identification, prioritization, and implementation of actions intended to reduce future damage and increase resiliency. The following recommendations were received:

Recommendations for Santa Barbara County	Number of Responses	Percentage of Respondents
Provide training and materials on how residents can be prepared for the identified risks	128	76%
Perform outreach to ensure people are aware of their environment and the inherent risks	123	73%
Enforce/update building codes	91	54%
Skipped Question	60	26%

Respondents were asked to recommend any companies or local associations that should be involved in the Santa Barbara County hazard mitigation planning process. The following contacts were given:

- Forest Service
- Direct Relief International
- Goleta Community Center
- Encina Royale
- Community Awareness and Emergency Response (CAER)

Respondents were asked if they would like to review and comment on a draft of their jurisdictions annex to the Multi-Jurisdictional Multi-Hazard Mitigation Plan.

- 71, or **38%** of respondents **said they would** like to review and comment on the draft plan.
- 117, or **62%** of respondents said **they would not** like to review and comment on the plan draft.
- 41, or 18% of respondents skipped this question.

The City of Goleta received one detailed comment letter in response to the City's press releases soliciting public comments. The comments in this letter are summarized below:

- In response to the question how would you prioritize the hazards facing the City: Priorities should be determined by doing a Pareto analysis, looking at the risk (life or property) and then prioritizing based on a mathematical product of the probability of incidence with the average cost of a loss.
- In response to the question of what actions can the City take to reduce future damages: Have volunteers help monitor and maintain clear creeks; provide keys to gates when necessary and official Goleta City vests so it's obvious this is an authorized access; and have the Fire Department respond to creek flooding if they can blast an obstruction free with their hose.
- In response to the question of how can local government officials better communicate risk to the public or information during an emergency event: Ensure adequate emergency backup for the cell phone system; set up a network of volunteers to respond to assist with neighborhood emergencies when Fire and Ambulance services are overloaded; provide umbrella insurance for situations not covered by Good Samaritan law (medical care is covered, but not rescue services -- People have been found liable when a rescue created more injury, as in the case where a girl was extracted from a car by someone thinking it was on fire (it was actually the airbag talc power) and further injured the victim).
- In response to the question of what measures have you taken to protect your property from hazards: Installed French drains for improved lot drainage; checked nearby creek for obstructions; laser checked elevation of house slab relative to street drains.

- In response to the question of what measures have you taken to prepare your family for an emergency: I have purchased emergency food kit; have stored 5 gallons of water in dark area; have stocked propane canisters for cooking; keep emergency camping gear and tools in my car; used a 1000 watt inverter off my car during electrical outages to keep my freezer at proper temperature; and removed any AC power surge arresters that lack thermal protection that didn't exist before 1995 IEEE standard.
- In response to the question of have you participated in Community Emergency Response Team (CERT) training and if not, would you like more information on the CERT Program: I went to Goleta Community Center for CERT training on a Saturday shown as an event in The Independent, but nobody was there and no cancellation notice was posted; I would like more (accurate) notices.

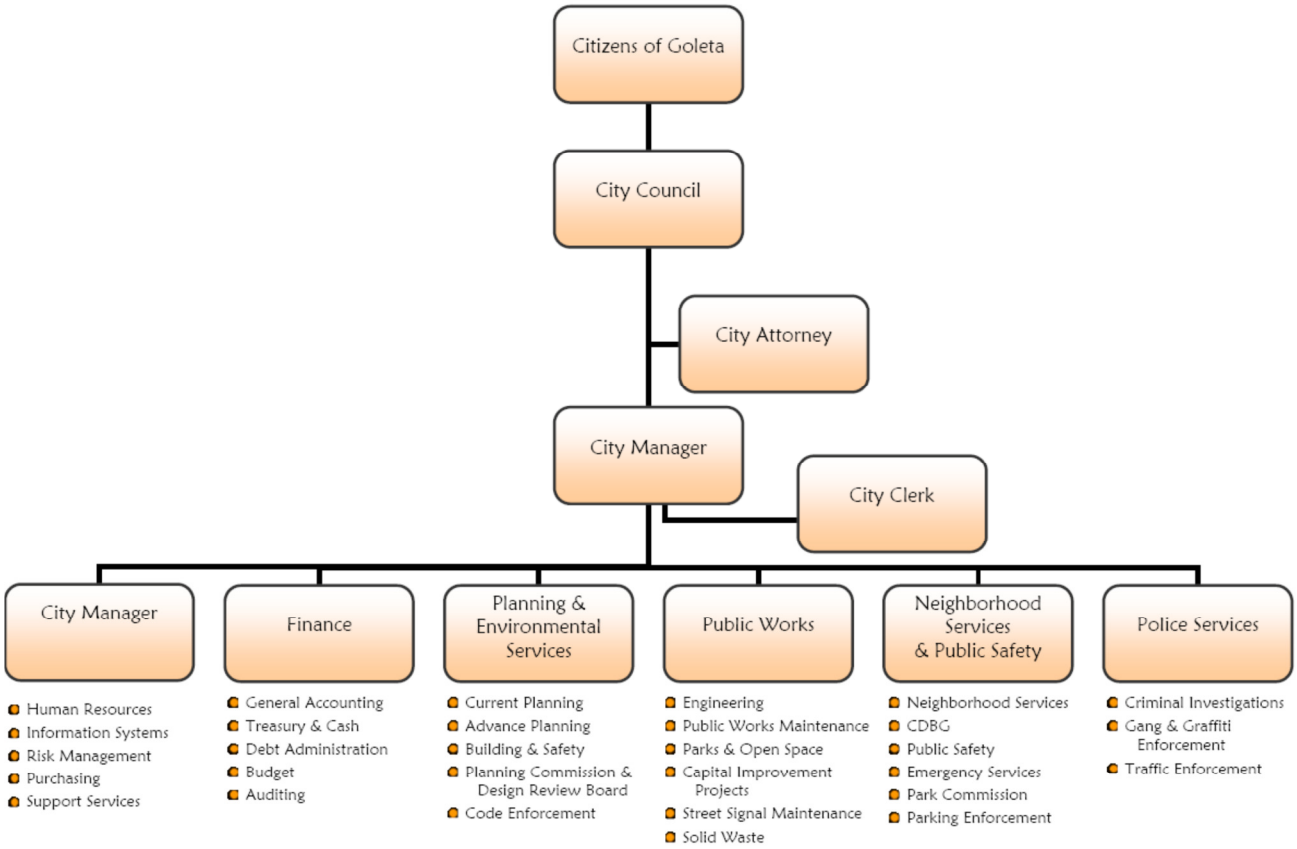
4. CAPABILITY ASSESSMENT

The City identified current capabilities and mechanisms available for implementing hazard mitigation activities. This section presents a discussion of the roles of key departments, administrative and technical capacity, fiscal resources, and summaries of relevant planning mechanisms, codes, and ordinances.

i. Key Departments

The following is a summary of existing departments in Goleta and their responsibilities related to hazard mitigation planning and implementation, as well as existing planning documents and regulations related to mitigation efforts within the community. Specific resources reviewed include those involving technical personnel such as planners/engineers with knowledge of land development and land management practices, engineers trained in construction practices related to building and infrastructure, planners and engineers with an understanding of natural, floodplain managers, surveyors, personnel with GIS skills and scientists familiar with hazards in the community. The organizational chart below presents the structure of the City's government:

City Organizational Chart



Goleta City Council

- Provides vision, adopts policies and regulations, and approves funding requests/budgets over all aspects of City government

Goleta City Manager's Office (Office of Emergency Services)

- Provides the leadership and supervision that, in turn, implements the policies and decisions of the Goleta City Council, thereby ensuring the delivery of services to the community.

- City Manager serves as OEM Director. As noted above, Goleta is a newer city still in the process of developing plans and programs including emergency response/management plans. The City Neighborhood Services and Public Safety Department is responsible for emergency preparedness and EOC operations and will be responsible for the implementation of emergency management programs for the City. Currently Police and Fire Services are contracted through the County. The Director of Neighborhood Services and Public Safety oversees the law enforcement (Sheriff's) and animal control contracts, and acts as the City's liaison to the County Fire District, and also serves as the Assistant Director of Emergency Services and Assistant OEM Director.

- Various staff within the City Manager's Office, Public Works Department and Neighborhood Services and Public Safety Department prepare grant applications for the City.

City of Goleta Finance Department

The Finance Department will have a role in the implementation of the actions identified in this plan:

Provides services associated with cost tracking and financial management of Grant Funded and other capital improvement projects.

Assures all aspects of City financing, funding, and expenditures are within legal, prescribed guidelines and regulations. The Department tracks and audits expenditures.

City of Goleta Planning and Environmental Review Department (includes Building Inspection and GIS)

- The Department is responsible for updating the City's General Plan and Coastal Land Use Plan.
- Guides the physical development of the City through the implementation of the General Plan/Coastal Land Use Plan and Building Codes and is committed to enhancing the quality of life in the community by planning for sound infrastructure and public services, protecting the environment, and promoting high quality social and economic growth.
- Enforces the Goleta Zoning Ordinances and Municipal Code (brush removal, building regulations, fire prevention, flood management, development along watercourses, oil and petroleum wells).
- Implements and/or enforces programs, plans, ordinances, and policies of the City over a wide range of activities related to code enforcement.
- Regulates land uses and land development in accordance with plans, policies, and regulations adopted by the City Council. Enforces local, State, and federal requirements for land development, building construction, and specific uses. Recommends additions and revisions to existing ordinances, plans, and policies when necessary.

Public Works/Engineering/Parks and Open Space Maintenance

- Enforces Floodplain Management Ordinance
- Oversee flood control and infrastructure development and improvement projects
- Provides a variety of engineering services including the review and inspection of privately constructed public facilities, infrastructure, and subdivisions; design and inspection of publicly funded infrastructure improvements; management and monitoring of existing and projected traffic conditions throughout the City; preparation of the City's long-term Capital Improvement Program. Engineering also provides fiscal management for the City's Parks and Open Space Maintenance, Community Facility Districts, and Development Impact Fees (currently only transportation impact).
- Implements and enforces programs, plans, policies, and regulations over land development and redevelopment in order to assure adequate and maintainable infrastructure.
- Public Works Department, Public Works Operations provides support in disaster emergencies.

City of Goleta Public Safety – Police Services

- Through a contract with the County, the Sheriff's Department protects the community through the enforcement of laws and the analysis/reduction/ elimination of risks and, in times of emergency, provides for the orderly and rapid implementation of emergency plans. The Sheriff's Department is a first responder in natural and manmade emergencies.

City of Goleta Public Safety - Fire Services

- Through a contract with the Santa Barbara County Fire Protection District, the Fire Department serves and safeguards the community through a professional, efficient and effective system of services, which protect life, environment, and property.
- Implements programs, policies, and regulations over a wide range to reduce the loss of life, environment, and property. The Fire Department is a first responder in natural and manmade emergencies.

ii. Administrative and Technical Capacity

The administrative and technical capabilities of Goleta, as shown in Table 11-3, provides an identification of the staff, personnel, and department resources available to implement the actions identified in the mitigation section of the Plan.

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Table 13 - City of Goleta: Administrative and Technical Capacity

Staff/Personnel Resources	Y/N	Department/Agency and Position
A. Planner(s) or engineer(s) with knowledge of land development and land management practices	Y	Planning & Environmental Review/ All Staff Public Works Dept./ City Engineer, Principal Civil Engineer and CIP Manager, Neighborhood Services, & Public Safety Dept./Analysts
B. Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Y	Public Works Dept./ City Engineer, Principal Civil Engineer and CIP Manager Planning & Environmental Review/Building Staff
C. Planners or Engineer(s) with an understanding of natural hazards	Y	Public Works Dept./City Engineer, Principal Civil Engineer and CIP Manager Planning & Environmental Review/ Advanced Planning Building Staff
D. Floodplain manager	Y	Public Works Dept./ City Engineer
E. Surveyors	Y	Contract Services
F. Staff with education or expertise to assess the community's vulnerability to hazards	Y	Public Works Dept./ City Engineer, Principal Civil Engineer and CIP Manager Planning & Environmental Review/ Advanced Planning and Building Staff Neighborhood Services and Public Safety Dept./ Director
G. Personnel skilled in GIS	Y	Planning & Environmental Review/General Plan Manager
H. Scientists familiar with the hazards of the community	N	
I. Emergency manager	Y	City Manager and, Neighborhood Services and Public Safety Director

Staff/Personnel Resources	Y/N	Department/Agency and Position
J. Grant writers	Y	City Manager's Office/Admin. Asst. and Management Asst. Public Works Dept./ Project Manager Neighborhood Services and Public Safety Dept./ Management Analyst

iii. Legal and Regulatory Capabilities

The legal and regulatory capabilities of Goleta are shown in Table 11-4, which presents the existing ordinances and codes that affect the physical or built environment of Goleta. Examples of legal and/or regulatory capabilities can include: the City's building codes, zoning ordinances, subdivision ordinances, special purpose ordinances, growth management ordinances, site plan review, General Plans, Coastal Land Use Plans, capital improvement plans, economic development plans, emergency response plans, and real estate disclosure requirements.

Table 11-4
City of Goleta: Legal and Regulatory Capability

Regulatory Tools (ordinances, codes, plans)	Local Authority (Y/N)	Does State Prohibit? (Y/N)
A. Building code	Y	N
B. Zoning ordinance	Y	N
C. Subdivision ordinance or regulations	Y	N
D. Special purpose ordinances (floodplain management, storm water management, hillside or steep slope ordinances, wildfire ordinances, hazard setback requirements)	Y	N
E. Growth management ordinances (also called "smart growth" or anti-sprawl programs)	N	N
F. Site plan review requirements	Y	N
G. General Plan	Y	N
H. Coastal Land Use Plan	N*	N
I. A capital improvements plan	Y	N

Regulatory Tools (ordinances, codes, plans)	Local Authority (Y/N)	Does State Prohibit? (Y/N)
J. An economic development plan	Y	N
K. An emergency response plan (Fire, O/G Facilities)	Y	N
L. A post-disaster recovery plan	N	N
M. A post-disaster recovery ordinance	N	N
N. Real estate disclosure requirements (floodplain, airport/noise, contaminated sites)	Y	N

* California Coastal Commission has authority

iv. Fiscal Resources

Table 11-5 shows specific financial and budgetary tools available to Goleta such as community development block grants; capital improvements project funding; authority to levy taxes for specific purposes; impact fees for homebuyers or developers for new development; ability to incur debt through general obligations bonds and others.

The Fiscal Year 2015-2016 General Fund budget included over $36.8 million for General Government, Administrative Services, Public Safety Planning and Environmental Services and Community Services. The General Fund balance is an important element that can show Goleta's financial strength.

Table 11-5
City of Goleta: Fiscal Capability

Financial Resources	Accessible or Eligible to Use
A. Community Development Block Grants (CDBG)	Yes
B. Capital improvements project funding	Yes - With Council approval
C. Authority to levy taxes for specific purposes	Yes - With 2/3 voter approval
D. Fees for water, sewer, gas, or electric service	No – Provided by Special Districts
E. Impact fees for homebuyers or developers for new developments/homes	Yes
F. Incur debt through general obligation bonds	Yes - With 2/3 voter approval
G. Incur debt through special tax and revenue bonds	Yes - With 2/3 voter approval
H. Redevelopment funding	Yes – With Agency approval
I. Other – Other Grants	Yes

v. Relevant Plans, Policies, and Ordinances

It is important to note that during the LPT update planning process the following plans, programs, codes, and policies were evaluated to determine their effectiveness in risk education and reduction efforts, as well as, its usefulness to implement mitigation measures. Any shortfalls or areas where the plans, programs, codes, and policies could be improved or expanded were identified and captured under annual review, the annual planning process and Mitigation Actions chapter of this plan. If no mitigation actions were identified, then it can be assumed that the LPT determined that no shortfalls or areas for improvement are needed.

1. City of Goleta Economic Development Strategic Plan

Goleta's Economic Development Strategic Plan ("EDSP") seeks to accomplish two primary goals: job creation and job retention. It attempts to leverage local strengths and capitalize on local opportunities. Its goals are to create a diverse employment base and a balanced approach to economic development; to establish a plan to increase tourism; to improve access to financial capital and human resources; to establish the City of Goleta as a green tech and sustainable community; to increase and expand local partnerships; to continue to improve and enhance the City's permitting process; and to focus economic development on Old Town and update the Old Town Revitalization Plan. The Plan also guides decisions related to land use and economic development and outlines strategies to retain, enhance and expand the City's business base.

Amongst the many themes within the General Plan, *Protecting Health and Safety* is most relevant toward striving to maintain the environments necessary to minimize health and safety hazards -- including hazardous materials, flooding, geological hazards, and excessive noise. Similar to the Strategic Plan, the Economic Development Plan acknowledges the need to re-invest in order to revitalize Old Town. Its goal is to secure funding to complete the San Jose Creek Flood Control Channel, since the existing infrastructure inhibits economic development efforts. Moreover, it justifies such an investment by proposing that the additional loan, insurance costs, and requirements create a difficult re-investment environment. The Economic Plan also emphasizes the need to work with the County Flood Control District to explore additional funding options to create improvements to the San Jose Flood Control Channel and other similar projects.

In summary, by providing an economic perspective on the need to reduce areas susceptible to hazards – such as floods - greater impetus may be delivered for the funding of such mitigation projects. This would result in a more attractive economic environment, which would in turn result in the revitalization of Old Town. Some of the mitigation actions proposed in this Hazard Mitigation Plan are directed at removing the commercial and industrial areas of Old Town from the flood zones which will assist property owners in getting funding for property improvements.

2. City of Goleta Emergency Operations Plan and Threat Analysis

The City of Goleta recognizes that the planning process must address each hazard that threatens the city. There are three broad categories of hazards: natural, technological or man-made and national security. The section of the Goleta NIMS-SEMS Emergency Operations Plan consists of a series of threat assessments, which individually or jointly could require evacuation and/or sheltering of the population. They are:

Major Earthquake. Within the larger jurisdictional area of Santa Barbara County - which includes the City of Goleta- there are numerous faults that are located both on- and off-shore. The economic impact on the City would be considerable in terms of loss of employment and loss of tax base. Expected ramifications include long-term homelessness, significant disruptions to business and local commerce, and reduced government resources. Damages are expected along Highway U.S. 101, State Route-154, Highway 150, Santa Barbara airport, local railroads and harbor facilities, and other critical facilities and utilities.

When notified of a short term earthquake prediction, the area at risk is responsible to inform all cities within the County. (A notification procedure is listed in the EOP). Resources would then be concentrated to this area. Agencies would inspect and prepare those facilities and systems which are essential to conduct emergency operations, advice and provide guidance to the public on precautions, and take any other precautions necessary.

Hazardous Material. The increasing volume and variety of hazardous materials that are generated, stored, or transported within Santa Barbara County is a problem of great concern to public officials and the community. The threat of a major hazardous material incident in Santa Barbara County exists from four different sources. These are commercial vehicle, rail and air transportation, pipeline, fixed facility, and clandestine dumping. With regards to emergency response actions, the authority is vested in the Santa Barbara County Certified Unified Program Agency, CUPA, which is the agency responsible for the development and implementation of the Santa Barbara County Hazardous Materials Emergency Response Plan. The Santa Barbara County Area Plan includes information on agency responsibilities, evacuation procedures, cleanup funding, emergency medical resources, as well as an inventory on supplies and communications equipment.

Flooding. The Goleta Valley is subject to flooding from overflow of local streams, which along with their respective evacuation routes are identified through flood maps. Although there are nine major dams in Santa Barbara County with known populations in their inundation areas, the City of Goleta did not identify dam failure as a major threat to its population.

Transportation. The document also includes threats involving highways, railroads and air incidents. Highway U.S. 101 and the Union Pacific Railroad are identified as areas at risk. Aircraft crash situations are given special attention due to the high volume of air traffic occurring in the highly populated area near Santa Barbara Airport.

Wildfire. Annually, the County experiences fires that often burn "out of control" and can damage the watershed and structures. County, city fire departments and federal agencies have developed emergency response actions associated with wildfire disasters. Copies of these plans are on file in the City of Goleta's Emergency Operating Center.

Terrorism. Due to the fact that a terrorist attack is generally sudden and without any prior warning, there are no stages of Emergency Readiness. A copy of the Santa Barbara County Terrorism plan is under development and will be located in each County Department and in the Office of Emergency Services.

Landslide. Santa Barbara County landslides have occurred most often on those slopes that are underlain by rocks of the Monterey and Rincon formations. Emergency response actions associated with the above situations are presented in the Standard Operating Procedures. Response procedures for landslides are found in the Urban Search and Rescue (USAR) document.

Tsunami. To prepare for a possible tsunami, the City adopted the *Tsunami Ready* program developed by National Oceanic and Atmospheric Administration (NOAA). The City is also developing Standard Operating Procedures (SOP's) for each critical department to use in time of emergency.

3. City of Goleta Municipal Codes for Flood Risk

The City of Goleta participates in the National Flood Insurance Program (NFIP). In an effort to minimize the risk of flooding, the City of Goleta has alerted property owners that the Flood Plain Management Ordinance applies to their property. Its intent is to avoid exposing new development to flood hazards. As part of this strategy, the Flood Hazard Overlay Map is developed, which reflects the boundaries of special flood hazard areas as shown on the current Federal Emergency Management Agency (FEMA) maps on file with the office of the City Clerk. All potential development projects located within floodplains must follow an established development review process. Developments involving drainage ditches or watercourses in floodplains must receive Federal, State and Local review and permits as required by the Goleta Municipal Code. Whether or not any proposed development is subject to the provisions of Chapter 15.10, Floodplain Management, of the Goleta Municipal Code, is determined by the City's Planning and Environmental Review Director.

An excerpt of Chapter 15.10 Floodplain Management is included below. Through implementation and enforcement of Chapter 15.10, the City will continue to comply with NFIP requirements. The Planning Director will annually monitor NFIP requirements to determine if revisions are needed to the City's ordinance as a result of any changes.

GMC 15.10.020 Findings of Fact. This municipal code acknowledges flood hazard areas and the potential impact on the City of Goleta. It states the potential losses include loss of life and property, health and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures for flood protection and relief, and impairment of the tax base. It also acknowledges that flood losses are caused by the cumulative effect of obstructions in areas of special flood hazards which increase flood heights and velocities.

GMC 15.10.030 Statement of Purpose. This refers to the purpose of Chapter 15, which is to promote the public health, safety, general welfare, and to minimize public and private losses due to flood conditions in specific areas by provisions designed: to protect human life and health; to minimize publicly-funded expenditures; to help maintain a stable tax base with minimal interruption to business; and to inform buyers of flood hazard areas.

GMC 15.10.040 Methods of Reducing Flood Losses. This section includes provisions for: restricting uses dangerous to health, safety, and property due to water or erosion hazards, which may result in increases in erosion or flood heights or velocities; requiring that uses vulnerable to floods are protected against flood damage; controlling the alteration of natural floodplains, stream channels, and natural protective barriers which help accommodate or channel flood waters; controlling filling, grading and dredging which may increase flood damage; and preventing or regulating the construction of flood barriers which will unnaturally divert flood water or which may increase flood hazards in other areas.

GMC 15.10.070 Basis for Establishing the Areas of Special Flood Hazard. This section states that all areas of special flood hazard identified by the Federal Insurance Administration of the Federal Emergency Management Agency in the Flood Insurance Study dated September 1978 and the Flood

Insurance Rate Map (FIRM), dated March 15, 1979, and all subsequent amendments and/or revisions, are adopted.

GMC 15.10.220 Coastal High Hazard Areas. Requirements for new construction along coastal high hazard areas are listed in this section. Primarily, it states that all new developments and substantial improvements within these areas be elevated on adequately anchored pilings or columns, with the lowest horizontal structural member being at or above the base flood level. Furthermore, it requires that new construction be located landward of the reach of mean high tide; excavation of sand dunes is not permitted; and structural support cannot be defined by fill. The floodplain administrator would obtain and maintain structure certification with section 15.10.220.A.

GMC 15.10.160 Standards of Construction. This section provides details on the structural requirements in order to minimize flooding. They include standards for anchoring and elevations as adopted by the jurisdiction, the Federal Insurance Administration, and the Federal Emergency Management Agency.

4. National Flood Insurance Program Repetitive Loss Properties

Repetitive loss properties are defined as property that is insured under the National Flood Insurance Program (NFIP) that has filed two or more claims in excess of $1,000 each within any consecutive 10-year period since 1978. Currently, there are 27 repetitive loss structures in Santa Barbara County's unincorporated areas. Twenty six (26) of the 27 are located in the South Coast Flood Zone. There are no repetitive loss properties within the City of Goleta.

5. City of Goleta Stormwater Management Plan

In the State of California, the State Water Resources Control Board (SWRCB) and the various Regional Water Resource Control Boards (RWRCBs) implement mandates of the Federal Clean Water Act and the National Pollutant Discharge Elimination System (NPDES) permit program. During one of their studies, the SWRCB determined that urban runoff is a leading cause of pollution through the state and a contributor to pollutants of concern (POC), such as nutrients, pathogens, hydrocarbons, metals, trash and pesticides to waterways. In compliance with various federal and state requirements, the City as a municipality and operator of a separate stormwater system (MS4) has prepared the Stormwater Management Plan (SWMP) to guard against the detrimental effects on human health and the surrounding ecosystems.

The City's SWMP was approved by the Central Coast Regional Water Quality Control Board (CCRWQCB) (Water Board) on February 4, 2010. The goal of the SWMP for the City of Goleta is to reduce the discharge of storm water pollutants into water bodies and to protect and improve water quality within the city.

Because several programs and Best Management Practices (BMPs) have not been fully implemented, adequate data is not always available to make strong determinations about the effectiveness of the programs. Many of the effectiveness assessments made are preliminary and somewhat inchoate, but they provide a general idea of the status, appropriateness, and effectiveness of the measures and identify areas where modifications are needed thus far. In addition, the effectiveness of the City's Storm Water Management Program is difficult to judge given that the success of many of the measures by definition cannot be directly measured in terms of water quality.

In summary, though these new standards reflect the compliance of water quality standards by the City of Goleta, its effects are also translated into a reduction of flood risk. This is evidenced through stormwater drainage maintenance and repair, public outreach efforts on pollution and overall stormwater events, and the development of new pre- and post- construction regulations.

Alongside pollution prevention controls and good housekeeping, it is expected that not only would residents be better protected from contaminated waters, but it would also establish the best management practices that would minimize the risk of flooding.

Several of the storm drainage improvements envisioned in the Storm Water Manager Program are included as Mitigation Action Measures in this Hazard Mitigation Plan.

6. Capital Improvement Program

The City of Goleta's Capital Improvement Program (CIP) is used as an important organization and management tool to help establish priorities for City Capital Projects over a 5-year term. All of the Hazard Mitigation Plan's mitigation action projects are incorporated into the City's CIP so timing of implementation and funding can be established. Some of these projects are discussed below.

With regards to the flood hazard mitigation projects, the San Jose Creek Flood Control Project would, when completed, increase the channel from a 25 year to a 100 year storm event. The entire channel would be reconstructed and the Hollister Avenue Bridge would be replaced. At this point, only the Hollister Avenue bridge replacement remains to be done, so this project is included in this Hazard Mitigation Plan as a mitigation action for the coming 5-year period.

Another flood mitigation project is the replacement of the San Pedro Creek culvert. This would be redesigned for a storm event greater than the existing 10 year storm event design; under this scenario and present conditions, extensive flooding occurs on Vega Drive, Valdez Avenue and Carlo Drive. Similarly, the Hollister Avenue Bridge over San Jose Creek would be redesigned to satisfy a 100 year storm flow capacity. In all, the flood mitigation projects total approximately $30 million and would reduce the risk of impacts and losses within Old Town Goleta and other areas of the City.

7. City of Goleta Safety Element in the Goleta General Plan/Coastal Land Use Plan

The Safety Element's primary objectives are to avoid siting of development or land use activities in hazardous areas, and if required, apply appropriate mitigation measures to lessen or minimize exposure to hazards. Additional significant Safety Element objectives include:

- Attaining a high level of emergency preparedness to limit damage and risks to public safety from natural and industrial hazards and to have effective and efficient emergency recovery procedures in place to minimize social, environmental, and economic disruption following an emergency.
- Minimizing the potential for loss of life, property, economic and social disruption resulting from earthquakes or seismically induced hazards through the adoption of updated California Building Code requirements, and requiring geotechnical studies for new construction where appropriate.

The proposed mitigation actions detailed in this Plan are consistent with the objectives of the City's Safety Element and are intended to minimize or avoid the potential for loss of life and property.

8. Incorporation of Hazard Mitigation Plan into City Plans

After FEMA approval and City Council adoption, the 2011 Hazard Mitigation Plan was prepared and integrated into existing City Plans, including the General Plan, and specifically the Safety Element. The 2011 HMP was also integrated into the City's Capital Improvement Plan and Emergency Operations Plan. The 2011 HMP and the current update will be used for guidance in development of any hazard-related technical plans, such as the Community Wildfire Protection Plan which identifies the need for development of Fire Station 10. Development of Fire Station 10 is included in the Hazard Mitigation Plan and Mitigation Action #2011-5 and is currently in progress. Where proposed mitigation actions consisting of capital projects are not currently in the City's Capital Improvement Program (CIP), the Neighborhood Services & Public Safety Director works with the Public Works Director to add these projects to the City's CIP. This requires approval by the City Council.

5. Hazard Assessment

i. Overview

The purpose of this section is to review, update, and/or validate the identified and profiled hazards in 2016 Santa Barbara County Multi-Jurisdictional Hazard Mitigation Plan (HMP). The intent is to confirm the list of hazards facing the county and determine if the current information and material is accurate. The importance of this is to ensure that all hazards are being considered and decisions are based on the most up-to-date information. Another purpose of this section is to screen the hazards. It will provide an understanding of the significance by ranking hazards by their priority in the community.

To assist with this effort two groups were utilized: the Mitigation Advisory Committee (MAC) and the Santa Barbara County Local Planning Team. The MAC group assessed information as it related to their jurisdiction, while the Local Planning Team assessed information at the county-level. As part of process both groups leveraged other planning efforts and documents, including the State of California Multi-Hazard Mitigation Plan, the Santa Barbara County Comprehensive Plan Seismic Safety and Safety Element, and the Santa Barbara County 2016 HMP.

ii. Mitigation Advisory Committee Hazard Assessment

Utilizing the information and material from the State of California Multi-Hazard Mitigation Plan, the City of Goleta General Plan Safety Element, and the Santa Barbara County 2011 HMP, Goleta Annex; the Local Planning Team reviewed and revised 1) the list of hazards in the geographic area; 2) the information and material presented for each hazard; and 3) the prioritization of the hazards. The following sections provide a summary of the work.

Relevant Hazards in the City of Goleta

City of Goleta Hazards
Earthquake
Liquefaction
Expansive Soils/Land Subsidence
Wildfire
Flooding/Sea Level Rise
Droughts and Water Shortage
Severe Weather and Storms
Energy Shortage and Energy Resilience
Oil Spill
Epidemic/Pandemic/Vector Borne Disease
Hazardous Material Release
Radiological Incident
Terrorism
Cyber Threat
Aircraft Crash
Train Accident; Explosion and/or Chemical Release
Natural Gas Pipeline/Storage
Civil Disturbance

Hazard Screening/Prioritization

The intent of screening hazards is to help prioritize which hazard creates the greatest concern in the community. A summary of the process and the results of the hazard ranking for the 2016 HMP Update are discussed below:

Ranking Tool Design

The ranking tool prioritizes hazards on two (2) separate factors:

- Probability of the hazard affecting the community
- Potential impacts of the hazard on the community

To further assist with the process; the following definition of "High", "Medium", and "Low" probability and impacts were utilized:

Probability

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

Impact

High- Catastrophic/Critical: Major loss of function, downtime, and/or evacuations
Medium- Limited: Some loss of function, downtime, and/or evacuations
Low- Negligible: Minimal loss of function, downtime, and/or evacuations

Based on the revised list of hazards and utilizing the alternative approach, the MAC and Local Planning Team screened the hazards. The results of the assessment are in the below table. The shading of the matrix boxes indicates the priority level: **red = tier 1**; green = tier 2; and gray = tier 3.

Hazard Screening and Ranking

Rank	High Impact	Medium Impact	Low Impact
High Probability		• Drought/Water Shortage • Energy Shortage • Flooding • Sea Level Rise/Coastal Flooding • Oil Spill • Severe Weather • Wildfire	• Agricultural Pests/Disease • Train Accident
Medium Probability	• Earthquake	• HazMat Release • Terrorism	• Commercial/Military Aircraft Crash • Cyber Threat
Rank	**High Impact**	**Medium Impact**	**Low Impact**
Low Probability	• Radiological Accident	• Civil Disturbance • Marine Invasive Species • Natural Gas Pipeline/Shortage • Well Stimulation/Hydraulic Fracking	• Dam Failure • Tsunami

iii. Local Planning Team Hazard Assessment

The City of Goleta's Local Planning Team (LPT) reviewed the hazard ranking worksheet developed by the County MAC. The ranking information was modified by the LPT based on the hazards that impact the City. After reviewing the County's hazard ranking, the LPT for the City of Goleta removed the dam failure, landslide and coastal erosion, and agricultural (pests and diseases) hazards from planning consideration because those hazards do not affect the jurisdiction. The remaining hazards were ranked based on the planning consideration for them, and it was decided that flooding including coastal storm surge, wildfire and earthquakes all required significant planning consideration, while tsunami only requires limited planning consideration. The below tables provide the hazard ranking for the City of Goleta and the ranking worksheet for how the Local Planning Team calculated each specific hazard as impacting the City.

City of Goleta Hazard Ranking and Planning Consideration	
Hazard Type and Ranking	**Planning Consideration Based on Hazard Level**
Flooding (including coastal surge)	Significant
Wildfire	Significant
Earthquake	Significant
Tsunami	Limited

HAZARD RANKING WORKSHEET - City of Goleta

March 8, 2011

Hazard Type	Probability	Impact			Total Score	Hazard Planning Consideration
		Affected Area	Primary Impact	Secondary Impacts		
Importance Factor:	2	0.8	0.7	0.5		
DAM FAILURE	2	0.8	0.7	0.5	4	None
EARTHQUAKE	6	3.2	2.1	1.5	41	Significant
WILDFIRE	8	2.4	1.4	1.5	42	Significant
FLOODING (include coastal surge)	8	2.4	1.4	2	46	Significant
TSUNAMI	4	0.8	1.4	1	13	Limited
LANDSLIDE/COASTAL EROSION	4	0.8	0.7	0.5	8	None
AGRICULTURE (pests and disease)	4	0.8	1.4	0.5	11	None

Orange cells reflect revisions/changes to the City ranking

City Revisions: The City decided that Dam Failure, Landslide/Coastal Erosion and Agricultural (pests and disease) were not hazards that impact the City. Also, Tsunami had limited hazard planning consideration. While Wildfire and Flooding (including coastal surge) both remained significant hazards, their total score was adjusted to reflect the City.

The probability of each hazard is determined by assigning a level, from 1 to 4, based on the likelihood of occurrence from historical data. This ranking is multiplied by an importance factor of 2. The total impact value includes a summed ranking for affected area, primary impact and secondary impact. Each ranking is multiplied by an importance factor as indicated. The probability score is multiplied by the sum of the three impact scores to determine the total score for the hazard. The hazard planning consideration is determined by the total score as indicated by the Hazard Level scale below.

Based on estimated likelihood of occurrence from historical data

Level	Probability	Score
1	Unlikely	0
2	Somewhat Likely	0
3	Likely	0
4	Highly Likely	0

Affected Area Importance 0.8

Based on size of geographical area of community affected by hazard

Level	Affected Area	Score
1	Isolated	0.8
2	Small	1.6
3	Medium	2.4
4	Large	3.2

Primary Impact Importance 0.7

Based on percentage of damage to typical facility in community

Level	Impact	Score
1	Negligible - less than 10% damage	0.7
2	Limited - between 10% and 25% damage	1.4
3	Critical - between 25% and 50% damage	2.1
4	Catastrophic - more than 50% damage	2.8

Importance 0.5

Based on estimated secondary impacts to community at large

Level	Impact	Score
1	Negligible - no loss of function, downtime, and/or evacuatio	0.5
2	Limited - minimal loss of function, downtime, and/or evacua	1
3	Moderate - some loss of function, downtime, and/or evacua	1.5
4	High - major loss of function, downtime, and/or evacuations	2

Total Score = Probability x Impact, where:

Probability = (Probability Score x Importance)

Impact = (Affected Area + Primary Impact + Secondary Impacts), where:

Affected Area = Affected Area Score x Importance

Primary Impact = Primary Impact Score x Importance

Secondary Impacts = Secondary Impacts Score x Importance

Hazard Level

Total Score	(Range)	tribu	Hazard Level
0.0	0.0	1	None
0.1	0.0	0	Limited
0.1	0.0	3	Moderate
0.1	0.0	0	Significant

Based on these rankings, the City of Goleta's Annex focuses on the most significant hazards facing the community: Flooding, Wildfire and Earthquakes.

iv. Flood and Coastal Storm Surge

A flood is a general and temporary condition of partial or complete inundation on land that is normally dry. Several factors determine the severity of floods, including rainfall intensity and duration, antecedent moisture conditions, surface permeability, and geographic characteristics of the watershed such as shape and slope. Other causes can include a ruptured dam or levee, rapid ice or snow melting in the mountains, under-engineered infrastructure, or even a poorly placed beaver dam can overwhelm a river or channel and send water spreading over adjacent land or floodplains.

A large amount of rainfall in a short time can result in flash flood conditions, as can a dam failure or other sudden spill. The National Weather Service's definition of a flash flood is a flood occurring in a watershed where the time of travel of the peak of flow from one end of the watershed to the other is less than six hours.

Another form of flooding occurs when coastal storms produce large ocean waves that sweep across coastlines making landfall. Storm surges inundate coastal areas, destroy dunes, and cause flooding. If a storm surge occurs at the same time as high tide, the water height will be even greater. The County historically has been vulnerable to storm surge inundation associated with tropical storms.

The geographical location, climate, and topography of Santa Barbara County make the area prone to flooding. In regions such as Santa Barbara, without extended periods of below-freezing temperatures, floods usually occur during the season of highest precipitations or during heavy rainfalls after long dry spells. Additionally, due to the Mediterranean climate and the variability of rainfall, stream flow throughout the County is highly variable and directly impacted from rainfall with little snowmelt or base flow from headwaters. Watercourses can experience a high amount of sedimentation during wet years and high amounts of vegetative growth during dry and moderate years.

The drainages in the southern part of the County are characterized by high intensity, short duration runoff events, due to the relatively short distance from the top of the Santa Ynez Mountains to the Pacific Ocean. Runoff from high intensity, short duration storm events can cause inundation of over bank areas, debris including sediment, rock, downed trees in the water that can plug culverts and bridges, erosion and sloughing of banks, and loss of channel capacity due to sedimentation. The drainages in the northern part of the County are contained in the upper mountain areas, but broaden out into level valley floors. The drainages in the northern part of the County are generally characterized by longer duration and less intense storms than the southern coastal areas.

Another contributing factor to flooding is the County's location along the Pacific Ocean. With its 110 miles of coastline, the County is susceptible to storm surge events following storms off the coast. Additionally, portions of the County are subject to flooding due to flash flooding, urban flooding, river channel overflow, and downstream flooding.

History of Hazard

Flooding has been a major problem throughout Santa Barbara County's history. Santa Barbara County has several hydrologic basins that have different types of flooding problems, including over bank riverine flooding, flash floods, tidal flooding/tsunamis, and dam failure. The most common flooding in Santa Barbara is due to riverine flooding and flash flood events.

Between 1862 and the 2014, Santa Barbara experienced 19 significant floods. Eight of these floods received Presidential Disaster Declarations. The below table lists the modern day floods, as well as information concerning the nature of the flooding and the extent of the damages.

Historical Records of Large Floods in Santa Barbara County

Date	Damages	Source of Estimate	Comments
1952	50+ homes inundated, large-scale evacuations	EIR, 1993 Precipitation Report	Extensive flooding in Old Town Goleta; Propagated the formation of the Flood Control District
1980	Presidential Disaster Declaration	n/a	Severe flooding, mudslides, and high tides throughout County
1982-1983	2 Presidential Disaster Declarations	n/a	Parts of southern California received over 200% of normal rainfall
1993	$1.4 million in disaster recovery funds received from FEMA	1993 Precipitation Report and Hydrology Methods	180%-209% or normal rainfall, with highest-ever intensity for the County recorded at Buellton Fire Station: $1^1/_4$ inches in 15 minutes.
Jan 1995	$50 million, Presidential Disaster Declaration	1995 Floods	Flooding on most major channels in Goleta, Santa Barbara, Montecito, and Carpinteria
March 1995	$30 million, Presidential Disaster Declaration	1995 Floods	Major flooding in Goleta, Santa Barbara, and Montecito, many of the same structures flooded in January were flooded again
1998	$15 million, Presidential Disaster Declaration	1998 Flood Report	21.36” of rainfall that month in Santa Barbara, many areas at 600% of normal February rainfall
Feb 2005	$2 million	NCDC	In Santa Barbara county, flash flooding and mudslides closed down Highway 101 at Bates Road.
January 2011	Total Individual Assistance: $1,909,557 Total Public Assistance: $75,414,223 Presidential Disaster Declaration	FEMA	Severe winter storms, flooding, and debris and mudflows occurred from December 17, 2010 to January 4, 2011
March 2011	$1.7 Million	County Insurance Claims	A severe winter storm occurred in March 2011 that included flooding, debris and mudflows flows throughout Santa Barbara County
March 2014	$500k	Television Reports	A strong winter storm caused significant damage to coastal properties on the south coast of Santa Barbara County. Coastal Damage; Goleta Pier partially closed

While there is extensive detailed documentation of historical flood events in Santa Barbara County, the following section provides a summary of the more recent significant flood events:

1992 Flood- The 1992 – 1993 rainy season was one of the wettest recorded in Santa Barbara County, areas of the County received 180% to 209% normal rainfall. Following a 25-year storm event that occurred in late March, Santa Barbara was declared a federal disaster area with 12 creeks substantially damaged along with several detention basins and residences. Santa Barbara County received approximately $1.4 million in disaster recovery funds from FEMA. (1993 Precipitation Report and Hydrology Methods) (Presidential Disaster Declaration)

January 1995- Flooding occurred on most major channels in Goleta, Santa Barbara, Montecito, and Carpinteria. Approximately 510 structures were reported flooded and/or damaged along the South Coast, with a total cost resulting from public and private damages of approximately $50,000,000. All modes of transportation in and out of the South Coast were cut off for several hours; some modes of transportation were not restored for several days. (1995 Floods) (Presidential Disaster Declaration)

March 1995- During the March 10th 1995 storm, major flooding occurred again in the areas of Goleta, Santa Barbara, and Montecito. More than 300 structures were reported flooded and/or damaged; many of the same structures flooded or damaged during the January 1995 storm event. Approximately 30 million dollars of public and private property were damaged during the storm. Once again, all modes of transportation in and out of the South Coast were cut off for several hours. (1995 Floods) (Presidential Disaster Declaration)

1998 Flood– February 1998 brought several record-breaking rainfalls with 50-year storm event intensities. The City of Santa Barbara recorded its wettest month in history, 21.36-inches of rainfall. By the end of the month, many areas in the County had received 600% of normal February rainfall. Flood related damages within Santa Barbara occurred during three major storm periods: February 1-4, February 6-9, and February 22-24. The cost to repair extensive flood damage to public and private property was estimated at $15 million. Just like in 1995, transportation throughout the County was disrupted through closures of roads, the Santa Barbara Airport, and train service. Flood damage was spread throughout the County and the County was declared a Federal Disaster Area on February 9. (Presidential Disaster Declaration)

2005 Flood– A powerful Pacific storm tapped into a subtropical moisture source to produce heavy rain and flash flooding across Southwestern California. Overall, rainfall totals ranged from 4 to 8 inches over coastal.

2011 Flood- Severe winter storms, flooding, and debris and mudflows occurred from December 17, 2010 to January 4, 2011. The counties affected include: Inyo, Kern, Kings, Orange, Riverside, San Bernardino, San Diego, San Luis Obispo, Santa Barbara, and Tulare.

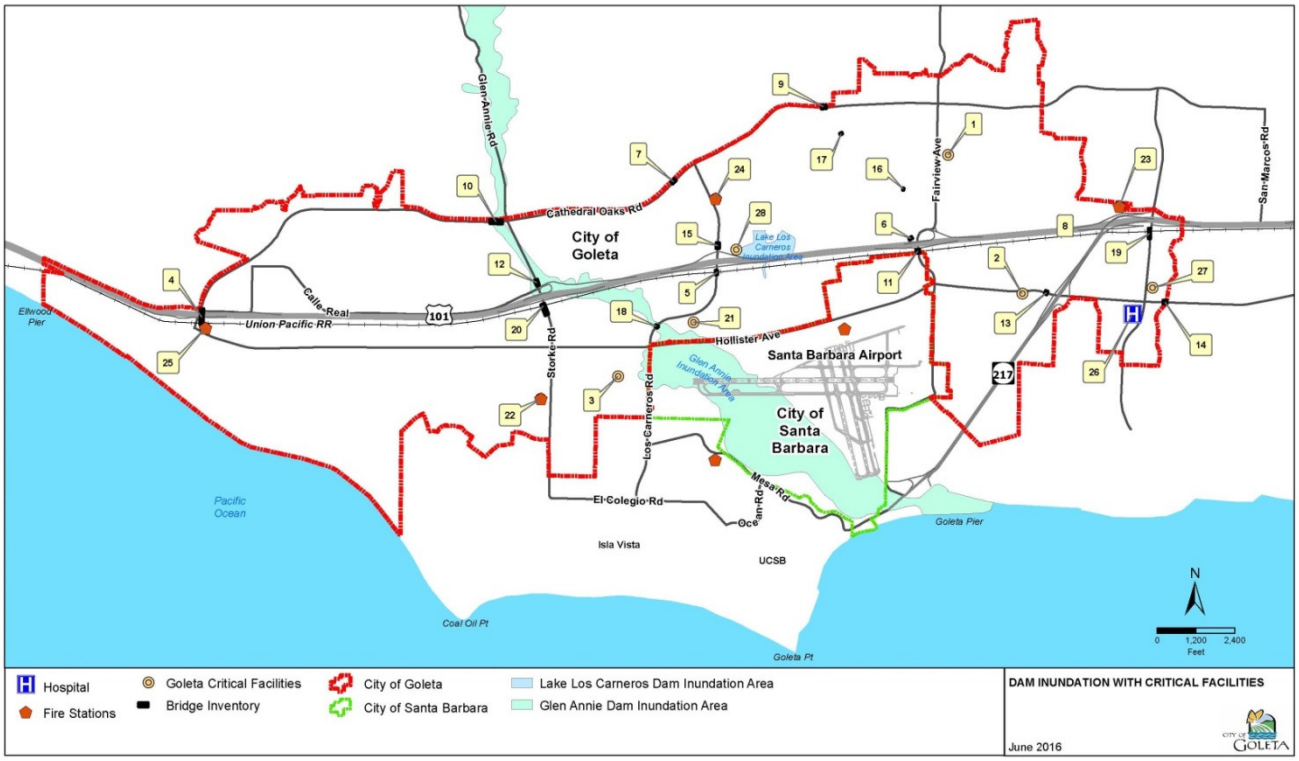
March 2011 Flood- A severe winter storm occurred in March 2011 that included flooding, debris and mudflows throughout Santa Barbara County.

March 1, 2014- A strong winter storm caused significant damage to coastal properties on the south coast of Santa Barbara County

December 12, 2014 – A brief but intense rainfall, portions of which covered a limited area that exceeded a 200-year return period, caused damages county-wide, mostly in the form of downed trees, bank erosion and sediment and debris deposition.

The City of Goleta ranked the flooding and coastal storm surge hazard as being a significant risk to the City. The City of Goleta removed dam failure hazards from planning consideration because only minor flooding impacts are expected in relation to this hazard. The following pages include maps for *Dam Inundation with Critical Facilities, Flood Hazard Areas with Critical Facilities, and Sea Level Rise with Critical Facilities.*

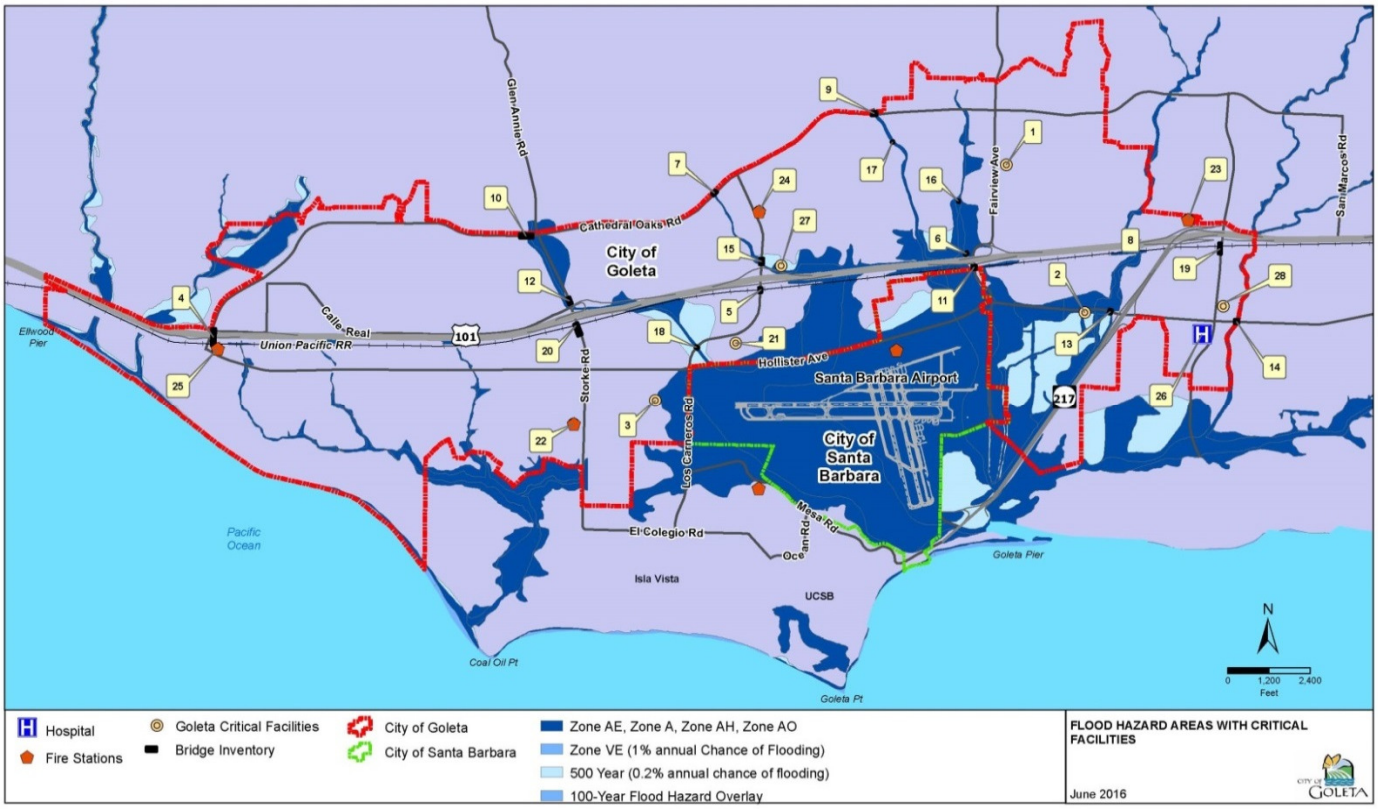
Dam Inundation Areas with Critical Facilities



Probability of Occurrence

The probability of flooding in the City of Goleta is shown in the below figure. The map shows the location of the special flood hazard zones in and around Goleta. The flood hazard zones depicted on the map are derived from FEMA's Flood Insurance Rate Maps (FIRM) and indicate the probability of flooding happening over a given period of time. Flood zones are geographic areas that defined varying levels of flood risk. Each zone reflects the severity or type of flooding in the area. The FIRM boundaries are developed by FEMA to convey flood risk.

Flood Hazard Areas with Critical Facilities



The following below describes the different flood hazard zones and their associated probabilities.

Zone A

Zone A is the flood insurance rate zone that corresponds to the 100-year floodplains that are determined in the Flood Insurance Study (FIS) by approximate methods. Because detailed hydraulic analyses are not performed for such areas, no BFEs or depths are shown within this zone. Mandatory flood insurance purchase requirements apply.

Zone AE and A1-A30

Zones AE and A1-A30 are the flood insurance rate zones that correspond to the 100-year floodplains that are determined in the FIS by detailed methods. In most instances, BFEs derived from the detailed hydraulic analyses are shown at selected intervals within this zone. Mandatory flood insurance purchase requirements apply.

Zone AH

Zone AH is the flood insurance rate zone that corresponds to the areas of 100-year shallow flooding with a constant water-surface elevation (usually areas of ponding) where average depths are between 1 and 3 feet. The BFEs derived from the detailed hydraulic analyses are shown at selected intervals within this zone. Mandatory flood insurance purchase requirements apply.

Zone AO

Zone AO is the flood insurance rate zone that corresponds to the areas of 100-year shallow flooding (usually sheet flow on sloping terrain) where average depths are between 1 and 3 feet. The depth should be averaged along the cross section and then along the direction of flow to determine the extent of the zone. Average flood depths derived from the detailed hydraulic analyses are shown within this zone. In addition, alluvial fan flood hazards are shown as Zone AO on the FIRM. Mandatory flood insurance purchase requirements apply.

Zone VE

Zone VE is the flood insurance rate zone that corresponds to the 100-year coastal floodplains that have additional hazards associated with storm waves. BFEs derived from the detailed hydraulic analyses are shown at selected intervals within this zone. Mandatory flood insurance purchase requirements apply.

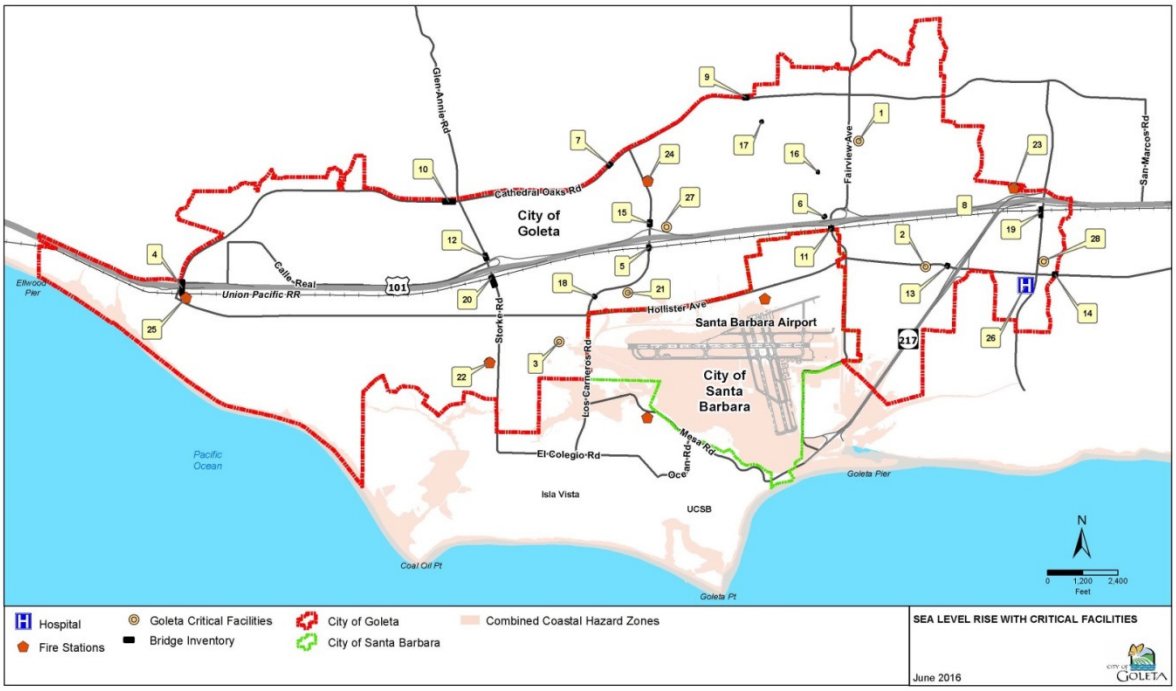
Climate Change Consideration

Climate change is both a present threat and a slow-onset disaster. It acts as an amplifier of existing hazards. Extreme weather events have become more frequent over the past 40 to 50 years and this trend is projected to continue. Rising sea levels, changes in rainfall distribution and intensity are expected to have a significant impact on coastal communities, including portions of Goleta. This section presents a discussion of how climate change might impact the frequency, intensity and distribution of flood hazards.

One subset of flooding is related to coastal flooding and sea level rise. Sea level rise (SLR) is defined as the rising of the level of the sea as a result of the so-called greenhouse effect or global warming. SLR can occur through one or more of three (3) processes that include eustasy, isostasy, or thermal expansion. Erosion is a natural process which alters existing geomorphic features. Erosion can occur due to a number of factors, including winter storms, tidal action, wind-generated high surf, wave action, and rising sea levels. The impacts from SLR and erosion will affect portions of the western Goleta coastline and areas south of Goleta around the Santa Barbara Airport. SLR coupled with increased frequency, severity, and duration of high tide and storm events related to climate change will result in more frequent and severe extreme events along the coast. These events could expose the coast to severe flooding and erosion, damage to coastal structures and real estate, and salinity intrusion into delta areas and coastal aquifers (Projecting Future Sea Level, A Report from the California Climate Change Center, 2006).

Typically, the highest sea level readings along California's coastline occur during periods of heavy rain that coincide with high tides, causing coastal flooding, coastal bluff erosion, and landslides such as were experienced during the 1998 El Nino storms. Sea levels are already rising along the Santa Barbara County coastline as is evident in long term tidal gauge records since 1973.

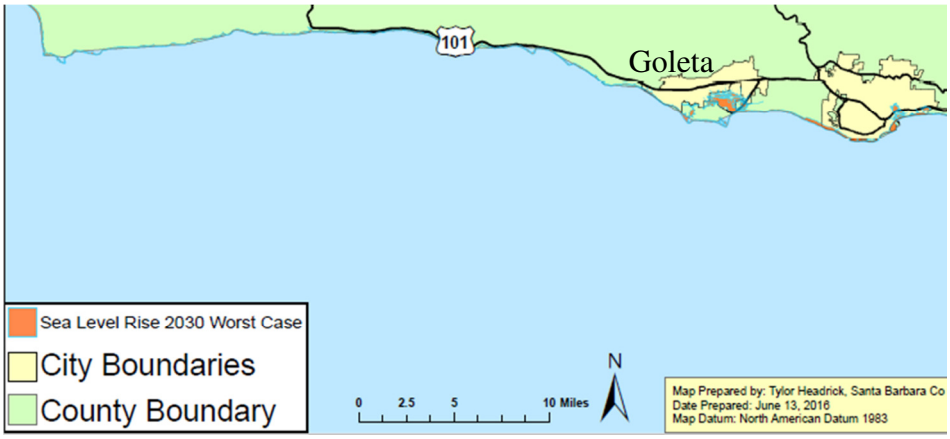
Sea Level Rise with Critical Facilities



Probability of Future Occurrence

As discussed above, the potential impacts of global warming and climate change include increased opportunities for severe weather that may result in sea level rise and erosion. Santa Barbara County's land mass includes more than 110 miles of coastline with varying geologic features including steep coastal bluffs, beaches, wetlands, bays, and deltas. It also supports varying levels of development and land use, including recreational, agricultural, industrial, commercial, and residential.

A growing consensus of scientists believes that sea level rise will continue and the rate of rise will increase. The Intergovernmental Panel on Climate Change (IPCC) suggests that global SLR on the order of 0.2 m (0.66 ft.) and 0.6 m (1.97 ft.) is possible by 2100 with other scientists indicating this rise could be over 1 meter (3.28 ft.). The below map depicts areas (dark blue along and near the Goleta coastline that may be vulnerable to sea level rise.



vi. Wildfire

Wildfires can be classified as either a wildland fire or a wildland-urban interface (WUI) fire. The former involves situations where wildfire occurs in an area that is relatively undeveloped except for the possible existence of basic infrastructure such as roads and power lines. A WUI fire includes situations in which a wildfire enters an area that is developed with structures and other human developments. In WUI fires, the fire is fueled by both naturally occurring vegetation and the urban structural elements themselves. According to the National Fire Plan issued by the U.S. Departments of Agriculture and Interior, the wildland-urban interface is defined as "*…the line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels.*"

The WUI fire can be subdivided into three categories (NWUIFPP, 1998): The *classic wildland-urban interface* exists where well-defined urban and suburban development presses up against open expanses of wildland areas. The *mixed wildland-urban interface* is characterized by isolated homes, subdivisions, and small communities situated predominantly in wildland settings. The *occluded wildland-urban interface* exists where islands of wildland vegetation occur inside a largely urbanized area. Generally, the City of Goleta's area of risk falls into the classic wildland-urban interface category.

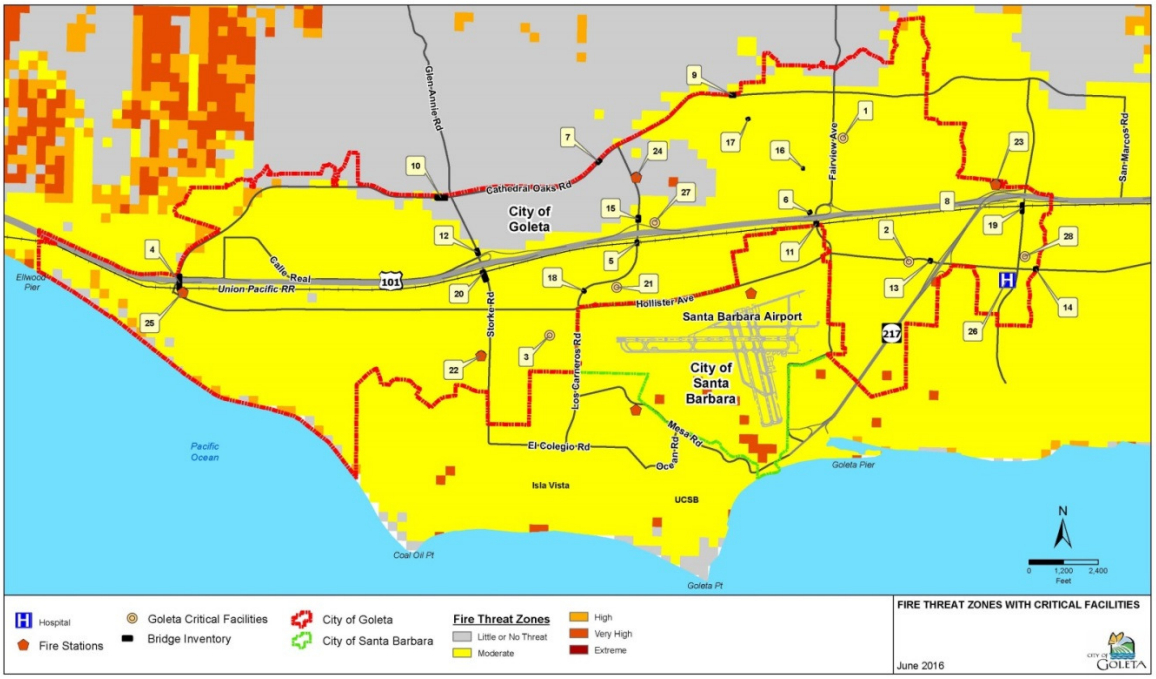
Certain conditions must be present for a wildfire hazard to occur; a large source of fuel must be present, the weather must be conducive (generally hot, dry, and windy), and fire suppression sources

must not be able to easily suppress and control the fire. The cause of a majority of wildfires is human-induced or lightning; however, once burning, wildfire behavior is based on three primary factors: fuel, topography, and weather. Fuel will affect the potential size and behavior of a wildfire depending on the amount present, its burning qualities (e.g. level of moisture), and its horizontal and vertical continuity. Topography affects the movement of air, and thus the fire, over the ground surface. The terrain can also change the speed at which the fire travels, and the ability of firefighters to reach and extinguish the fire. Weather as manifested in temperature, humidity and wind (both short and long term) affect the probability, severity, and duration of wildfires. The climate, topography, and vegetation in Santa Barbara County is conducive to wildfires.

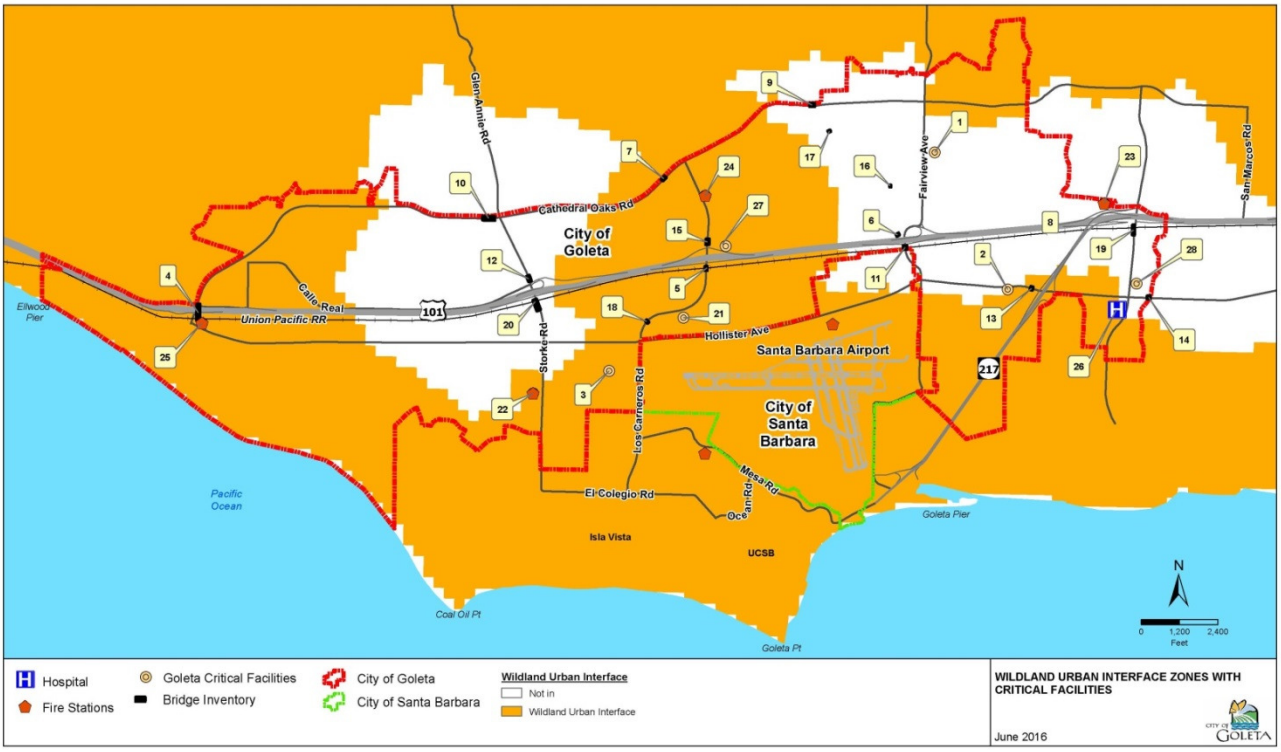
Santa Barbara County Fire has synthesized data at a more local level to convey communities at risk. To help protect people and their property from potential catastrophic wildfire, the National Fire Plan directs funding to be provided for projects designed to reduce the fire risks to communities. A fundamental step in achieving this goal was the identification of communities that are at high risk of damage from wildfire. These high risk communities identified within the WUI, were published in the Federal Register in 2001. At the request of Congress, the Federal Register notice only listed those communities neighboring federal lands. The list represents the collaborative work of the 50 states and five federal agencies using a standardized process, whereby states were asked to submit all communities within their borders that met the criteria of a structure at high risk from wildfire. The list of federally regulated (communities which adjoin federal lands) communities at risk within Santa Barbara County includes the City of Goleta.

The City of Goleta ranked the wildfire hazard as being a significant planning concern for the City. For a complete listing of the wildfire profile, please refer to Section 5.4. Please refer to the below maps for City of Goleta specific information on the risk to wildfire.

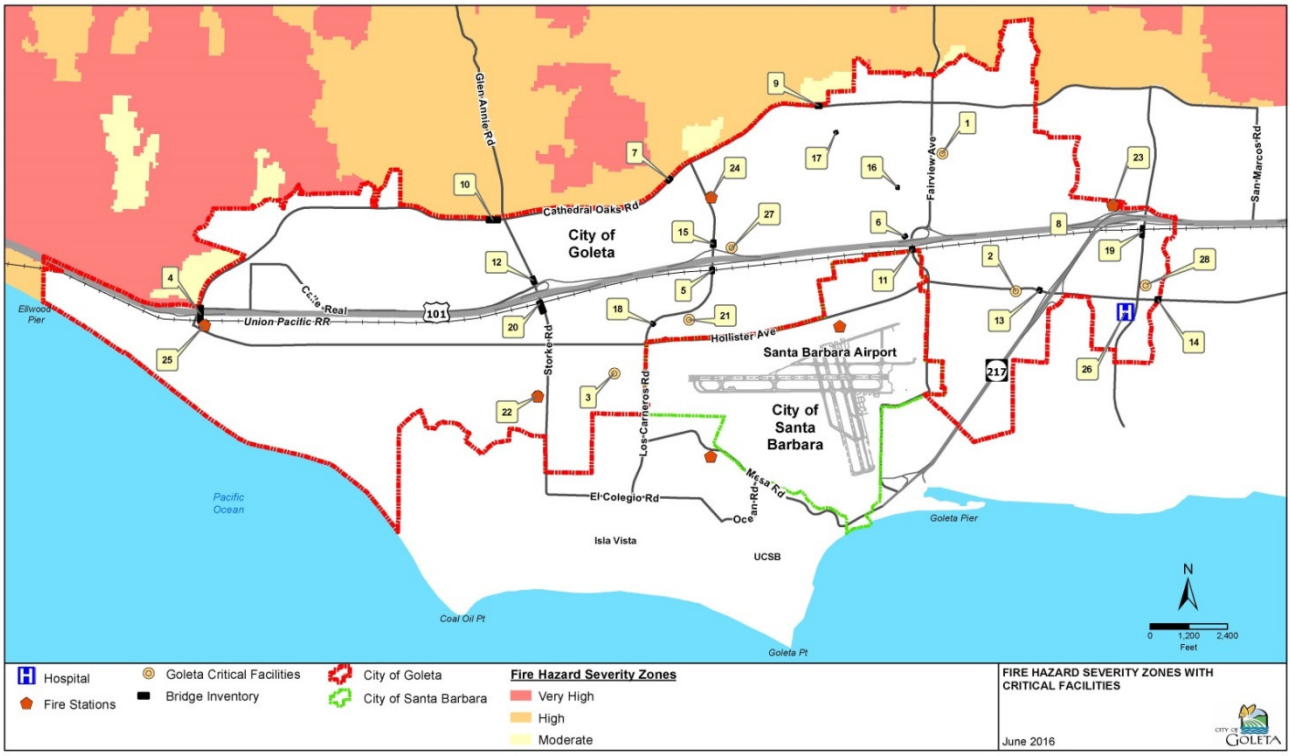
Fire Threat Zones with Critical Facilities (Source: Goleta General Plan)



Wildland Urban Interface Zones (Source: Goleta General Plan)



Fire Hazard Severity Zones (Source: Goleta General Plan)



History of Wildfire Hazard

Because Santa Barbara County is prone to wildfires, there is a long history of wildfires in the County. However, not all of these fires threatened the City of Goleta. Over the last ten years, Santa Barbara County experienced seven (7) major fires. Two of these fires (Gap and Jesusita) had the potential to impact the City of Goleta:

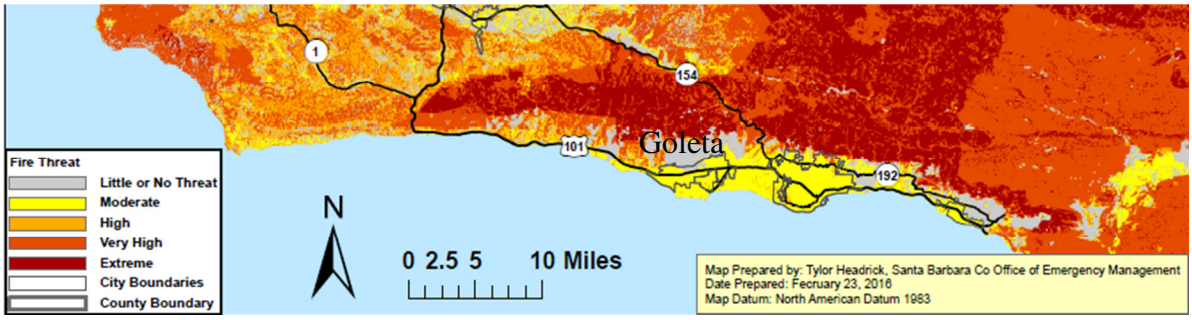
- The Gap Wildfire in 2008 charred 9,443 acres of forest in the Los Padres National Forest. The fire was located in the Santa Ynez Mountains north of the community of Goleta.
- The Jesusita Fire in 2009 burned over 8,700 acres in the hills above the City of Santa Barbara. This wildfire was driven by a combination of a large dead fuel bed and sundowner winds gusting over 60 miles per hour. The damage, as a result of this fire, was significant, with 80 homes destroyed and another 15 homes badly damaged. No deaths were reported, but at least 30 firefighters were injured battling the fire.

Probability of Future Occurrence

Vegetation and topography are the significant elements in the identification of the fire threat zones. A substantial amount of the vegetation in Santa Barbara is commonly called chaparral, it is a dense and scrubby bush that has evolved to persist in a fire-prone habitat. Chaparral plants will eventually age and die; however, they will not be replaced by new growth until a fire rejuvenates the area. Chamise, manzanita and ceanothus are all examples of chaparral which are quite common in Santa Barbara County and in the foothills above Goleta.

Santa Barbara County was subject to 29 major wildfires over 88 years, resulting in a 33% chance of occurrence in any given year. While the probability for the City of Goleta is likely lower due to the Pacific Ocean to the south and agricultural orchards to the north, the threat remains moderate. The map below shows the threat of fire to Santa Barbara County. Fire threat is a combination of two (2) factors: 1) fire frequency or the likelihood of a given area burning, and 2) potential fire behavior. These two factors are combined to create four (4) threat classes ranging from Moderate to Extreme. The City of Goleta falls predominantly in the category of Moderate, but portions of western Goleta are adjacent to High and Very High threat areas.

Fire Threat



Climate Change Considerations

Climate change plays a significant role in wildfire hazards. The changing conditions from wet to dry can create more fuel; the increased possibility of high winds increase risk and present a challenge, and drought conditions could hinder ability to contain fires. Large wildfires also have several indirect effects beyond those of a smaller, local fire. These may include air quality and health issues, road closures, business closures, and other forms of losses. Furthermore, large wildfires increase the threat of other disasters such as landslide and flooding.

vi. Earthquake

The City of Goleta ranked the earthquake hazard as being a significant planning concern for the City. An earthquake is caused by a release of strain within or along the edge of the Earth's tectonic plates producing ground motion and shaking, surface fault rupture, and secondary hazards, such as ground failure. The severity of the motion increases with the amount of energy released, decreases with distance from the causative fault or epicenter, and is amplified by soft soils. After just a few seconds, earthquakes can cause massive damage and extensive casualties.

The effect of an earthquake on the Earth's surface is called the intensity. The intensity scale consists of a series of certain key responses such as people awakening, movement of furniture, damage to chimneys, and total destruction. The scale currently used in the United States is the Modified Mercalli Intensity (MMI) Scale. It was developed in 1931 by the American seismologists Harry Wood and Frank Neumann. This scale is composed of 12 increasing levels of intensity designated by Roman numerals that range from imperceptible shaking to catastrophic destruction. It does not have a mathematical basis; instead it is an arbitrary ranking based on observed effects.

Most people are familiar with the Richter scale, a method of rating earthquakes based on strength using an indirect measure of released energy. The Richter scale is logarithmic. Each one-point increase corresponds to a 10-fold increase in the amplitude of the seismic shock waves and a 32-fold increase in energy released. For an example, an earthquake registering 7.0 on the Richter scale releases over 1,000 times more energy than an earthquake registering 5.0.

Richter Scale

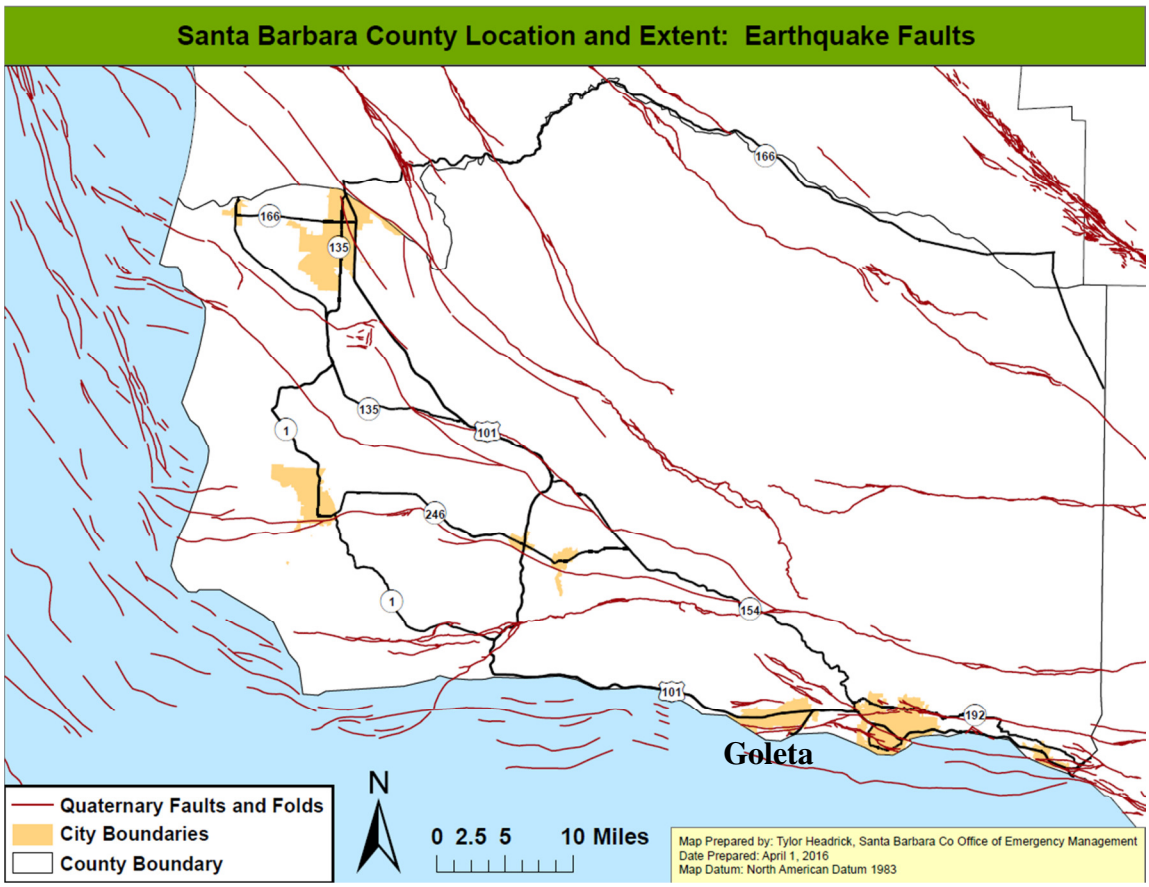
Richter Magnitudes	Earthquake Effects
Less than 3.5	Generally not felt, but recorded.
3.5-5.4	Often felt, but rarely causes damage.
Under 6.0	Slight damage to well-designed buildings. Can cause major damage to poorly constructed buildings over small regions.
6.1-6.9	Can be destructive in areas up to about 100 kilometers across residential areas.
7.0-7.9	Can cause serious damage over larger areas.
8 or greater	Can cause serious damage in areas several hundred kilometers across.

Peak ground acceleration (PGA) is a measure of the strength of ground shaking. Larger peak ground accelerations result in greater damage to structures. PGA is used to depict the risk of damage from future earthquakes by showing earthquake ground motions that have a specified probability (10%, 5%, or 2%) of being exceeded in 50 years return period. These values are often used for reference in construction design, and in assessing relative hazards when making economic and safety decisions.

Liquefaction is the phenomenon that occurs when ground shaking causes loose, saturated soils to lose strength and act like viscous fluid. Liquefaction causes two types of ground failure: lateral spread and loss of bearing strength. Lateral spreads develop on gentle slopes and entail the sidelong movement of large masses of soil as an underlying layer liquefies. Loss of bearing strength occurs when the soil supporting structures liquefy, causing the structures to settle; resulting in potential damage.

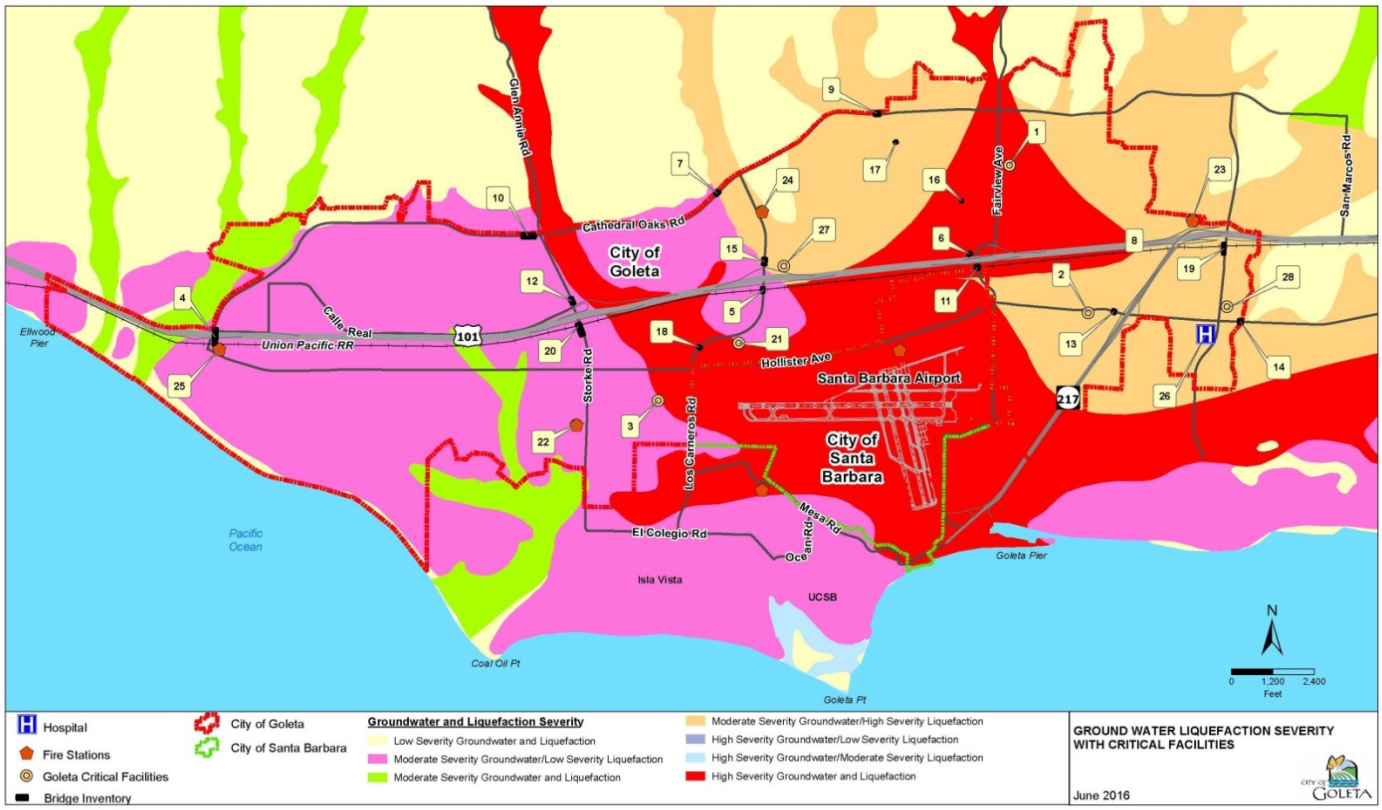
As previously mentioned, Santa Barbara County is located in a high seismic activity zone in the Transverse Range geologic province. Movement of continental plates manifest primarily along the San Andreas Fault system. The San Andreas Fault is situated seven miles northeast of Santa Barbara County; active faults in the San Andreas Fault system that fall within Santa Barbara County include the Nacimiento, Ozena, Suey, and Little Pine faults. Other active faults in the region include the Big Pine, Mesa, Santa Ynez, Graveyard-Turkey Trap, More Ranch, Pacifico, Santa Ynez, and Santa Rose Island faults. The Santa Barbara County Comprehensive Plan Seismic Safety and Safety Element provides descriptions of all faults in Santa Barbara County. This list includes historically active, active, potentially active, and inactive faults, as well as their location and fault length. A map of faults in the Santa Barbara County region is located below.

Earthquake Faults in Santa Barbara County



After earthquakes, some regions may be prone to liquefaction. On level ground, liquefaction results in water rising to the ground surface. On sloping ground, liquefaction will usually result in slope failure such as the event at the Sheffield Dam in the aftermath of the 1925 Santa Barbara earthquake. Liquefaction risk is considered high if there are soft soils (Types D or E) present.

The National Earthquake Hazards Reduction Program (NEHRP) rates soils from hard to soft, and gives the soils ratings from Type A through Type E. The hardest soils are rated Type A, and the softest soils are rated Type E. The majority of the soils in Santa Barbara County are types A-C, with some areas having type D. There have been no Type E soils identified. Liquefaction risk is also determined by depth to groundwater. Most of the low coastal plan and valley bottoms are underlain by alluvium and given a moderate rating with respect to liquefaction potential. Those facilities in Goleta at risk for liquefaction are shown below.



History of Hazard in Santa Barbara County and Goleta

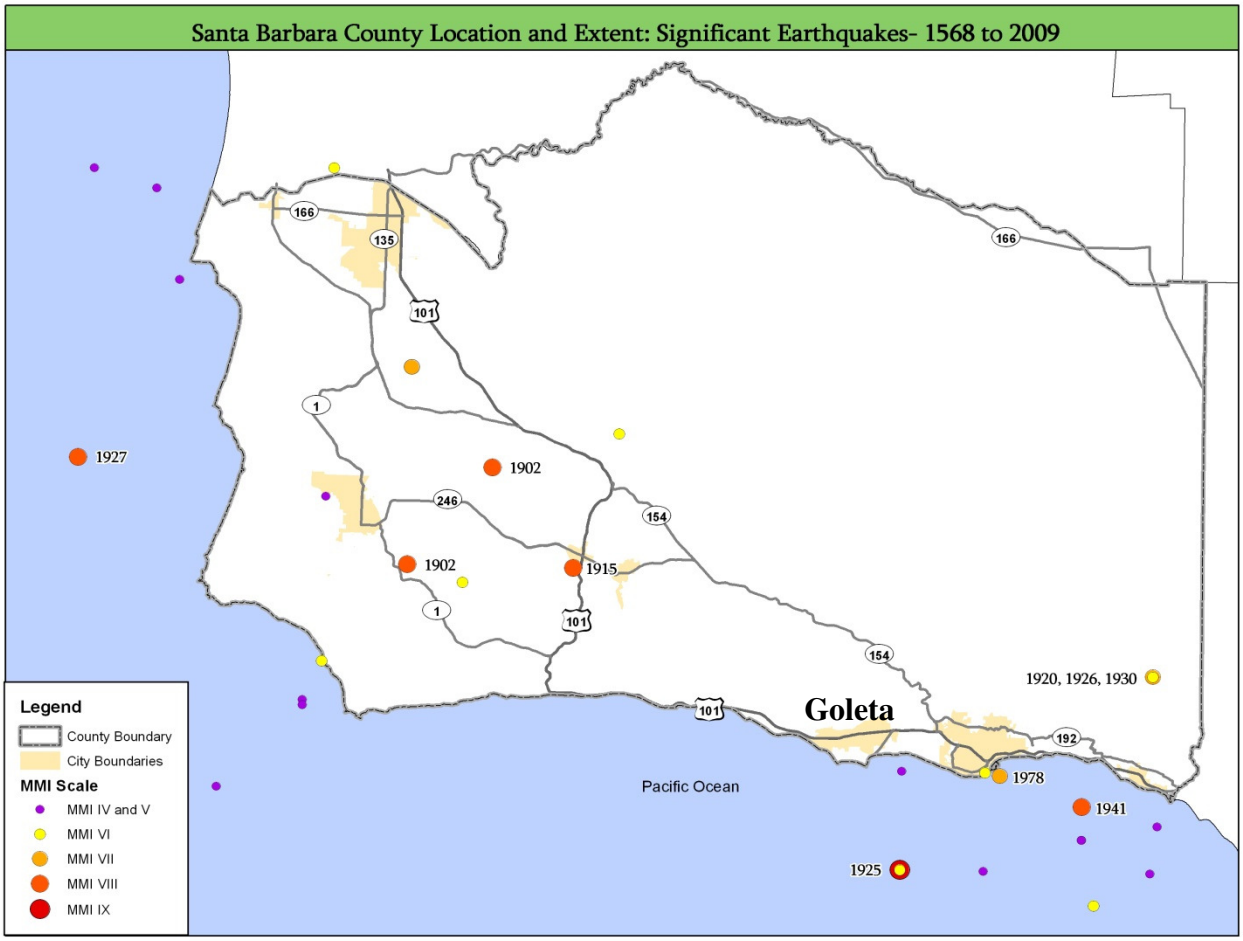
Santa Barbara County is located in a high seismic activity zone and as such has a long history of earthquakes. Although most seismic activity in California occurs along the San Andreas Fault system, most historic seismic events in the Santa Barbara region have been centered offshore on an east-west trending fault between Santa Barbara and the Channel Islands.

The following provides an overview of the most recent, significant event affecting Goleta:

> In 1978, a swarm of small earthquakes, called micro-earthquakes occurred underneath the northeastern end of the Santa Barbara Channel. Toward the end of the micro-earthquake swarm, in July and early August of 1978, an unusually large amount of oil and tar was reported on local beaches in Santa Barbara. A common occurrence for the Santa Barbara area, the oil from these natural seeps was considered only a minor nuisance. On August 13, 1978, an earthquake occurred just to the southwest of the City of Santa Barbara, about 5 miles beneath the Santa Barbara Channel. The earthquake ruptured to the northwest, focusing its energy toward Goleta, the most intense ground motion occurring between Turnpike Road and Winchester Canyon Road. Sixty-five people were treated for injuries at local hospitals. No deaths were reported.

The below map displays historical epicenters of earthquakes located in the Santa Barbara County from 1568 to 2009. The dates of the more significant earthquake events are provided adjacent to the epicenters.

Significant Earthquakes 1568 to 2009



Probability of Occurrence

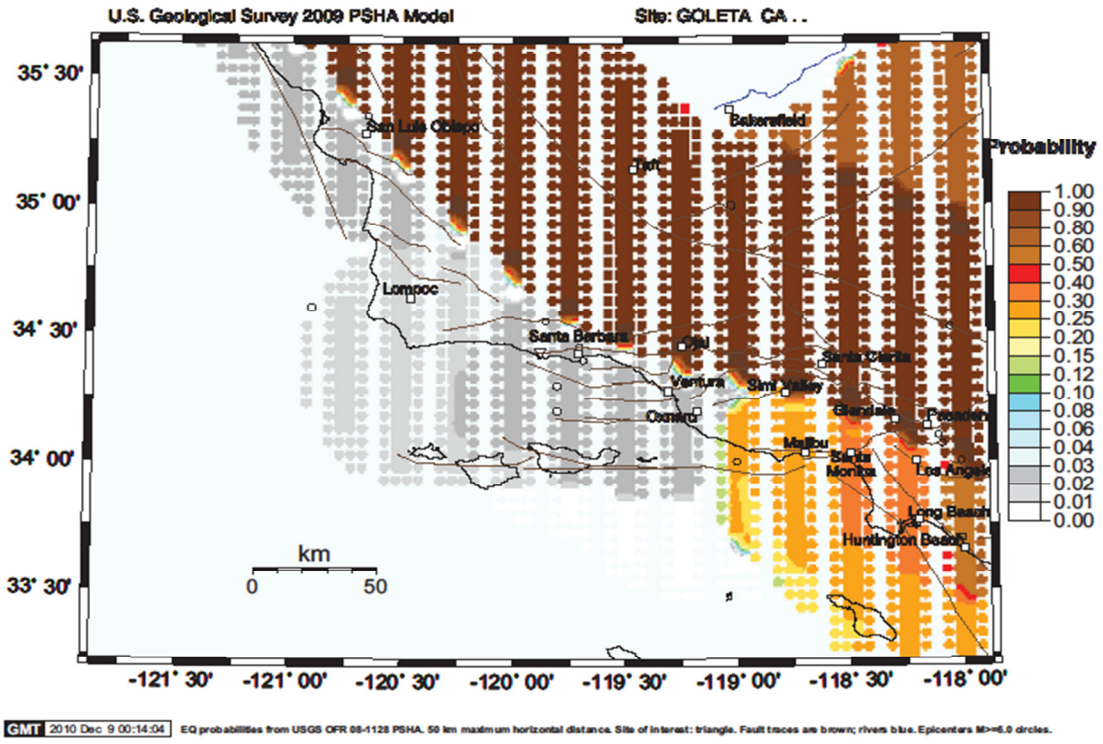
The United States Geological Survey (USGS) and their partners, as part of the latest Uniform California Earthquake Rupture Forecast Version 3 (UCERF3; 2015), have estimated the chances of having large earthquakes throughout California over the next 30 years. Statewide, the rate of earthquakes around Magnitude 6.7 (the size of the 1994 Northridge earthquake) has been estimated to be one per 6.3 years (more than 99% likelihood in the next 30 years); in southern California, the rate is one per 12 years (93% likelihood in the next 30 years). Southern California's rates are given below.

Southern California Region Earthquake Likelihoods (UCERF3, 2015)

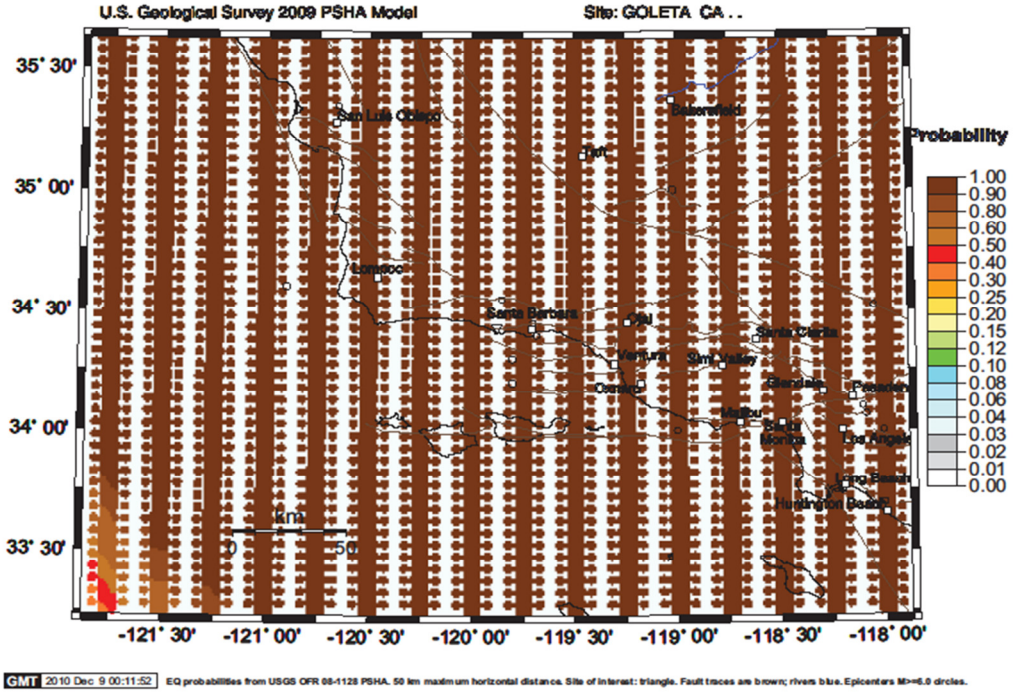
Magnitude (greater than or equal to)	Average Repeat Time (years)	30-year likelihood of one or more events
5	0.24	100%
6	2.3	100%
6.7	12	93%
7	25	75%
7.5	87	36%
8	522	7%

The City of Goleta also ran probabilities for 500 year and 2000 year scenarios for various magnitude earthquakes. The strongest earthquake the City of Goleta could experience is 7.6 with only a 3% probability in 2000 years. The figures below show all the resulting earthquake probabilities for the area.

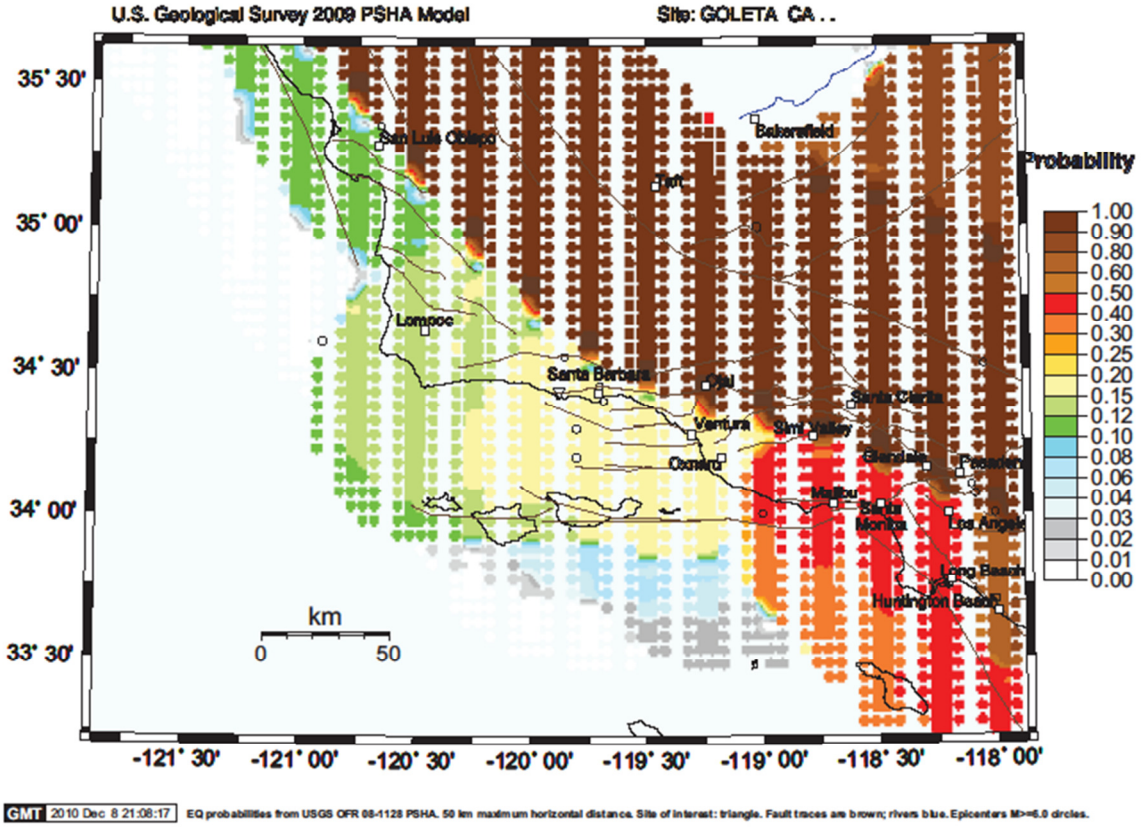
Probability of earthquake with M > 7.6 within 2000 years & 50 km



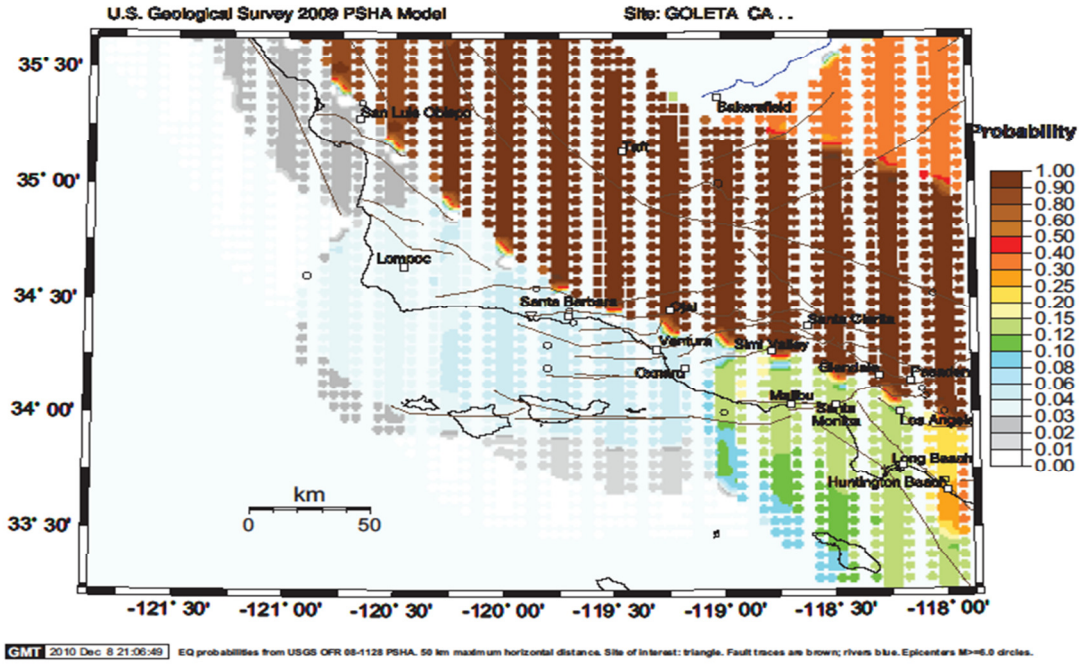
Probability of earthquake with M > 5.0 within 2000 years & 50 km



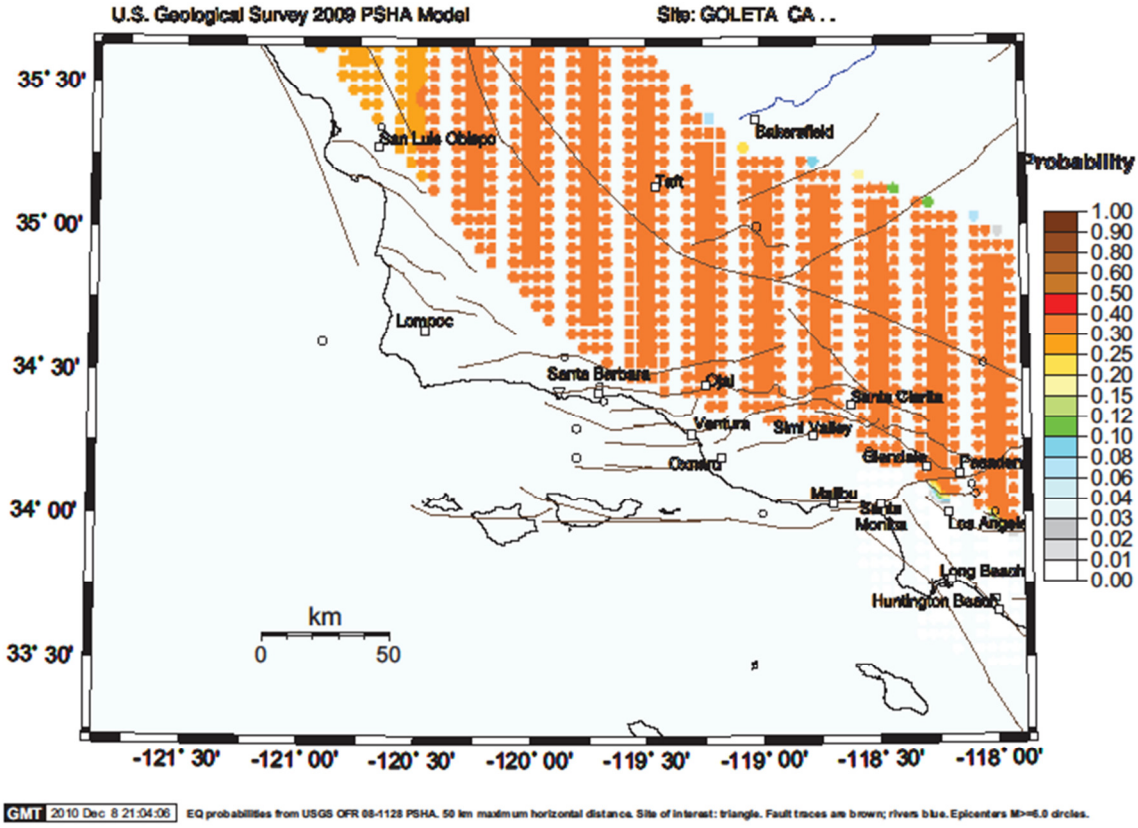
Probability of earthquake with M > 7.5 within 2000 years & 50 km



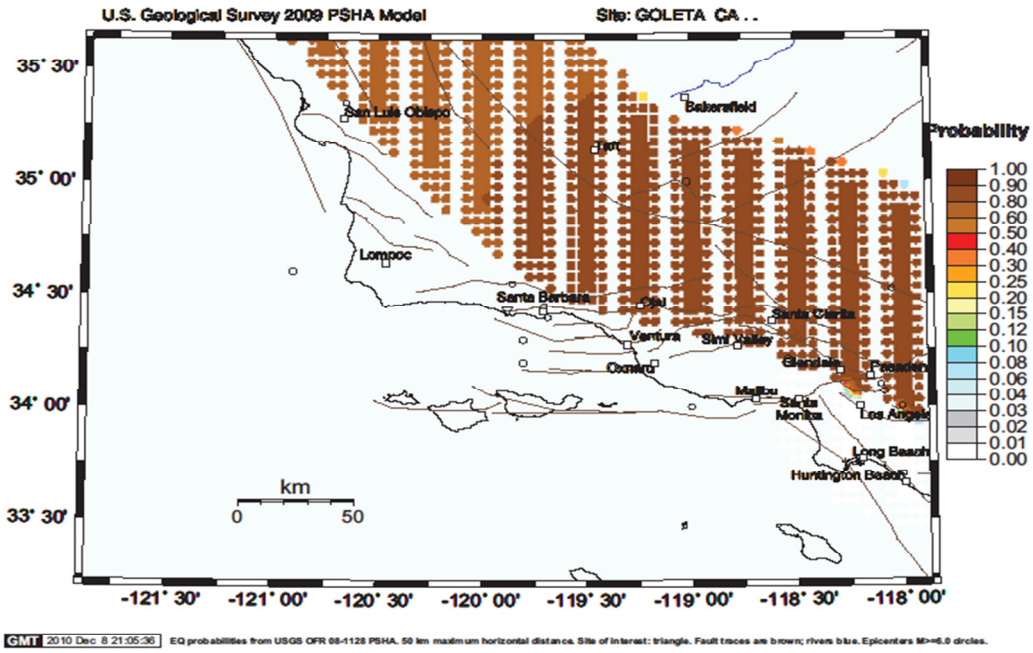
Probability of earthquake with M > 7.5 within 500 years & 50 km



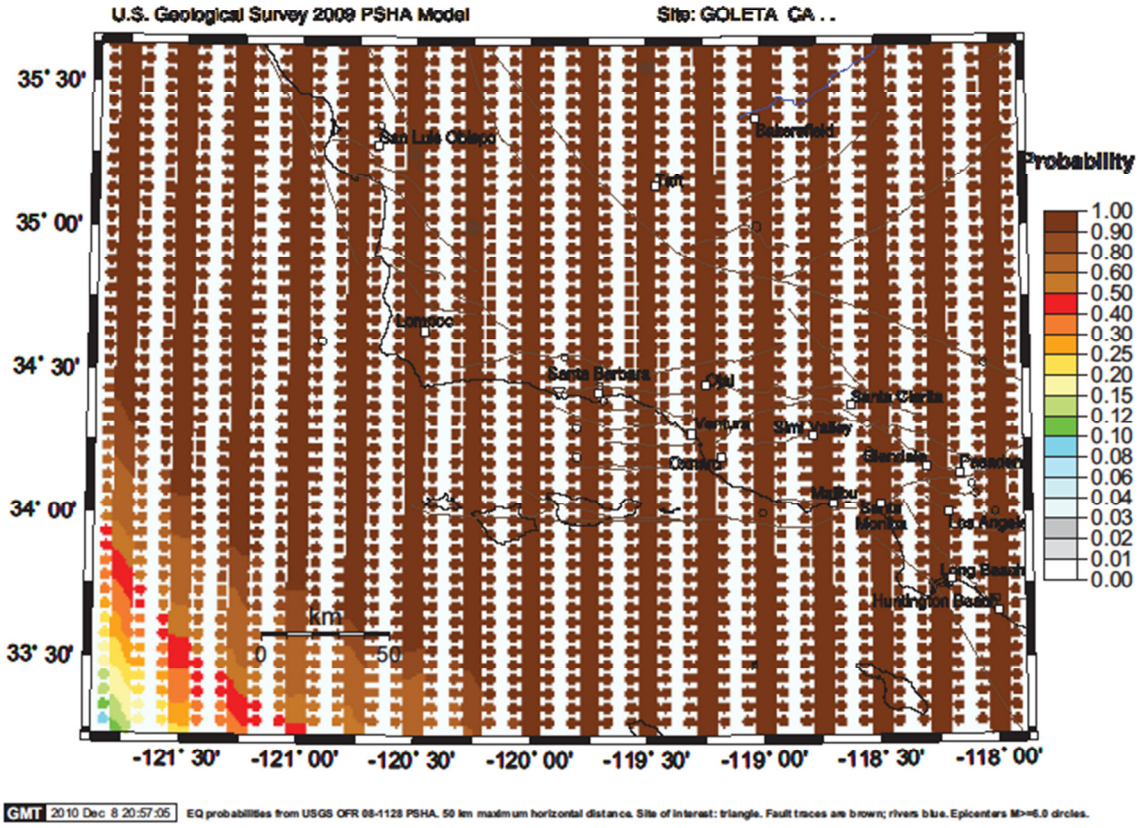
Pr [Crustal Earthquake with M > 8.0 within 500 years & 50 km]



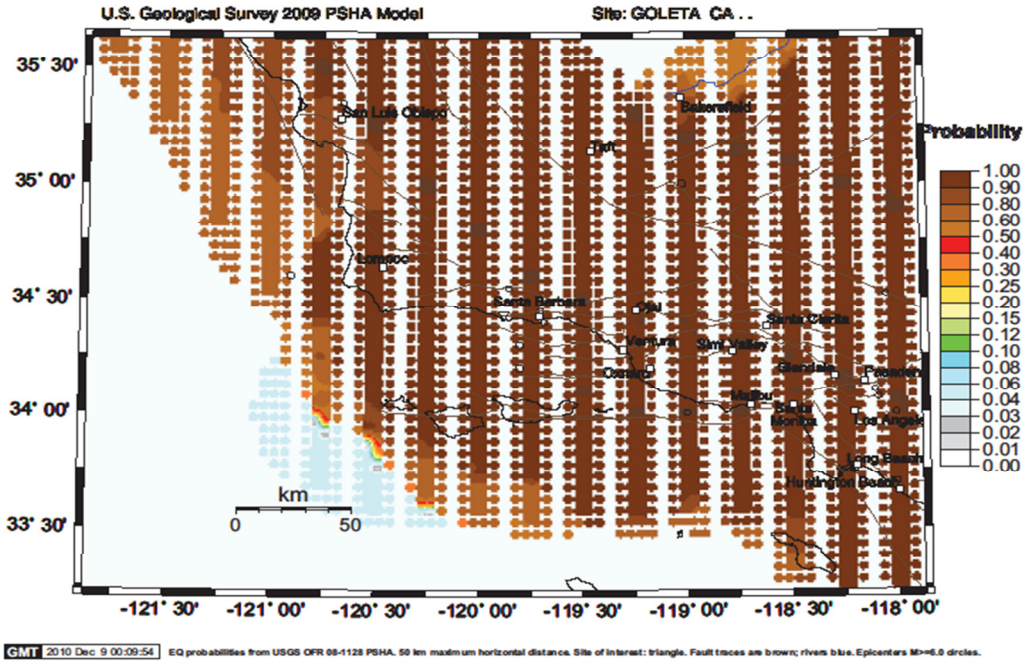
Pr [Crustal Earthquake with M > 8.0 within 2000 years & 50 km]



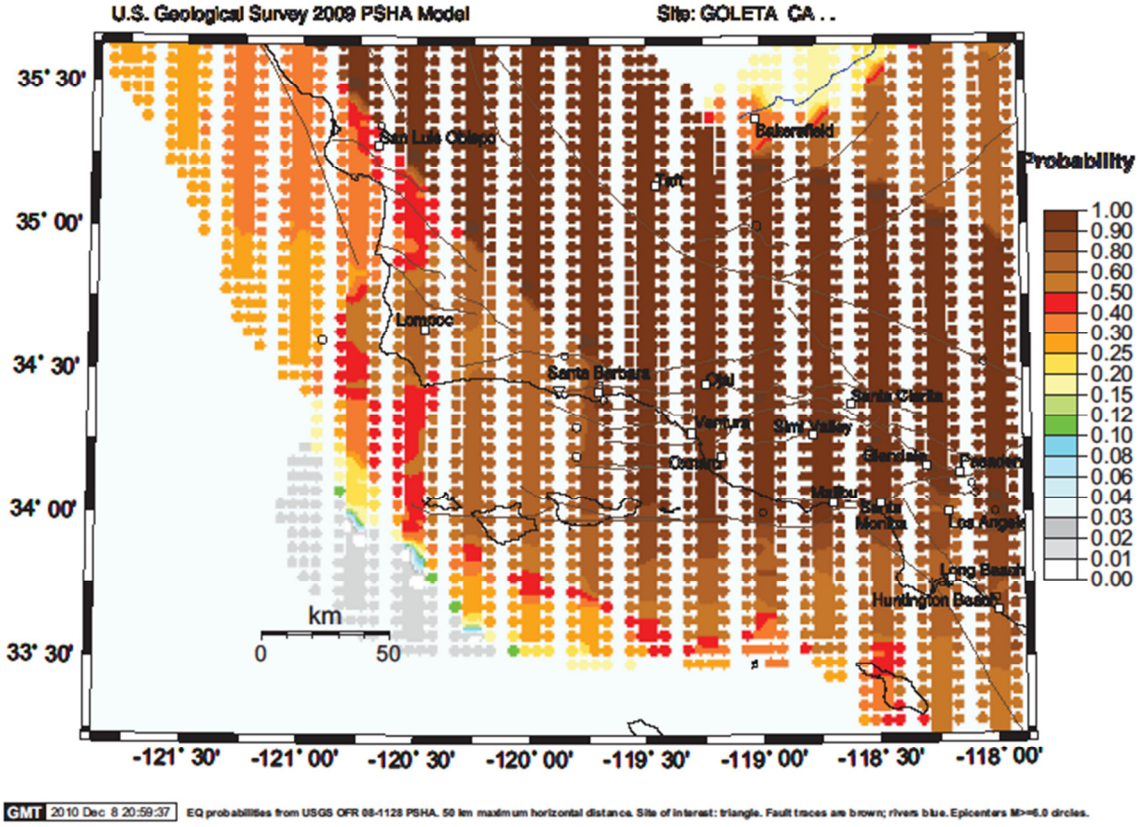
Probability of earthquake with M > 5.0 within 500 years & 50 km

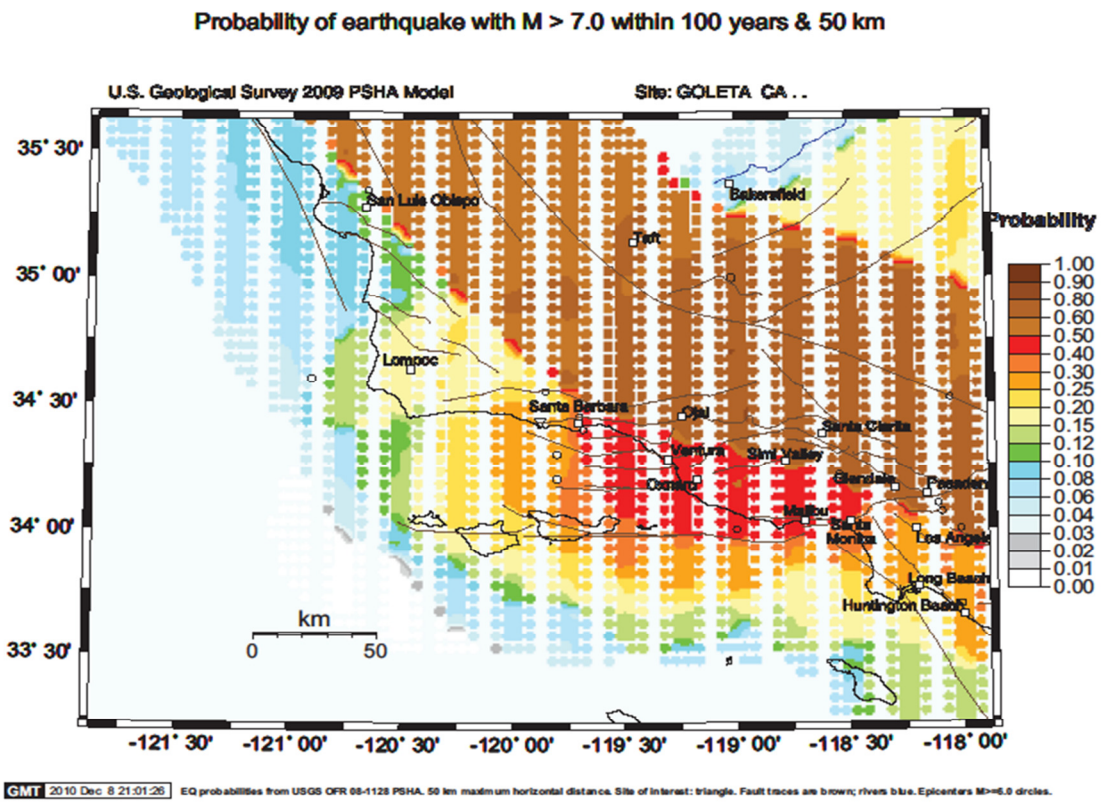


Probability of earthquake with M > 7.0 within 2000 years & 50 km



Probability of earthquake with M > 7.0 within 500 years & 50 km





Tsunami

Another hazard related to earthquakes is a Tsunami. The City of Goleta ranked the tsunami hazard as being a limited planning concern for the City, but it is worth mentioning as a subset of earthquake hazards. A tsunami is a series of long waves generated in the ocean by a sudden displacement of a large volume of water. Underwater earthquakes can cause this displacement. Tsunami waves travel at speeds averaging 450 to 600 miles per hour. As a tsunami nears the coastline, its speed diminishes, its wavelength decreases, and its height increases. Depending on the type of event that creates the tsunami, as well the remoteness of the event, the tsunami could reach land within a few minutes or after several hours. Low-lying areas could experience severe inland inundation of water and deposition of debris more than 3,000 feet inland.

The Cities of Santa Barbara and Carpinteria are located on or near several offshore geological faults, the more prominent faults being the Mesa Fault, the Santa Ynez Fault in the mountains, and the Santa Rosa Fault. There are other unnamed faults in the offshore area of the Channel Islands. These faults have been active in the past and can subject the entire area to seismic action at any time.

The relative threat for local tsunamis in the Santa Barbara area can be considered low due to low recurrence frequencies. Large, locally-generated tsunamis are estimated to occur once every 100 years. Thirteen possible tsunamis have been observed or recorded from local earthquakes between 1812 and 1988. These tsunami events were poorly documented and some are very questionable.
There is no doubt that earthquakes occurring along submarine faults off Santa Barbara could generate large destructive local tsunamis (http://www.drgeorgepc.com/Tsunami1812SantaBarbara.html). Internet research provides some documentation that two tsunamis were generated from two major

earthquakes in the Santa Barbara region in December of 1812. The size of these tsunamis may never be known with certainty, but there are unconfirmed estimates of 15 feet waves at Gaviota, 30-35 feet waves at Santa Barbara, and waves of 15 feet or more at Ventura. These estimates are found in various literature and based on anecdotal history only.

Major faults of the San Andreas zone, although capable of strong earthquakes, cannot generate any significant tsunamis. Only earthquakes in the Transverse Ranges, specifically the seaward extensions in the Santa Barbara Channel and offshore area from Point Arguello, can generate local tsunamis of any significance. The reason for this may be that earthquakes occurring in these regions result in a significant vertical displacement of the crust along these faults. Such tectonic displacements are necessary for tsunami generation.

Two separate events, occurring in 1877 and 1896, are listed in NOAA's online database as having heights of 1.8 and 2.5 feet waves. However, tsunami heights from historical records are estimated and should not be regarded as exact. Other recorded tsunamis affecting Santa Barbara during the 20th century are in the 0.1 – 1.0 foot range.

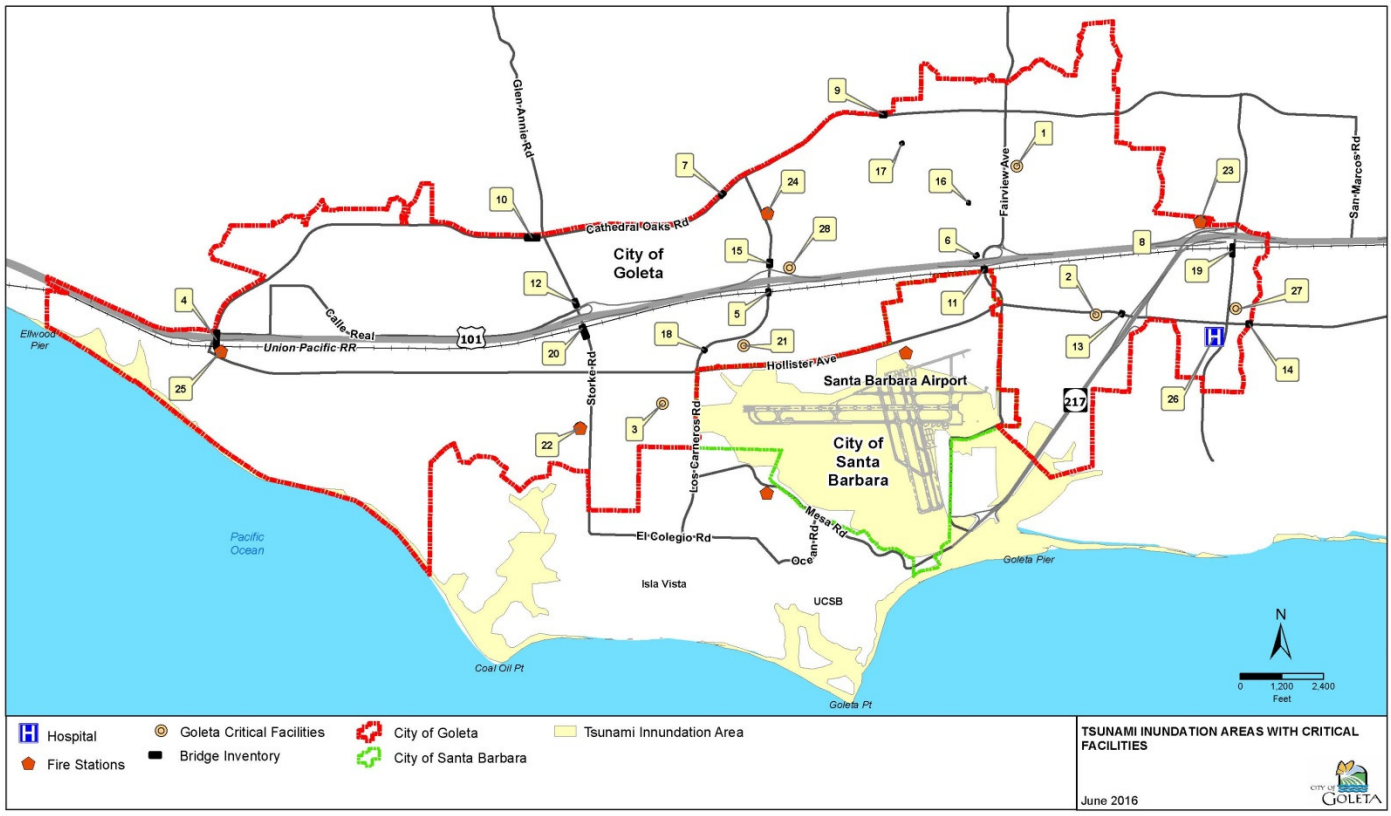
On February 27, 2010, a magnitude 8.8 earthquake occurred along the central coast of Chile and produced a tsunami. For the coast of Southern California, it was one of the largest tsunami episodes since 1964. In general, tsunami waves between 2 and 4 feet were reported. Tsunami waves of around 3 feet were reported by tide gauges across the Santa Barbara Channel. At Santa Barbara Pier, significant beach erosion was reported along with displacement of buoys. The tsunami surge lasted in excess of 20 hours. The most significant damage occurred along the coasts of Ventura and southern Santa Barbara counties. Numerous reports of dock damage were reported along with beach erosion. On March 11, 2011, a magnitude 9.0 earthquake occurred off the Pacific coast of Tohoku, Japan. This earthquake devastated many communities in Japan and caused tsunami effects across the ocean in Santa Barbara County. The only significant impact to Santa Barbara County was to the dredging contractor for the harbor. The City harbor operations documented approximately $1,500 of damages (Public Assistance). The dredging contractor may pursue SBA funding.

Probability of Occurrence

The University of Southern California (USC) Tsunami Research Group has modeled areas in Santa Barbara County that could potentially be inundated in the event of a tsunami. This model is based on potential earthquake sources and hypothetical extreme undersea, near-shore landslide sources. The data was mapped by Cal OES for the purpose of Tsunami Evacuation Planning. Extreme tsunami inundation areas were mapped and used to profile maximum potential exposure. The figure below shows tsunami inundation areas for the City of Goleta. Tsunami inundation maps help to assist cities and counties in identifying their tsunami hazard areas. The inundation line represents the maximum considered tsunami run up from a number of extreme, yet realistic, tsunami sources.

The tsunami run-up areas for the City of Goleta are shown in Figure 5-2 of the City's General Plan/Coastal Land Use Plan and on the map below.

Tsunami Inundation Areas with Critical Facilities



6. VULNERABILITY ASSESSMENT

<u>New Development in Hazard Prone Areas</u>

Since the 2011 Plan Update, three major developments have been constructed in hazard prone areas:

1. The Village at Los Carneros, 465 residential units on 43 acres, located south of Highway 101 along Los Carneros Drive
2. The Hideaways, 105 residential units on a 14.46 acre parcel in the 7000 block of Hollister Avenue (on the north side of Hollister Avenue)
3. Westar/Hollister Village Mixed Use Project, 274 multi-family residential units, five live/work residential units and 88,700 square feet of commercial space on a 23.56 acre parcel located between Highway 101 and Hollister Avenue, west of Glen Annie Road

For each of the areas where this has occurred, the vulnerability has been increased to some degree. The below table identifies which hazard prone areas each project is located in:

New Development	Dam Inundation	Flood Hazards	Wildfire	Groundwater Liquefaction	Earthquake
Village at Los Carneros	X	X	X	X	X
Westar/Hollister Village			X	X	X
The Hideaways			X	X	X

Critical Facilities

The City of Goleta has identified 28 critical facilities to be included in the Vulnerability Assessment portion of the plan. These facilities primarily include bridges, a few government structures and private medical facilities such as Goleta Valley Cottage Hospital. Of the data that was available, it was shown that the exposure value is approximately $86 million for the structures, and over $2 million in value for the contents. No values were able to be obtained for some major facilities, so the actual value may be twice these amounts.

The table below lists the City's identified critical facilities and the corresponding Map ID Numbers shown on the hazard maps.

Map ID	Critical Facility
1	Goleta Library
2	Goleta Community Center
3	City of Goleta Corporation Yard Building
4	Ellwood Overhead
5	Los Carneros Road Overhead
6	Las Vegas Creek Bridge
7	Los Carneros Creek Bridge
8	San Jose Creek Bridge at Calle Real
9	San Pedro Creek Bridge
10	Glen Annie Creek Bridge
11	Goleta Overhead Bridge
12	Glen Annie Creek Bridge
13	San Jose Creek Bridge at Hollister
14	Maria Ygnacio Creek Bridge
15	Los Carneros Creek Bridge
16	Las Vegas Creek Bridge
17	San Pedro Creek Bridge
18	Tecolotito Creek Bridge
19	Patterson Avenue Overhead
20	Glen Annie Road Overhead
21	Goleta City Hall
22	Fire Station 11
23	Fire Station 12
24	Fire Station 14
25	Fire Station 10 (under development)
26	Goleta Valley Cottage Hospital
27	Goleta Post Office at Patterson
28	Goleta CHP Station

The results of these facilities shown to be impacted (AT LEAST moderately) from each hazard are shown in the table below:

Hazard Type	Specific Risk	Count or (Average)	% of Critical Facilities Impacted	Exposure*
Flood				
	FEMA Flood Zone	12	42.80%	$30,950,000
	Sea Level Rise	1	3.57%	$1,700,000
Fire				
	Fire Severity Zone	2	7.14%	$12,400,000
	WUI	14	50%	$45,113,893
	Fire Threat	25	89.29%	$78,337,419
Dam Inundation		3	15%	$3,700,000
Tsunami Inundation		0	0%	$0
Landslide Incidence		0	0%	$0
Earthquake				
	Groundwater/Liquefaction Severity	28	100%	$88,221,501

It is worth noting that a majority of the City of Goleta's critical facilities evaluated were at least moderately impacted by the following threats:

- Flooding/FEMA Flood Zone
- Fire Threat
- Groundwater/Liquefaction Severity

A full description of the threats in the table above is provided in Section 6 of the countywide mitigation plan. As the City continues to assess its vulnerability the collection of better data will help to improve the risk assessment process in order to direct planning and mitigation decisions.

i. Flood Vulnerability

Flooding resulting from climate changes are documented in the 2015 Draft City of Goleta Coastal Vulnerability Study. The study provides the current vulnerabilities as:

- The Bacara Resort and Spa Beach House, in addition to the coastal public access to Haskell's Beach, are vulnerable to all existing hazards, including: creek flooding, coastal erosion, and coastal flooding. The estimated replacement and relocation costs are approximately $420,000.
- The two active Lease 421 oil wells are threatened by existing coastal hazards.
- The existing coastal armoring is severely outdated and derelict, and the structure will continue to erode and become a nuisance over time. The cost of removing this structure is approximately $1 million. The City's financial liability is approximately 25 percent of this amount, or equates to approximately $250,000.
- The City faces a serious potential threat from oils spills, both from active and inactive wells. The costs of mitigating these issues are high. The estimates range from $7.9 million to $63.2 million for capping and/or recapping the existing wells.
- The low lying Placencia neighborhood and nearby roads are already susceptible to substantial flooding during closed Goleta Slough conditions and creek flooding.
- FEMA has mapped 640 acres, or 12 percent of the City in an existing 100-year creek flood hazard zone.

The estimated City responsibility for vulnerabilities (from Draft 2015 City of Goleta Coastal Hazards Vulnerability Assessment and Fiscal Impact Report) is detailed below:

City Respon-sibility	Event driven clean up costs	2030 Cost	2060 Cost	2100 Cost	Total (Undiscounted)
City responsible	$500,000	$630,630	$1,175,380	$1,945,310	$4,251,320
City partially responsible	$4,750,000	$471,052	$2,193,387	$12,490,707	$19,905,146
City potentially responsible	$264,900,000	—	$1,625,000	$8,125,000	$274,650,000

ii. Wildfire Vulnerability

Map ID	Critical Facility	Bldg Value	Fire Severity Zone	WUI Zone	Fire Threat
1	Goleta Library	$5,000,000	Outside Fire Severity Zone	Outside WUI	Moderate
2	Goleta Community Center	$15,000,000	Inside – Very High	Within WUI	Moderate
3	City of Goleta Corporation Yard Building	$2,000,000	Outside Fire Severity Zone	Within WUI	Moderate
4	Ellwood Overhead	$4,000,000	Outside Fire Severity Zone	Within WUI	Moderate
5	Los Carneros Road Overhead	$9,000,000	Outside Fire Severity Zone	Within WUI	Moderate
6	Las Vegas Creek Bridge	$1,500,000	Outside Fire Severity Zone	Outside WUI	Moderate
7	Los Carneros Creek Bridge	$8,400,000	Inside – High	Within WUI	Little or No Threat
8	San Jose Creek Bridge at Calle Real	$1,900,000	Outside Fire Severity Zone	Outside WUI	Moderate
9	San Pedro Creek Bridge	$1,200,000	Outside Fire Severity Zone	Outside WUI	Moderate
10	Glen Annie Creek Bridge	$1,000,000	Outside Fire Severity Zone	Outside WUI	Little or No Threat
11	Goleta Overhead Bridge	$8,000,000	Outside Fire Severity Zone	Outside WUI	Moderate
12	Glen Annie Creek Bridge	$1,000,000	Outside Fire Severity Zone	Outside WUI	Moderate
13	San Jose Creek Bridge at Hollister	$4,500,000	Outside Fire Severity Zone	Within WUI	Moderate
14	Maria Ygnacio Creek Bridge	$1,500,000	Outside Fire Severity Zone	Outside WUI	Moderate
15	Los Carneros Creek Bridge	$1,000,000	Outside Fire Severity Zone	Within WUI	Moderate
16	Las Vegas Creek Bridge	$750,000	Outside Fire Severity Zone	Outside WUI	Moderate
17	San Pedro Creek Bridge	$650,000	Outside Fire Severity Zone	Outside WUI	Moderate
18	Tecolotito Creek Bridge	$1,700,000	Outside Fire Severity Zone	Within WUI	Moderate
19	Patterson Avenue Overhead	$9,000,000	Outside Fire Severity Zone	Outside WUI	Moderate
20	Glen Annie Road Overhead	$9,000,000	Outside Fire Severity Zone	Outside WUI	Moderate
21	Goleta City Hall	Leased	Outside Fire Severity Zone	Within WUI	Moderate
22	Fire Station 11	$1,023,000	Outside Fire Severity Zone	Within WUI	Moderate
23	Fire Station 12	$1,331,948	Outside Fire Severity Zone	Outside WUI	Moderate
24	Fire Station 14	$391,000	Outside Fire Severity Zone	Within WUI	Little or No Threat
25	Fire Station 10 (under development)	$4,500,000	Outside Fire Severity Zone	Within WUI	Moderate
26	Goleta Valley Cottage Hospital	Not known	Outside Fire Severity Zone	Within WUI	Moderate
27	Goleta Post Office at Patterson	Not known	Outside Fire Severity Zone	Outside WUI	Moderate
28	Goleta CHP Station	Not known	Outside Fire Severity Zone	Within WUI	Moderate

iii. Earthquake Vulnerability

Map ID	Critical Facility	Type	Bldg Value	Groundwater/ Liquefaction Severity	Peak Ground Acceleration
1	Goleta Library	Government	$5,000,000	High Severity	2.55
2	Goleta Community Center	Government	$15,000,000	Moderate Groundwater/High Liquefaction	2.55
3	City of Goleta Corporation Yard Building	Government	$2,000,000	Moderate Groundwater/High Liquefaction	
4	Ellwood Overhead		$4,000,000	Moderate Groundwater/Low Liquefaction	2.55
5	Los Carneros Road Overhead	Bridge	$9,000,000	Moderate Groundwater/Low Liquefaction	2.55
6	Las Vegas Creek Bridge	Bridge	$1,500,000	High Groundwater and Liquefaction	
7	Los Carneros Creek Bridge	Bridge	$8,400,000	Moderate Groundwater/Low Liquefaction	
8	San Jose Creek Bridge at Calle Real	Bridge	$1,900,000	High Groundwater and Liquefaction	
9	San Pedro Creek Bridge	Bridge	$1,200,000	Moderate Groundwater/High Liquefaction	
10	Glen Annie Creek Bridge	Bridge	$1,000,000	Moderate Groundwater/Low Liquefaction	2.55
11	Goleta Overhead Bridge	Bridge	$8,000,000	High Groundwater and Liquefaction	2.55
12	Glen Annie Creek Bridge	Bridge	$1,000,000	Moderate Groundwater/Low Liquefaction	2.55
13	San Jose Creek Bridge at Hollister	Bridge	$4,500,000	Moderate Groundwater/High Liquefaction	2.55
14	Maria Ygnacio Creek Bridge	Bridge	$1,500,000	Moderate Groundwater/High Liquefaction	2.45
15	Los Carneros Creek Bridge	Bridge	$1,000,000	Moderate Groundwater/High Liquefaction	2.55
16	Las Vegas Creek Bridge	Bridge	$750,000	High Severity Groundwater and Liquefaction	2.55
17	San Pedro Creek Bridge	Bridge	$650,000	Moderate Severity Groundwater/High Severity Liquefaction	2.55

Map ID	Critical Facility	Type	Bldg Value	Groundwater/ Liquefaction Severity	Peak Ground Acceleration
18	Tecolotito Creek Bridge	Bridge	$1,700,000	High Severity Groundwater and Liquefaction	2.55
19	Patterson Avenue Overhead		$9,000,000	Moderate Severity Groundwater/High Severity Liquefaction	2.65
20	Glen Annie Road Overhead		$9,000,000	Moderate Severity Groundwater/Low Severity Liquefaction	2.55
21	Goleta City Hall	Bridge	Leased	High Severity Groundwater and Liquefaction	2.55
22	Fire Station 11	Bridge	$1,023,000	Moderate Severity Groundwater/Low Severity Liquefaction	2.55
23	Fire Station 12	Bridge	$1,331,948	Moderate Severity Groundwater/High Severity Liquefaction	2.55
24	Fire Station 14	Bridge	$391,000	Moderate Severity Groundwater/High Severity Liquefaction	2.55
25	Fire Station 10 (under development)	Bridge	$4,500,000	Moderate Severity Groundwater/Low Severity Liquefaction	2.55
26	Goleta Valley Cottage Hospital	Private Hospital	Not known	Moderate Severity Groundwater/High Severity Liquefaction	2.65
27	Goleta Post Office at Patterson	Government	Not known	Moderate Severity Groundwater/High Severity Liquefaction	2.65
28	Goleta CHP Station	Government	Not known	Moderate Severity Groundwater/High Severity Liquefaction	2.55

iv. Tsunami Vulnerability

Map ID	Critical Facility	Type	Bldg Value	Tsunami Inundation Area
1	Goleta Library	Government	$5,000,000	Outside
2	Goleta Community Center	Government	$15,000,000	Outside
3	City of Goleta Corporation Yard Building	Government	$2,000,000	Outside
4	Ellwood Overhead		$4,000,000	Outside
5	Los Carneros Road Overhead	Bridge	$9,000,000	Outside
6	Las Vegas Creek Bridge	Bridge	$1,500,000	Outside
7	Los Carneros Creek Bridge	Bridge	$8,400,000	Outside
8	San Jose Creek Bridge at Calle Real	Bridge	$1,900,000	Outside
9	San Pedro Creek Bridge	Bridge	$1,200,000	Outside
10	Glen Annie Creek Bridge	Bridge	$1,000,000	Outside
11	Goleta Overhead Bridge	Bridge	$8,000,000	Outside
12	Glen Annie Creek Bridge	Bridge	$1,000,000	Outside
13	San Jose Creek Bridge at Hollister	Bridge	$4,500,000	Outside
14	Maria Ygnacio Creek Bridge	Bridge	$1,500,000	Outside
15	Los Carneros Creek Bridge	Bridge	$1,000,000	Outside
16	Las Vegas Creek Bridge	Bridge	$750,000	Outside
17	San Pedro Creek Bridge	Bridge	$650,000	Outside
18	Tecolotito Creek Bridge	Bridge	$1,700,000	Outside
19	Patterson Avenue Overhead		$9,000,000	Outside
20	Glen Annie Road Overhead		$9,000,000	Outside
21	Goleta City Hall	Bridge	Leased	Outside
22	Fire Station 11	Bridge	$1,023,000	Outside
23	Fire Station 12	Bridge	$1,331,948	Outside
24	Fire Station 14	Bridge	$391,000	Outside
25	Fire Station 10 (under development)	Bridge	$4,500,000	Outside
26	Goleta Valley Cottage Hospital	Private Hospital	Not known	Outside
27	Goleta Post Office at Patterson	Government	Not known	Outside
28	Goleta CHP Station	Government	Not known	Outside

7. MITIGATION STRATEGY

In preparation of the 2016 update of this plan, the City's Local Planning Team reviewed the Mitigation Priorities from the previous plan and validated them for continued relevance. Additionally, the City made minor revisions to the Countywide goals and objectives to better reflect the needs for the City. This section contains the City's updated and most current mitigation strategy as of July 2016.

i. Mitigation Priorities

Goals and Objectives

The City of Goleta modified the goals and objectives as determined by the County wide Mitigation Advisory Committee to meet the specific needs of the City. These goals and objectives represent a vision of long-term hazard reduction or enhancement of capabilities.

Goal 1: Promote disaster-resistant future development.
Objective 1.A: Facilitate the development or updating of the Comprehensive Plan, City General Plans and zoning ordinances to limit (or ensure safe) development in hazard areas.
Objective 1.B: Facilitate the adoption of building codes and development regulations that protect existing assets and require disaster resistant design for new development in hazard areas.
Objective 1.C: Facilitate consistent enforcement of the comprehensive plan, zoning ordinances, and building and fire codes
Goal 2: Build and support capacity and commitment for existing assets, including people, critical facilities/infrastructure, and public facilities, to become less vulnerable to hazards.
Objective 2.A: Increase awareness and knowledge of hazard mitigation principles and practice among local government officials.
Objective 2.B: Decrease the vulnerability of public infrastructure including facilities, roadways, and utilities.
Objective 2.C: Protect existing structures with the highest relative vulnerability to the effects of identified hazards through structural mitigation projects.
Notes: This goal focuses on the programmatic and structural approaches to reducing risk to existing development. The term "local government" is used to refer to city, county, and special districts.

Goal 3: Enhance hazard mitigation coordination and communication.
Objective 3.A: Educate the public to increase awareness of hazards, potential impact, and opportunities for mitigation actions.
Objective 3.B: Monitor and publicize the effectiveness of mitigation actions implemented countywide.
Objective 3.C: Participate in initiatives that have mutual hazard mitigation benefits for the County, cities, state, tribal, and federal governments, where feasible.
Objective 3.D: Encourage other organizations, within the public, private, and non-profit sectors, to incorporate hazard mitigation activities into their existing programs and plans.
Objective 3.E: Encourage partnerships between the state, local, and tribal governments to identify, prioritize, and implement mitigation actions.
Objective 3.F: Support a coordinated permitting activities process and consistent enforcement.
Note: This goal focuses on communication and coordination required for successful mitigation of risk.

ii. Mitigation Progress

The City's Local Planning Team reviewed the mitigation actions listed in the 2011 plan to determine the status of each action. This following table includes only the actions that have been completed or were underway as of June 2016.

Ultimately, all of these projects will be completed and are no longer necessary for consideration by the LPT regarding implementation approaches. Mitigation actions identified for future implementation are presented in the following section.

Table 11-8 Completed and In-Progress Mitigation Actions					
2011 Plan Action #	**Mitigation Action Description**	**Status**	**Completion Date**	**Comments**	**Priority Score**
2011-1	San Jose Creek/Hollister Ave Bridge Replacement Project	In Progress	Creek Section Completed; Bridge by 2017	Bridge at Hollister by 2017	18
2011-2	Lake Los Carneros Outlet Structure Rehabilitation	Completed	2015		10
2011-3	Join the NFIP Community Rating System (CRS)	In Progress			8
2011-4	San Pedro Creeks Culvert Modifications	In Progress	2016		11
2011-5	Develop New Fire Station in Western Goleta (Fire Station 10)	In Progress	Target - 2018	Design Contract was executed in January 2016; MOU with County was executed in March 2016; Design process is underway	18
2011-6	Avenida Gorrion New Storm Drain	Completed	2016		11

iii. Mitigation Approach

The City of Goleta's Local Planning Team used the STAPLE/E Criteria (Social, Technical, Administrative, Political, Legal, Economic, and Environmental) to evaluate the mitigation actions identified in the 2004 plan which have not been completed or implemented (noted as deferred) in addition to newly identified mitigation actions. The social, technical, administrative, political, legal, economic, and environmental aspects of each project were ranked using the following scale:

0 = Poor (negative impacts)
1 = Fair (neutral or no impacts)
2 = Good (positive impacts)
3 = Excellent (very favorable impacts)

This process was used to help ensure that the most equitable and feasible actions would be undertaken based on available resources. Table 11-10 presents the STAPLE/E criteria.

TABLE 11-10 — STAPLE/ E REVIEW AND SELECTION CRITERIA FOR ALTERNATIVES

SOCIAL

- IS THE PROPOSED ACTION SOCIALLY ACCEPTABLE TO THE COMMUNITY?
- ARE THERE EQUITY ISSUES INVOLVED THAT WOULD MEAN THAT ONE SEGMENT OF THE COMMUNITY ARE TREATED UNFAIRLY?
- WILL THE ACTION CAUSE SOCIAL DISRUPTION?

TECHNICAL

- WILL THE PROPOSED ACTION WORK?
- WILL IT CREATE MORE PROBLEMS THAN IT SOLVES?
- DOES IT SOLVE A PROBLEM OR ONLY A SYMPTOM?
- IS IT THE MOST USEFUL ACTION IN LIGHT OF OTHER COMMUNITY GOALS?

ADMINISTRATIVE

- CAN THE COMMUNITY IMPLEMENT THE ACTION?
- IS THERE SOMEONE TO COORDINATE AND LEAD THE EFFORT?
- IS THERE SUFFICIENT FUNDING, STAFF, AND TECHNICAL SUPPORT AVAILABLE?
- ARE THERE ONGOING ADMINISTRATIVE REQUIREMENTS THAT NEED TO BE MET?

POLITICAL

- IS THE ACTION POLITICALLY ACCEPTABLE?
- IS THERE PUBLIC SUPPORT BOTH TO IMPLEMENT AND TO MAINTAIN THE PROJECT?

LEGAL

- IS THE COMMUNITY AUTHORIZED TO IMPLEMENT THE PROPOSED ACTION? IS THERE A CLEAR LEGAL BASIS OR PRECEDENT FOR THIS ACTIVITY?
- ARE THERE LEGAL SIDE EFFECTS? COULD THE ACTIVITY BE CONSTRUED AS A TAKING?
- IS THE PROPOSED ACTION ALLOWED BY THE GENERAL PLAN, OR MUST THE GENERAL PLAN BE AMENDED TO ALLOW THE PROPOSED ACTION?
- WILL THE COMMUNITY BE LIABLE FOR ACTION OR LACK OF ACTION?
- WILL THE ACTIVITY BE CHALLENGED?

ECONOMIC

- WHAT ARE THE COSTS AND BENEFITS OF THIS ACTION?
- DO THE BENEFITS EXCEED THE COSTS?
- ARE INITIAL, MAINTENANCE, AND ADMINISTRATIVE COSTS TAKEN INTO ACCOUNT?
- HAS FUNDING BEEN SECURED FOR THE PROPOSED ACTION? IF NOT, WHAT ARE THE POTENTIAL SOURCES (PUBLIC, NON-PROFIT, AND PRIVATE)?
- HOW WILL THIS ACTION AFFECT THE FISCAL CAPABILITY OF THE COMMUNITY?
- WHAT BURDEN WILL THIS ACTION PLACE ON THE TAX BASE OR LOCAL ECONOMY?
- WHAT ARE THE BUDGET AND REVENUE EFFECTS OF THIS ACTIVITY?
- DOES THE ACTION CONTRIBUTE TO OTHER COMMUNITY GOALS, SUCH AS CAPITAL IMPROVEMENTS OR ECONOMIC DEVELOPMENT?
- WHAT BENEFITS WILL THE ACTION PROVIDE?

TABLE 11-10 — STAPLE/ E REVIEW AND SELECTION CRITERIA FOR ALTERNATIVES

ENVIRONMENTAL

- HOW WILL THE ACTION AFFECT THE ENVIRONMENT?
- WILL THE ACTION NEED ENVIRONMENTAL REGULATORY APPROVALS?
- WILL IT MEET LOCAL AND STATE REGULATORY REQUIREMENTS?

ARE ENDANGERED OR THREATENED SPECIES LIKELY TO BE AFFECTED?

The following table presents the six actions to be considered and implemented during the life of this plan update and their priority score based on the STAPLEE analysis.

Table 11-11 Mitigation Actions for Future Implementation

2011 Plan Action #	Mitigation Action Description	Status	Responsible Dept.	Comments	Priority Score	S	T	A	P	L	E	E
2011-1	San Jose Creek/Hollister Avenue Bridge Replacement Project	In Progress	Public Works Dept..	Creek Bridge completed by 2017	18	3	3	3	3	1	2	3
2011-2	Lake Los Carneros Outlet Structure Rehabilitation	Completed	Public Works Dept.		10	1	2	2	1	1	1	2
2011-3	Join the NFIP Community Rating System (CRS)	Deferred	Public Works Dept.		8	1	1	1	1	1	2	1
2011-4	San Pedro Creeks Culvert Modifications	In Progress	Public Works Dept.	2016	11	1	2	2	1	1	2	2
2011-5	Develop New Fire Station in Western Goleta	In Progress	NS/Public Safety	MOU executed with County in March 2016; Contract Award for Design in Jan 2016.	18	3	3	2	3	2	2	3
2011-6	Avenida Gorrion New Storm Drain	2016	Public Works Dept.	2016	11	1	2	2	1	1	2	2
2017 PLAN ACTION #	**NEW MITIGATION ACTION**											
2017-1	Cathedral Oaks/Camino Laguna Vista Strom Drain		Public Works Dept.	2017								
2017-2	Misc. OT Drainage Improvements		Public Works Dept.	Target by 2020								
2017-3	Goleta Community Center – Seismic Upgrades		NS/Public Safety	2017								
2017-4	Critical Infrastructure Threat Assessment Identification Project		Public Works	2018								

iv. Implementation Plan

Mitigation Action 2011-1		**In Progress**
Project Description: San Jose Creek/Hollister Avenue Bridge Replacement Project This project will construct capacity improvements to the San Jose Creek Channel that will increase the design storm from a 25 year to a 100 year storm event. The new channel will be 50 feet wide with vertical walls and an articulated concrete revetment bottom. The revetment will include fish passage. The project will require the reconstruction of the entire channel and the replacement of the Hollister Avenue Bridge over San Jose Creek. The bridge project will begin after the channel portion is completed. This second phase of the project will replace the Hollister Avenue Bridge over San Jose Creek. The new bridge will have a 100 year storm flow capacity and will be designed to fit with the San Jose Creek project. The project will reduce flooding and related impacts within Old Town Goleta by increasing the capacity of the channel to accommodate a 100 year storm event. The project will result in a redrawing of the FEMA flood plain maps to remove approximately 200 parcels from the flood plain. • Construction of channel improvements completed. • Obtain permits • Construct bridge project		
Applicable Hazards		
Significant	**Moderate**	**Limited**
Flooding (including coastal surge) Wildfire Agriculture (pests and disease) Earthquake	Landslide / Coastal Erosion	Dam Failure Tsunami
Existing and Potential Resources: Funding for this project is a combination of Neighborhood Services and Public Safety, Santa Barbara County Flood Control District, Goleta Valley Land Trust and California Fish and Wildlife Fisheries Restoration Grant (FRGP) funds. Proposition 84 and Habitat Conservation Grants are also expected to be awarded.		
Responsible Department: Public Works Department – Engineering, Public Works Maintenance, with cooperation from County Flood Control District		
Target Completion Date: 2018		
Additional Comments / Status Report: The threat to public safety, infrastructure, commerce and residential and commercial properties in terms of dollars, in the event of a failure is expected to significantly exceed the cost of this project.		

Mitigation Action #2011-2 has been completed.

Mitigation Action # 2011 – 3		
Project Description: Join the NFIP Community Rating System (CRS) The NFIP/CRS program is a points based program. Fixed numbers of points are assigned for eligible floodplain management and mitigation activities which exceed the minimum standards of NFIP participation (e.g. development of this plan, more restrictive floodplain ordinance, outreach, etc.). A community accumulates points based on activities it undertakes and as the points accumulate, the community's rating moves down by classes. Each class level the City obtains results in an additional 5% reduction on all flood insurance premiums for policies held by citizens and businesses in Goleta. Goleta will join the CRS program. • Arrange a meeting with FEMA Region IX and its CRS servicing contractor, ISO Commercial Services to review Goleta's programs and establish how many points it is eligible for and at what class it could enter the program. • Make application to FEMA to join.		
Applicable Hazards		
Significant	**Moderate**	**Limited**
Flooding (including coastal surge) Wildfire Agriculture (pests and disease) Earthquake	Landslide / Coastal Erosion	Dam Failure Tsunami
Existing and Potential Resources: Departmental Budgets		
Responsible Department: Public Works Department – Engineering Planning and Environmental Review Department – Building and Safety		
Target Completion Date: December 2017		
Additional Comments / Status Report: Relatively inexpensive measure that can be expected to result in long term mitigation benefits		

Mitigation Action # 2011 – 4

Project Description: San Pedro Creek Culvert Modifications

This project will construct capacity improvements to San Pedro Creek at Calle Real, Route 101, and at Union Pacific Railroad (UPRR) by replacing the existing culvert with a larger volume bridge structure. The City's portion of the funding is for culvert capacity beneath Calle Real.

The existing culvert has capacity rated for a 10 year storm event. These areas have been flooded several times, and the flood waters also cover HWY 101. Replacing this culvert will increase capacity to a 25 year storm event and reduce flood events north of Calle Real in the City of Goleta.

- Identify funding
- Design and construct project

Applicable Hazards

Significant	**Moderate**	**Limited**
☒ Flooding (including coastal surge)	☐ Landslide / Coastal Erosion	☐ Dam Failure
☐ Wildfire		☐ Tsunami
☐ Agriculture (pests and disease)		
☐ Earthquake		

Existing and Potential Resources: Funding for this project is a combination of Measure A (City share), State Highway Operations and Protection Program (SHOPP) and the Santa Barbara County Flood Control District.

Responsible Department: Caltrans is the lead agency working with Santa Barbara County Flood Control and the City of Goleta – Community Services Department.

Target Completion Date: 2016

Mitigation Action # 2011-5		**In Progress**
Project Description: Develop New Fire Station in Western Goleta This is a joint City/County project. It has long been documented that fire service in Western Goleta does not meet the National Fire Protection Association (NFPA) guidelines for emergency response time and population to firefighter ratio. Guidelines for response time specify a maximum of 5 minutes and the maximum recommended population to firefighter ratio is 4,000:1. Fire Station 11 which currently serves Western Goleta cannot meet the 5-minut response threshold. In addition, the existing population to firefighter ratio is 7,198:1 which well exceed the recommended maximum ratio. The project consists of the design and construction of a new fire station, approximately 11,600 square feet in size, with associated landscaping and appurtenant facilities on a City-owned parcel located at 7952 Hollister Avenue. The site is adjacent to the new Cathedral Oaks Interchange. It is anticipated that the new fire station will be a three-bay, single-story building. Site improvements are expected to include an emergency generator and an above-ground fueling facility. • Initiate and complete design phase • Obtain permits • Complete construction		
Applicable Hazards		
Significant	**Moderate**	**Limited**
Flooding (including coastal surge) Wildfire Agriculture (pests and disease) Earthquake	Landslide / Coastal Erosion	Dam Failure Tsunami
Existing and Potential Resources: City and County Fire Facility Development Impact Fee (DIF) funds; City of Goleta Development Agreements with Developers		
Responsible Department: City of Goleta –Neighborhood Services and Public Safety Department with assistance from the Public Works Department in coordination with the County Fire Protection District		
Target Completion Date: 2017-2018		

Mitigation Action # 2011-6		**In progress**
Project Description: Avenida Gorrion Storm Drain This is a City flood control project proposed. Insufficient capacity of existing storm drain system causes repeated flooding along Avenida Gorrion between La Patera Lane and Valdez Avenue putting homes on the street at risk. Installation of a new storm drain line will reduce or eliminate flooding during storm events. • Identify funding • Design and construct project		
Applicable Hazards		
Significant	**Moderate**	**Limited**
Flooding (including coastal surge) Wildfire Agriculture (pests and disease) Earthquake	Landslide / Coastal Erosion	Dam Failure Tsunami
Existing and Potential Resources: FEMA grants; City CIP funding;		
Responsible Department: The City of Goleta Public Works Department will be the responsible for this project.		
Target Completion Date: 2016		

Mitigation Action # 2017-1		**In progress**
Project Description: Cathedral Oaks/Camino Laguna Vista Storm Drain This is a City flood control project proposed. Insufficient capacity of existing storm drain system causes repeated flooding in the area. Installation of a new storm drain line will reduce or eliminate flooding during storm events. • Identify funding • Design and construct project		
Applicable Hazards		
Significant	**Moderate**	**Limited**
Flooding (including coastal surge)	Landslide / Coastal Erosion	Dam Failure Tsunami
Existing and Potential Resources: FEMA grants; City CIP funding;		
Responsible Department: The City of Goleta Public Works Department will be the responsible for this project.		
Target Completion Date: 2017		

Mitigation Action # 2017-2		**In progress**
Project Description: Miscellaneous Old Town Drainage Improvements This is a City flood control project proposed. Insufficient capacity of existing storm drain system causes repeated flooding in Old Town. Installation of new storm drain lines will reduce or eliminate flooding during storm events. • Identify funding • Design and construct project		
Applicable Hazards		
Significant	**Moderate**	**Limited**
Flooding (including coastal surge)	Landslide / Coastal Erosion	Dam Failure Tsunami
Existing and Potential Resources: FEMA grants; City CIP funding;		
Responsible Department: The City of Goleta Public Works Department will be the responsible for this project.		
Target Completion Date: 2020		

Mitigation Action # 2017-3		**In progress**
Project Description: Goleta Community Center Seismic Upgrades Complete Structural Tier 1 and limited Tier 2 life-safety seismic upgrades to the Goleta Community Center including reinforcements, roof sheathing, and more. • Identify funding • Design and construct project		
Applicable Hazards		
Significant	**Moderate**	**Limited**
Earthquake	Landslide / Coastal Erosion Flooding	Tsunami
Existing and Potential Resources: FEMA grants; City CIP funding;		
Responsible Department: The City of Goleta Public Works Department will be the responsible for this project.		
Target Completion Date: 2017		

Mitigation Action # 2017-4
Project Description: Critical Infrastructure Threat Assessment Identification Project • Establish project deliverables in order to meet goals and objectives • Establish budget and timeline • Assess current capabilities to achieve project objectives and address resource shortfalls. • Establish a comprehensive list of built infrastructure resources, their owners, and meta data relevant to risk assessment. • Identify facilities and infrastructure that are necessary to minimize loss of life and property or to facilitate response or recovery activities. • Prioritize projects and establish a budget and project calendar. • Identify on-going costs to maintain and monitor
Applicable Hazards Earthquake, Drought/Water Shortage, Flooding, Severe Weather, Cyber Threat, Hazardous Materials Release, Energy Shortage, Well Stimulation/Hydraulic Fracking, Oil Spill, Agricultural Pests/Disease, Terrorism, Natural Gas, Pipelines and Storage, Epidemic/Pandemic/Vector Borne Disease, Dam Failure, Levee Failure, Radiological Incident, Train Accident, Wildfire, Civil Disturbance, Landslide/Other Earth Movement, Commercial/Military Aircraft Accident
Existing and Potential Resources: Capital Projects budget, Maintenance budget, CDBG funds, HMP funds, Homeland Security grants, and other Federal and State infrastructure grants and funds, community partners.
Responsible Department: Public Works, City Manager's Office, Information Technology, with support from other departments as required.
Target Completion Date: To be determined.

Additional Comments / Status Report:

Currently there is not a countywide agreed upon list of Critical or Essential Facilities. While there are several lists of Critical and Essential Facilities, the criteria are not standardized. Additionally, the list of Critical and Essential Facilities lack the necessary meta data (i.e., construction type, elevation level, replacement value, content cost) that would be beneficial to assessing risk to threats and hazards.

Because there is not a comprehensive list of Critical or Essential Facilities, portions of the HMP utilized the HAZUS default data. While the HAZUS default data provided better insight into the earthquake and flood risk, the assumptions (i.e. structural characteristics of building) does not adequately reflect the true vulnerabilities of the facilities and/or the community. To remedy this, The City of Goleta is proposing to coordinate with Santa Barbara County to create a comprehensive Critical or Essential Facilities List and utilize it in HAZUS.

All of the above mitigation actions have been incorporated into the City's Capital Improvement Program which is reviewed annually to determine if additional projects are needed to address potential hazards.

v. Climate Change Induced Mitigation Actions

Over the next five years, the City will also be examining mitigation actions considering the findings and recommendations resulting from predicted climate change conditions identified in the 2015 Draft City of Goleta Coastal Hazards Vulnerability Assessment and Fiscal Impact Report, the findings of which are summarized below:

- Existing creek hazards (FEMA) are the highest hazard in the City. Coastal flooding will be exacerbated by SLR, however future climate impacts on creek flooding are not available.
- Coastal flooding damages to structures in Goleta could increase dramatically by 416% between the time horizons of 2060 and 2100.
- Adaptation costs to elevate and accommodate coastal flooding by 2100 ($175 million) exceed damages ($14 million) and cleanup (approximately $5 million) by an order of magnitude.
- The Storke Ranch neighborhood becomes exposed around 2100, when Goleta and Devereux Sloughs come together.
- Coastal flooding impacts the light manufacturing sector the greatest between 2 and 5 feet of SLR during the time period of 2060 to 2100.

Recommendations:

- Conduct coastal confluence modeling to better assess future vulnerabilities associated with stream flood hazards exacerbated by sea level rise to provide projections of future flood extents and depths.
- Engage in regional inlet management discussions with the City of Santa Barbara and the County of Santa Barbara.
- Establish a repetitive loss policy to trigger eminent domain in combination with a Transfer of Development (TDR) Program. Once a property had multiple flood insurance claims the policy would take effect.
- Adjust building codes to allow for increased building heights by additional freeboard based on sea level rise projections for parcels projected to be impacted by flooding after 2060.

Adaptation strategies are discussed in detail in Section 5 of the Draft 2015 City of Goleta Coastal Hazards Vulnerability Assessment and Fiscal Impact Report**.**

8. PLAN MAINTENANCE

The City of Goleta will be responsible for ensuring that this Annex is monitored on an on-going basis. The City will continue to participate in the Countywide Mitigation Advisory Committee and attend the annual meeting organized by the County Office of Emergency Management (OEM) to discuss items to be updated/added in future revisions of this Plan.

Major disasters affecting the City of Goleta, legal changes and other significant events may trigger revisions to this plan or a convening of the Local Planning Team. The City of Goleta's Local Planning Team, in collaboration with the Santa Barbara County Office of Emergency Management, and the other jurisdictions of the County, will determine how often and when the plan should be updated. In order to remain eligible for mitigation grant funding from FEMA, the City is committed to revising the plan at a minimum of every five years.

The City of Goleta's Director of Neighborhood Services and Public Safety, or designee, will be responsible for ensuring that this Annex is monitored on an on-going basis and will contact County OEM no later than four years after this Plan is approved to ensure that the County will be initiating the Plan Update Process. The City will continue to work with County OEM and the other jurisdictions within the County on future revisions/updates of this Plan.

The public will continue to be involved whenever the plan is updated and as appropriate during the monitoring and evaluation process. Prior to adoption of updates, the City will provide the opportunity for the public to comment on the updates. A public notice will be published prior to the meeting to announce the comment period and meeting logistics. Moreover, the City will engage stakeholders in community emergency planning.

Point of Contact

Comments or suggestions regarding this plan may be submitted at any time to the City of Goleta, Attn: Vyto Adomaitis, Neighborhood Services & Public Safety Director, 130 Cremona Drive, Ste. B, Goleta, CA 93117 or via email or phone at: vadomaitis@cityofgoleta.org, Phone 805.961.7555.

9. CITY OF GOLETA APPENDICES

i. Goleta Meeting Documentation

The logs on the following pages provide documentation of the meetings conducted within Goleta's Local Planning Team separately from the County Mitigation Advisory Committee meetings which were attended by representatives of the City.

2016 Hazard Mitigation Plan Update
Meeting #1
Agenda & Notes
City of Goleta
Date: 2/3/16

Time: 3:00 – 4:30 pm

Attendees: **Claudia Dato, Rosemarie Gaglione, Vyto Adomaitis, Anne Wells, Kathy Garcia, James Winslow and Teresa Lopes**

Discussion Topics:

This meeting included the Public Works Director (City Engineer), Deputy Public Works Director and Capital Improvement Program Managers as well as Neighborhood Services/Public Safety staff and the Advanced Planning Manager. We reviewed the status of previously identified mitigation projects (mostly CIP) and identified projects for the coming five year period.

Meeting Outcomes:

The status of 2011 projects was discussed and new mitigation projects for the next five year period were identified.

2016 Hazard Mitigation Plan Update
Meeting #2
Agenda & Notes
City of Goleta
Date: 2/9/16

Time: 3:00 – 4:30 pm

Attendees: Claudia Dato and Anne Wells

Discussion Topics:

Discuss the 5-year update to the 2011 Multi-Jurisdictional Hazard Mitigation Plan and other new or updated plans that have happened since the 2011 Plan and identification of any projects or plans for the coming five years.

Meeting Outcomes:

New plans such as Wildfire Protection Plan, Coastal Hazards Plan, etc. with relevance to the Hazard Mitigation Plan were identified as having been developed since the 2011 Plan.

2016 Hazard Mitigation Plan Update
Meetings #3 and 4
Agenda & Notes
City of Goleta
Date: 6/10/16 and 6/15/16

Attendees: Claudia Dato, Anne Wells, and Dennis Loyst (JDL Mapping)

Discussion Topics:

Mapping needs and updates to critical facilities was discussed.

Meeting Outcomes:

New maps needed for the 2016 update and new critical facilities to be added to updated maps were identified.

ii. Goleta Attachment 1: Outreach Materials

This attachment includes documentation demonstrating the City's efforts to engage public and interested stakeholders in the mitigation planning process.

iii. References

City of Goleta General Plan/Coastal Land Use Plan
City of Goleta Economic Development Strategic Plan
City of Goleta Emergency Operations Plan and Threat Analysis
City of Goleta Municipal Code
City of Goleta Inland and Coastal Zoning Codes
Goleta Old Town Revitalization Plan (Redevelopment Plan)
City of Goleta Stormwater Management Plan
City of Goleta Strategic Plan
City of Goleta Capital Improvement Plan
Draft 2015 City of Goleta Coastal Hazards Vulnerability Assessment and Fiscal Impact Report
Resolution 15-55, City Council Adoption of the Report
City of Goleta General Plan/ Coastal Land Use Plan, Chapter 5, Safety Element

Santa Barbara County
County Executive Office
Office of Emergency Management
4408 Cathedral Oaks Rd. • Santa Barbara, CA 93110
Phone (805) 681.5526 FAX (805) 681.5592
www.sbcoem.org/ceo/oem

PRESS RELEASE

News Media Contact:
Richard Abrams, Emergency Manager
(805) 681-5526, or rabrams@sbcoem.org

FOR IMMEDIATE RELEASE

July 31, 2015

Local Officials Seek Public Input to Make County Safer

Your input is crucial to creating a more resilient community. Please respond to the hazard mitigation plan survey online at **https://www.surveymonkey.com/r/VHBLGFM**.

The Santa Barbara County Multi-Jurisdiction Hazard Mitigation Plan is a countywide plan that identifies risks and ways to minimize damage from natural and manmade disasters. The plan is a comprehensive resource document that serves to enhance public awareness, create a decision tool for policy makers, promote compliance with State and Federal program requirements, enhance local policies for risk reduction capabilities, and provide coordination between the cities and the county.

The Federal Disaster Mitigation Act of 2000 requires all local governments to create such a disaster plan in order to qualify for federal mitigation funding in the future.

2015 Revision and Public Input: The current multi-jurisdiction hazard mitigation plan may be downloaded from http://www.sbcoem.org/ceo/oem. The County Office of Emergency Management (OEM) is coordinating the plan update through collaboration with the Mitigation Advisory Committee (MAC). The MAC is comprised of representatives from each of the incorporated cities within Santa Barbara County. The MAC is updating the mitigation strategies and reviewing the hazards that could impact the region, in order to improve the Santa Barbara County Operational Area's capabilities to respond to and recover from natural and man-made disasters.

We need public input regarding the threats facing our region and actions we can take to reduce the impact of future hazard events.

1. We have provided an online survey at http://www.sbcoem.org/ceo/oem, the County OEM Facebook website **or your own city's website**.
2. How would **you prioritize the hazards** facing Santa Barbara County?
3. **What actions** can we take to reduce future damage?
4. **How can local government officials better communicate risk** to the public?
5. Is there anything else you would like to see in the plan?
6. The survey is available on the County Office of Emergency Management website

Your comments will be reviewed by the Mitigation Advisory Committee and incorporated into the final plan as appropriate. A review draft of the complete plan update will be made available for public review. Please indicate in your survey response if you are interested in being contacted regarding this review opportunity.

###

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PRESS RELEASE

News Media Contact:
Richard Abrams, Emergency Manager
(805) 681-5526, or rabrams@sbcoem.org

FOR IMMEDIATE RELEASE

July 31, 2015

Los funcionarios locales buscan aportación pública para un condado más seguro

Su aporte es crucial para crear una comunidad más resistente. Por favor, responda a la encuesta del plan de mitigación de riesgos en línea en **https://www.surveymonkey.com/r/VHBLGFM**.

El Plan de Mitigación de Riesgos Multi-Jurisdiccional del Condado de Santa Bárbara es un plan del condado que identifica los riesgos y formas de minimizar los daños causados por los desastres naturales y provocados por el hombre. El plan es un documento amplio de recursos que sirven para aumentar la conciencia pública, crear herramientas de decisión para los responsables políticos, promover el cumplimiento de los requisitos del programa estatal y federal, mejorar las políticas locales para capacidades de reducción del riesgo, y proporcionar la coordinación entre las ciudades y el condado.

La Ley de Mitigación de Desastres Federal del 2000 requiere que todos los gobiernos locales crean un plan de desastre para poder calificar en un futuro para la financiación federal de mitigación. 2015 Revisión y Aportación Pública: El plan actual de mitigación de peligros múlti-jurisdiccionales se puede descargar de http://www.sbcoem.org/ceo/oem. Después de cinco años el plan requiere de una revisión actual. La Oficina del Manejo de Emergencias del Condado (OEM) está coordinando la actualización del plan a través de la colaboración con el Comité Asesor de Mitigación (MAC). El MAC está integrado por representantes de cada una de las ciudades incorporadas dentro del Condado de Santa Bárbara. El MAC es la actualización de las estrategias de mitigación y la revisión de los riesgos que podrían afectar a la región, a fin de mejorar las capacidades de la zona de operaciones del condado de Santa Barbara para responder y recuperarse de los desastres naturales y artificiales.

Necesitamos la opinión del público respecto a las amenazas que enfrenta nuestra región y las acciones que podemos tomar para reducir el impacto de eventos de peligros futuros.

Hemos proporcionado una encuesta en línea para obtener su aportación en los siguientes tipos de preguntas en http://www.sbcoem.org/ceo/oem.

1. Cómo priorizar los riesgos que enfrenta Santa Bárbara?
2. Qué acciones podemos tomar para reducir el daño futuro?
3. Cómo pueden los funcionarios del gobierno local comunicar mejor el riesgo para el público?
4. Hay algo más que le gustaría ver en el plan?

Sus comentarios serán revisados por el Comité Asesor en Mitigación y se incorporarán en el plan final, según corresponda. Un borrador de la actualización del plan completo, estará disponible para revisión pública. Por favor, indique en su respuesta a la encuesta si usted está interesado en ser contactado para la oportunidad de revisar este plan.

###

Claudia Dato

From: Valerie Kushnerov
Sent: Monday, January 25, 2016 10:39 AM
Subject: PRESS RELEASE: Goleta Seeks Input on Area Hazard Mitigation Plan

Goleta Seeks Input on Area Hazard Mitigation Plan

Your input is crucial to creating a more resilient community! The City of Goleta is currently working with the County of Santa Barbara to update the Santa Barbara County Multi-Jurisdiction Hazard Mitigation Plan. This is a countywide plan that identifies risks and ways to minimize damage from natural and manmade disasters. The Plan is a comprehensive resource document that serves to enhance public awareness, create a decision-making tool for policy makers, promote compliance with State and Federal program requirements, enhance local policies for risk reduction capabilities, and provide coordination between the City and the County. The Federal Disaster Mitigation Act of 2000 requires all local governments to create such a disaster plan in order to qualify for federal mitigation funding in the future.

The current 2011 Multi-Jurisdiction Hazard Mitigation Plan, including the City of Goleta Annex, may be downloaded from www.countyofsb.org/ceo/oem. After five years the Plan is in need of revision. Many of the mitigation actions outlined in the Plan have been completed while others have been deferred due to issues beyond our control. The City of Goleta is working with the County on the Plan Update through its participation on the Mitigation Advisory Committee (MAC). The MAC is comprised of representatives from each of the incorporated cities within Santa Barbara County. The City of Goleta is updating its own mitigation strategies and reviewing the hazards that could impact the City, in order to better coordinate with the County and improve the City's capabilities to respond to and recover from natural and man-made disasters.

We need public input regarding the threats facing our region and actions we can take to reduce the impact of future hazard events. Specifically, we are looking for input on the following kinds of questions:

1. How would you prioritize the hazards facing the City?
2. What actions can the City take to reduce future damage?
3. How can local government officials better communicate risk to the public or information during an emergency event?
4. What measures have you taken to protect your property from hazards? Examples: create defensible space around your house, perform seismic retrofits to your home, place sandbags to prevent flooding, etc.
5. What measures have you taken to prepare your family for an emergency? Examples: put together an emergency supply kit, create an animal evacuation plan, etc.
6. Have you participated in Community Emergency Response Team (CERT) training? If not, would you like more information on the CERT Program?

Please email your feedback to cdato@cityofgoleta.org or mail written responses to City of Goleta, Attn: Claudia Dato, 130 Cremona Dr, Ste. B, Goleta, CA 93117. For more information, please feel free to contact Claudia Dato, Senior Project Manager, at cdato@cityofgoleta.org or (805) 961-7554. Para información en español: contacte vadomaitis@cityofgoleta.org o por favor llame al (805) 961-7555 y pregunte por Vyto Adomaitis.

Valerie

Valerie Kushnerov
Public Information Officer
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Claudia Dato

From: Nic 7320 <nic7320@yahoo.com>
Sent: Monday, January 25, 2016 2:41 PM
To: Claudia Dato
Subject: Input on Area Hazard Mitigation Plan

1. How would you prioritize the hazards facing the City?

Priorities should be determined by Pareto analysis, looking at the risk (life or property) and prioritize based on a mathematical product of the probability of incidence with the average cost of a loss. Get the "low hanging fruit" first. I would address drunk driving issues more, as this is a frequent and serious threat.

2. What actions can the City take to reduce future damage?

Have volunteers help monitor and maintain clear creeks. Provide keys to gates when necessary and official Goleta City vests so it's obvious this is an authorized access.
Have Fire Department respond to creek flooding if they can blast an obstruction free with their hose.

3. How can local government officials better communicate risk to the public or information during an emergency event?

Ensure adequate emergency backup for the cell phone system. Set up a network of volunteers to respond to assist with neighborhood emergencies when Fire and Ambulance services are overloaded. Provide umbrella insurance for situations not covered by Good Samaritan law (medical care is covered, but not rescue services -- People have been found liable when a rescue created more injury, as in the case where a girl was extracted from a car by someone thinking it was on fire (it was actually the airbag talc power) and further injured the victim.

4. What measures have you taken to protect your property from hazards? Examples: create defensible space around your house, perform seismic retrofits to your home, place sandbags to prevent flooding, etc.

Installed french drains for improved lot drainage. Checked nearby creek for obstructions. Laser checked elevation of house slab relative to street drains.

5. What measures have you taken to prepare your family for an emergency? Examples: put together an emergency supply kit, create an animal evacuation plan, etc.

Purchased Costco emergency food kit. Stored 5 gallons of water in dark area. Stocked propane canisters for cooking. Keep emergency camping gear

and tools in car. Used a 1000 watt inverter off my car during electrical outages to keep freezer at temp. Removed any AC power surge arresters that lack thermal protection that didn't exist before 1995 IEEE standard.

6. Have you participated in Community Emergency Response Team (CERT) training? If not, would you like more information on the CERT Program?

I went to Goleta Community Center for CERT training on a Saturday shown as an event in The Independent, but nobody was there and no cancellation notice was posted. I assume it was a misprint. I would like more (accurate) notices.

-Wayne Derossett
7320 Hillsboro St.
Goleta, CA 93117-2816

Claudia Dato

From: Valerie Kushnerov
Sent: Wednesday, July 13, 2016 8:44 AM
Subject: PRESS RELEASE: Public Input Requested at Town Hall Meeting on County Hazard Mitigation Plan

Public Input Requested at Town Hall Meeting on County Hazard Mitigation Plan

Goleta, CA -- The public is invited to the Santa Barbara County Office of Emergency Management (OEM)'s Town Hall Meeting on **Friday, July 15, from 1-2 p.m. at the Goleta Valley Community Center (5679 Hollister Avenue)**. Citizen input is crucial to creating a more resilient community and your input is appreciated. The subject of the meeting is the Santa Barbara County Multi-Jurisdictional Hazard Mitigation Plan (Plan), which is required to be updated every five years. The City of Goleta worked with the County on the Plan through its participation on the Mitigation Advisory Committee (MAC) and created the City of Goleta Annex to the Plan. The MAC is comprised of representatives from each of the incorporated cities within Santa Barbara County.

The Plan is a countywide plan that identifies risks and suggests ways to minimize vulnerabilities and damage from natural and manmade disasters. It is a comprehensive resource that serves to enhance public awareness, act as a decision tool for policy makers, enhance local policies for risk reduction capabilities, provide coordination between the cities and the county, and promote compliance with state and federal program requirements. The Plan is required to be updated and revised every five years. Many of the mitigation actions outlined in the plan are in progress or on-going, others have been completed, and some have been deferred due to issues beyond our control.

The Town Hall will consist of a presentation on the planning process that occurred for an update of the Plan, an overview of the Plan itself, the hazards from which Santa Barbara County is at risk and vulnerable to, and a question and answer session. Information on the City of Goleta Annex to the Plan will be available as well, and City staff will be on-hand to answer questions.

Valerie Kushnerov
Community Relations Manager
City of Goleta
130 Cremona Drive, Suite B
Goleta, CA 93117
805.961.7507
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@goletapio (Twitter)
www.facebook.com/cityofgoleta (Facebook)

Claudia Dato

From:	City of Goleta <goleta@public.govdelivery.com>
Sent:	Wednesday, July 13, 2016 9:40 AM
To:	Michelle Greene; Wendy Winkler; Claudia Dato; Valerie Kushnerov; Liana Campos; Jaime Shaw
Subject:	Courtesy Copy: Public Input Requested at Town Hall Meeting on County Hazard Mitigation Plan

This is a courtesy copy of an email bulletin sent by Jaime Shaw.

This bulletin was sent to the following groups of people:

Subscribers of Emergency Notifications or Public Safety & Emergency Preparedness Updates (825 recipients)

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Santa Barbara County
County Executive Office/Office of Emergency Management
4408 Cathedral Oaks Road, Santa Barbara CA 93110
(805)681-5526
http://awareandprepare.org/

PRESS RELEASE
July 11, 2016

News Media Contact:
Shannon McCrone, Emergency Services Planner
(805) 560-5564, or smccrone@sbcoem.org

COUNTY HAZARD PLANNING AND COMMUNITY RESILIENCY UNDER REVIEW
Public Invited to Participate at Town Hall

(SANTA BARBARA, Calif.) –- The Santa Barbara County Office of Emergency Management (OEM) is facilitating two community town halls on Friday, July 15, 2016. Citizen input is crucial to creating a more resilient community, so all residents are encouraged to participate. The first is 10-11 a.m. in Solvang at the City Hall Council Chambers located at 1644 Oak Street. The second is scheduled for 1-2 p.m. at the Goleta Valley Community Center located at 5679 Hollister Avenue.

The town hall will consist of a presentation on the planning process that occurred for an update of the County Hazard Mitigation Plan, an overview of the Plan itself, the hazards from which Santa Barbara County is at risk and vulnerable to, and a question and answer session. The Federal Disaster Mitigation Act of 2000 required all local governments to create a disaster Hazard Mitigation Plan in order to qualify for federal mitigation funding in the future.

The Santa Barbara County Multi-Jurisdictional Hazard Mitigation Plan is a countywide plan that identifies risks and suggests ways to minimize vulnerabilities and damage from natural and manmade disasters. The plan is a comprehensive resource that serves to enhance public awareness, act as a decision tool for policy makers, enhance local policies for risk reduction capabilities, provide coordination between the cities and the county, and promote compliance with state and federal program requirements.

2016 Update

The plan is required to be updated and revised every five years. Many of the mitigation actions outlined in the plan are in progress or on-going, others have been completed, and some have been deferred due to issues beyond our control.

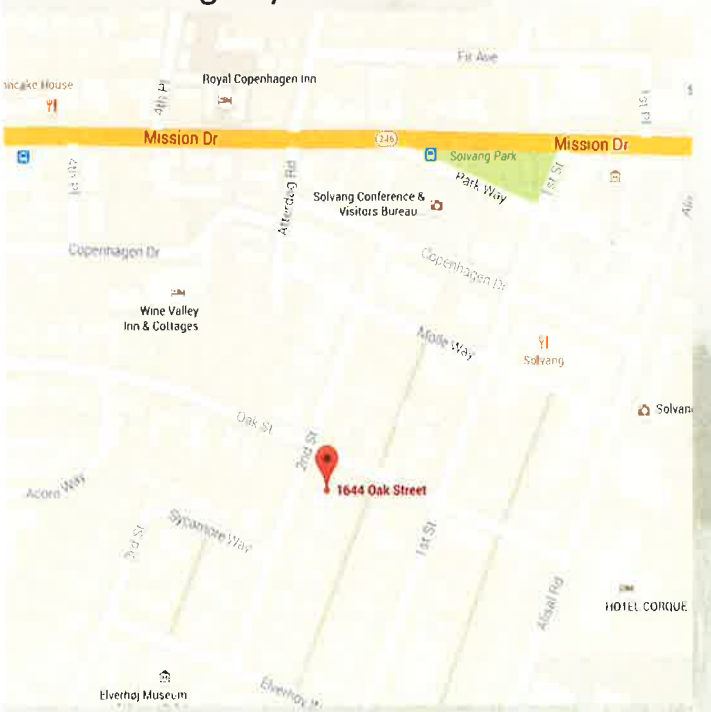
-MORE-

Santa Barbara County Multi-Jurisdictional Hazard Mitigation Plan Community Town Hall

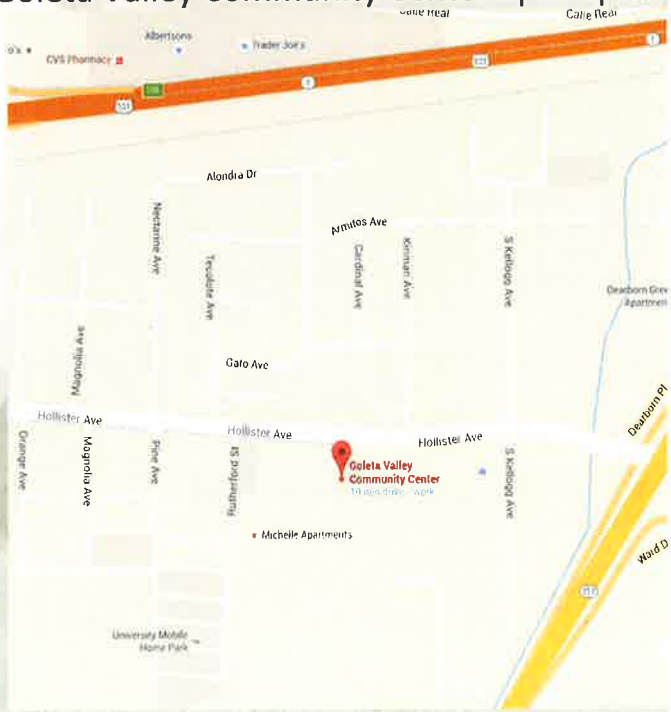
Friday July 15, 2016

Learn about the 2016 Multi-Jurisdictional Hazard Mitigation Plan and update process.

Solvang City Hall 10 am-11am



Goleta Valley Community Center 1pm-2pm



Become a part of the update process and learn about the Public Review Session that opens on **July 14 at noon and closes on July 27 at 9pm.**

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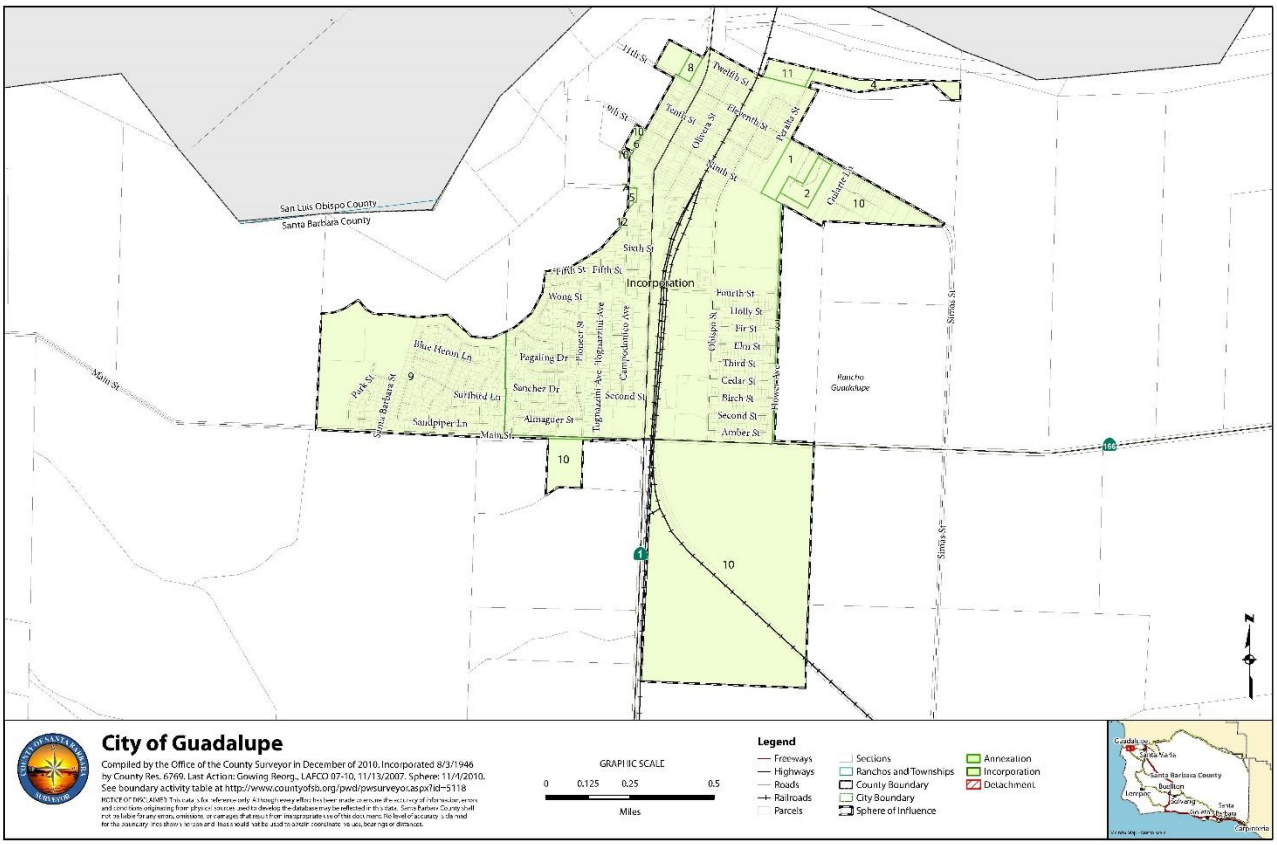
12.1 INTRODUCTION

This annex was prepared in 2016 as part of an update to the Santa Barbara County Multi-Hazard Multi-Jurisdictional Hazard Mitigation Plan. The City of Guadalupe participated in the County wide Mitigation Advisory Committee, reviewed all portions of the previous hazard mitigation plan pertaining to the City, and incorporated relevant components into this annex. This annex serves as a comprehensive hazard mitigation plan for the City of Guadalupe. It contains updated capability assessment information, a current vulnerability assessment, and an updated/revised mitigation strategy. The methodology and process for developing this annex is explained throughout the following sections.

Guadalupe is located several miles off the coast, and about 10 miles west of Santa Maria. It is 85 feet above sea level, and contains a land area of 1.31 square miles.



The 2015 population estimate is 7,318 and the median household income was $45,456 according to the 2010-2014 U.S. Census Bureau data. Guadalupe boasts one of the lowest crime rates in California. Guadalupe is home to two museums; the Guadalupe Cultural Arts &

Educational Center and the Guadalupe Historical Society. Several events are held each year in downtown Guadalupe, including various festivals and parades. Guadalupe Beach is a popular place for fishing, and the Dunes Center provides hiking with a variety of natural wonders. Agriculture is the primary economic driver in Guadalupe.

Development and population trends remained stagnant during the past three years as we navigated out of a national recession. There were several pending development projects that had been postponed until the financial climate improved which have now either begun or back on the permitting path. The primary development is the Pasadera project with 800 homes and a commercial district. This project has now seen the infrastructure complete and about 20 homes under construction.

In addition to the large housing development, there is a low income apartment project, two 30 unit apartment projects and a greatly expanded agricultural cooling facility. While the Pasadera housing project will likely not be completed during the upcoming five year planning period, the remaining identified projects should be completed.

RESOLUTION NO. 2017-34

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF GUADALUPE, CALIFORNIA ADOPTING THE 2016 UPDATE OF THE SANTA BARBARA COUNTY MULTI-JURISDICTION HAZARD MITIGATION PLAN AND THE CITY OF GUADALUPE ANNEX

WHEREAS, The Federal Disaster Mitigation Act of 2000 (Act), as described in 44 CFR Section 201.6 mandates local governments to submit and maintain a Federal Emergency Management Agency (FEMA) approved local hazard mitigation plan; and,

WHEREAS, The City of Guadalupe has participated in a county-wide multi- jurisdictional plan with Santa Barbara County as the lead agency; and,

WHEREAS, The Multi-Jurisdiction Hazard Mitigation Plan identifies each jurisdiction's risk assessment and mitigation strategies to reduce the impacts of natural disasters on the public and local government; and,

WHEREAS, Identification of hazards in the City assists with response planning, exercise development, public education, and awareness, and other emergency management functions; and,

WHEREAS, The Federal Disaster Mitigation Act of 2000 requires the Plan and updates to be formally adopted by the City Council and provided to FEMA for formal approval.

NOW THEREFORE IT IS HEREBY RESOLVED by the City Council of the City of Guadalupe, California, as follows:

1. The City Council approves and adopts the 2016 update of the Hazard Mitigation and Risk Assessment Plan in accordance with the Disaster Mitigation Act of 2000.
2. The City council adopts the Santa Barbara County Multi-Jurisdictional Hazard Mitigation Plan.
3. This Resolution is effective upon its adoption.

PASSED AND ADOPTED at a regular meeting of the City Council of the City of Guadalupe held Tuesday, August 8th, 2017 motion of Councilmember **VIRGINIA PONCE**, Seconded by Councilmember **ARISTON JULIAN**, and on the following roll call vote, to wit:

AYES:	**5**	**Ramirez, Ponce, Lizalde, Rubalcaba, Julian**
NOES:	**0**	
ABSENT:	**0**	
ABSTAIN:	**0**	

CITY OF GUADALUPE

BY: _____
John Lizalde, Mayor

ATTEST:

_____
Joice Earleen Raguz, City Clerk

12.2 PLANNING PROCESS

12.2.1 Overview

The planning process implemented for updating the City of Guadalupe Multi-jurisdictional Hazard Mitigation Plan (HMP) utilized two (2) different planning groups. The first group is the Mitigation Advisory Committee (MAC) and the second is the Local Planning Team. All eight (8) incorporated cities (City of Buellton, City of Carpinteria, City of Goleta, City of Guadalupe, City of Lompoc, City of Santa Barbara, City of Santa Maria, and City of Solvang) joined the County of Santa Barbara in the preparation of this Multi-Jurisdictional Hazard Mitigation Plan. Each of the participating jurisdictions had representation on the MAC and was responsible for the administration of their own Local Planning Team.

The MAC team was guided through the planning process; and as material was shared and decisions were made, it was the MAC team's responsibility to bring these findings back to their Local Planning Team. Below is a summary of the collaborative planning process of the MAC and Local Planning team.

Throughout this process, and though other standard practices, opportunities for public involvement was offered and encouraged. More details about public engagement is provided under Section 12.2.4 (Public Outreach).

12.2.2 Mitigation Advisory Committee (MAC)

Planning Process

The MAC planning process followed the concepts and principles outlined in the Comprehensive Preparedness Guide (CPG) 101. Both the MAC and the Local Planning teams focused on these underlining philosophies:

- *Focus on the mitigation strategy*

  The mitigation strategy is the plan's primary purpose. All other sections contribute to and inform the mitigation strategy and specific hazard mitigation actions.
- *Process is as important as the plan itself*

  In mitigation planning, as with most other planning efforts, the plan is only as good as the process and people involved in its development. The plan should also serve as the written

record, or documentation, of the planning process.

- *This is the community's plan*

  To have value; the plan must represent the current needs and values of the community and be useful for local officials and stakeholders. Develop the mitigation plan in a way that best serves your community's purpose and people.

- *Intent is as important as Compliance*

  Plan reviews will focus on whether the mitigation plan meets the intent of the law and regulation; and ultimately that the plan will make the community safer from hazards.

The MAC planning process incorporated the following steps:

- *Plan Preparation*
  - Form/Validate planning team members
  - Establishing common project goals
  - Setting expectations and timelines
- *Plan Development*
  - Validate and revise the existing conditions/situation within planning area; the *Capabilities Assessment and Hazard Assessment Sections* in the HMP
  - Develop and review the risk to hazards (exposure and vulnerability) within the planning area; the *Vulnerability Assessment Section* in the HMP
  - Review and identify mitigation actions and projects within the planning area; the Mitigation Strategy in the HMP
- *Finalize the Plan*
  - Review and revise the plan
  - Approve the plan
  - Adopt and disseminate the plan

Members

The Mitigation Advisory Committee (MAC) is a standing committee that works together throughout the year to discuss and provide input on a variety of activities. The MAC is led by Santa Barbara County Office of Emergency Management and has representation from all of the local jurisdictions, as well as County Departments and Cal OES. Table 12.1 is a list of the MAC members.

The MAC was utilized for the updating of the Santa Barbara County Multijurisdictional Hazard Mitigation Plan. To assist with this effort Santa Barbara County Office of Emergency Management hired a consultant to support and assist each jurisdiction with their Local Hazard Mitigation Plan; contained as an annex in the Santa Barbara County Multijurisdictional Hazard Mitigation Plan.

Table 12.1 Members of the Mitigation Advisory Committee 2016

Names	Organization	MAC Member Status
Michael Dyer	Santa Barbara County – Emergency Manager	New Member
Shannon McCrone	Santa Barbara County – Emergency Services Planner	New Member
Robert Troy	Santa Barbara County – Deputy Director Emergency Management	New Member
Tylor Headrick	Santa Barbara County- GIS/Emergency Services Planner	New Member
Rob Hazard	Santa Barbara County Fire – Battalion Chief	New Member
Rudy Martel	Santa Barbara County Agricultural Commissioner	New Member
Joyce Tromp	Santa Barbara County Flood Control	New Member
Jon Frye	Santa Barbara County Flood Control	New Member
Jan Koegle	Santa Barbara County Health	Returning Member
Marc Bierdzinski	City of Buellton – City Manager/Planning Director	Returning Member
Mimi Audelo	City of Carpinteria – Program Manager	New Member
Claudia Dato	City of Goleta – Senior Project Manager (Public Safety)	Returning Member
Gary Hoving	City of Guadalupe – Public Safety Director	New Member
Kurt Latipow	City of Lompoc – Fire Chief	New Member
Yolanda McGlinchey	City of Santa Barbara – Emergency Services Manager	Returning Member
Roy Dugger	City of Santa Maria – Emergency Preparedness Coordinator	Returning Member
Lisa Martin	City of Solvang	New Member
Yvette LaDuke	Cal OES – Emergency Services Coordinator	New Member
Andrew Petrow	Consultant	New Member

Overview of Meetings

The MAC meetings were arranged and scheduled to follow the planning process steps outlined above. Each meeting was designed to walk the MAC members through sections of the Santa Barbara County Multijurisdictional Hazard Mitigation Plan and annexes. In addition to reviewing and validating material, the intent was to also educate MAC members on the planning process and purpose of each section. By taking this step it helped ensure that each MAC member could bring this knowledge back to their Local Planning Teams. The table below (Table 12.2) provides a list and the main purpose of each of the MAC meetings.

Table 12.2 Mitigation Advisory Committee (MAC) Meetings Summary

Date	Purpose
April 2015	**Kick Off (in person)** • Reviewed and discussed the hazards in the Plan; including initial ranking. • Each jurisdiction was asked to review their previous goals and objectives with a local planning team.
December 2015	**MAC Meeting (in person)** • Recap of previous MAC meeting • Goal of the project • Understanding of HMP update requirements • Validation of team members • Proposed Planning Process • Review of Capabilities Assessment Section
January 2016	**MAC Meeting (conference call)** • Recap of previous MAC meeting • Review of Capabilities Assessment Section • Discussion of public outreach efforts • Preparation for next MAC meeting
February 2016	**MAC Meeting (in person)** • Recap of previous MAC meeting • Review of Hazard Assessment Section • Presentation of Vulnerability Assessment results • Discussion of public outreach efforts • Preparation for next MAC meeting
March 2016	**MAC Meeting (conference call)** • Recap of previous MAC meeting • Review of Capabilities Assessment and Vulnerability Assessment Sections • Preparation for next MAC meeting
April 2016	**MAC Meeting (in person)** • Recap of previous MAC meeting • Initial discussion of mitigation projects and actions
May 2016	**MAC Meeting (conference call)** • Recap of previous MAC meeting • Discussion of mitigation actions and projects • Discussion of update process • Preparation for next MAC meeting
June 2016	**MAC Meeting (in person)** • Recap of previous MAC meeting • Discussion of mitigation actions and projects • Discussion of update process

12.2.3 Local Planning Team

Planning Process

A Local Planning Team was created to review and arrive at a consensus relating to the implementation of the Guadalupe Annex of the Hazard Mitigation Plan. The team was created from key management and supervisory staff some of which are City employees while others are contracted service providers as outlined in a chart below.

The Hazard Assessment presents the methodology in which the Local Planning Team reviewed the previously identified hazards and discussed revisions to their prioritization. A profile for each hazard is included which summarizes the type of hazard, location and extent, history of past occurrences, and probability of future occurrences. The hazard identification and ranking documented in this section form the foundation for prioritizing mitigation actions. The Local Planning Team reviewed the previous Mitigation Strategy and reported on progress made in implementing the listed actions. In addition, based on updates to the hazard identification, profiles, vulnerability assessments, and the capability assessment new mitigation actions were identified. The progress report and new mitigation actions are presented in the updated Mitigation Strategy.

The Local Planning Team held electronic meetings as necessary during the review and update to the plan. The Local Planning Team coordinated and consulted with other entities and stakeholders to identify and delineate natural hazards within the city to assess the risks and vulnerable property in identified hazard areas. From the start, every attempt was made to establish an open public process to provide an opportunity for all sectors of the overall community to be involved in the planning process. Most of the public input was sought through social media outlets, in person survey and social media notices regarding locations to review the plan. Our social media followers have grown substantially over the past two years creating a successful platform for sharing information.

Members

Table 12-3 lists the City of Guadalupe Local Planning Team members. These individuals collaborated to identify the City's critical facilities, provide relevant plans, report on progress

of city mitigation actions and provide suggestions for new mitigation actions.

Table 12-3 City of Guadalupe Local Planning Team 2016

Name	Title	Responsibility
Cruz Ramos	City Administrator	City Administration
Gary L. Hoving	Director of Public Safety	Fire and Disaster Planning
Gary L. Hoving	Police Chief	Law Enforcement
Mike Pena	Public Works Supervisor	Public Works Operations
Jerry Hittleman	Contract City Planner	Planning/Zoning
Jeff Van den Eikhof	Contract Engineer	Public Works/Engineering
John McMillan	Contract Building Official	Building
Dave Fleishman	Contract City Attorney	Legal

Overview of LPT Meetings

The Local Planning Team held meetings as necessary during the review and update to the plan. The Local Planning Team coordinated and consulted with other entities and stakeholders to identify and delineate natural hazards within the city to assess the risks and vulnerable property in identified hazard areas.

A finalized draft was of the Hazard Mitigation Plan was distributed to the LPT for final review and comment. Reviews were completed and incorporated into this document on December 6, 2016, resulting in the final plan for submission to the County of Santa Barbara.

Table 12.4 City of Guadalupe Internal Collaboration Meetings Summary

Meeting Dates	Summary of Discussions
November 2016	Guadalupe coordinated internally via e-mail. Draft changes were shared via e-mail and responses were received via e-mail.
December 2016	LPT review and comments incorporated into the plan prior to submission to the County of Santa Barbara and then to be forwarded to the State of California.

12.2.4 Public Outreach

Informing the Community of the HMP Update process

In November, 2016, the City of Guadalupe issued a press release announcing the commencement of the hazard mitigation planning process. This announcement invited the public to notify the City of their interest to participate in the planning process or submit comments.

The final draft was completed and made available for public review at the City Hall and at the Police Station. Access for review of the document was also announced through social media (FaceBook for Police and Fire Departments). Using Facebook to announce the opportunity to review the plan reached 689 people.

One person came to the Police Station to review the draft document in response to the media release. Some of the information provided was included in the document relating to the history of previous hazardous events.

Ongoing Public Outreach

The City of Guadalupe utilizes several platforms to educate the public about hazards in the community, relevant programs to safeguard and protect themselves from disaster, and actions they can take to prepare themselves for events. Below is a list of the different platforms used and a summary of the some of the programs:

- Social Media (Facebook)
- Meetings/Workshops
- Public Surveys
- Defensible Space Education
- Drought Education

As part of the City of Guadalupe on-going Hazard Mitigation Plan process, the City also issued a public survey to seek input from the community about would prioritize hazards facing the city and what government officials could do to better communicate the risk. Hard copies of the surveys were also made available on public counters within the City Police Department.

Survey Results

On September 15, 2016, a survey was distributed via social media and in-person to solicit public input regarding the concern for risk to natural hazard events and suggestions for how local government could minimize the risk. The City of Guadalupe posted a questionnaire for those who reside or work in the community offering the opportunity to participate in the survey.

Results of the survey were posted on social media allowing sufficient time for review and provide additional comment before the plan was approved by the City Council. In addition, public comments were permitted during the Council Meeting prior to adoption of the draft plan.

The City of Guadalupe received 30 completed surveys. The survey requested the respondents to identify if they lived or worked in Guadalupe, select an age range and identify the gender. No individual identifying information was requested in an effort to seek candid responses. Age and gender responses will be used to assist in marketing and selection of training programs in the future.

The survey format allowed the City an opportunity to expand the list of stakeholders. The information provided an opportunity to hear from the community on concerns and needs broader than the existing focus hazards identified in this document.

The City of Guadalupe will consider the recommendations provided by survey respondents regarding how the local government and the County can help residents prepare for an event, throughout the life of this plan and prioritize those that can be implemented efficiently and effectively.

The survey responses received from the City of Guadalupe residents are summarized below:

1. Thirty (30) survey respondents were from the City of Guadalupe. Some worked in the City and others live in the city. There were a high number of respondents who both worked and live in the community explaining a total number of responses higher than the number of received surveys.

2. Respondents by gender, age and affiliation:

Gender	18-30	31-50	51-70	71+	Total
Male	3	6	3	1	13
Female	1	10	4	2	17

Local residents and workplace:

Age	18-30	31-50	51-70	71+	Totals
Live in Guadalupe	1	11	3	3	18
Work in Guadalupe	3	15	8	2	28

3. Respondents were asked to identify all hazards of concern moving beyond the primary hazards the MAC identified. The below chart identifies the areas of concern concluding that the greatest number of topic responses would be of most concern. Below are responses to the Guadalupe Hazard Mitigation Community Survey:

Hazard Concerns	**Responses**
Agriculture	12
Climate Change	12
Crime	15
Dam Failure	8
Drought	20
Earthquake	22
Flooding	7
Freezes	3
Hazardous Materials	14
Landslide	13
Levee Failure	11
Natural Gas Leak	13
Train Accidents	18
Tsunami	10
Wildfire	8
Windstorms	4

Hazards ranked by importance:

Hazard Concerns	**Priority**
Earthquake	1
Drought	2
Train Accidents	3
Crime	4
Hazardous Materials	5
Natural Gas Leak	6
Landslide	7
Agriculture	8

Climate Change	9
Levee Failure	10
Tsunami	11
Wildfire	12
Dam Failure	13
Flooding	14
Windstorms	15
Freezes	16

4. Respondents were asked if they had a family emergency plan and if it included a provision for pets. Below is a summary of responses:

Family Emergency Plan	
Yes	13
No	17
Plan for pets	
Yes	10
No	19

5. Respondents were asked if they had attended a Community Emergency Response Team (CERT) or Listos training. This information proved to be extremely useful in evaluating the need for such training as well as the interest to participate. Following up with the training component, responders were asked about First Aid/CPR training and interest to participate if offered. Below is a summary of responses from Guadalupe respondents:

CERT/Listos Training	
Yes	9
No	21
Would attend CERT if offered	
Yes	24
No	5

Attended First Aid/CPR	
Yes	25
No	5
Would attend first aid/CPR	
Yes	28
No	2

6. Respondents were asked if they had any special needs or handicapped persons residing in their home. The following response was received:

Handicapped Persons In Home	

Yes	3
No	27

7. Respondents were asked to select each of the types of local services they would like available to assist them in disaster preparedness. Virtually all of the four selections were checked by each respondent leading to a strong need to improve government/community information sharing. Below is a summary of responses:

Local Government Assistance	Totals
Effective Notifications and Communications	28
Provide Training and Education	27
Awareness Vulnerable Population	23
Use Volunteers During Emergencies	26

8. Respondents were asked to identify the emergency supplies they maintain as a preparation for an emergency. All responded affirmatively to most of the items on the list. The weakest response is in the availability of cash and in a back-up cell phone battery or charging system. Below are the responses:

Emergency Supplies on Hand	
Water	24
Can Opener	29
Eating Utensils	29
Canned non-perishable foods	28
Outdoor Grill/Stove	27
Sufficient Medications	18
First Aid Kit	24
Portable Radio	18
Protection of Documents	17
Extra Clothing	24
Blankets/Sleeping Bags	28
Sufficient Cash	14
Flashlights and Batteries	25
Half Tank of Gasoline	18
Backup Cell Phone Battery	10
Pet supplies	15

12.3 CAPABILITIES ASSESSMENT

The LPT identified current capabilities available for implementing hazard mitigation activities. The Capability Assessment portion of the jurisdictional mitigation plan identifies administrative, technical, legal and fiscal capabilities. This includes a summary of departments and their responsibilities associated to hazard mitigation planning as well as codes, ordinances, and plans

already in place associated to hazard mitigation planning. Additionally, the Assessment provides Guadalupe's fiscal capabilities that may be applicable to providing financial resources to implement identified mitigation action items

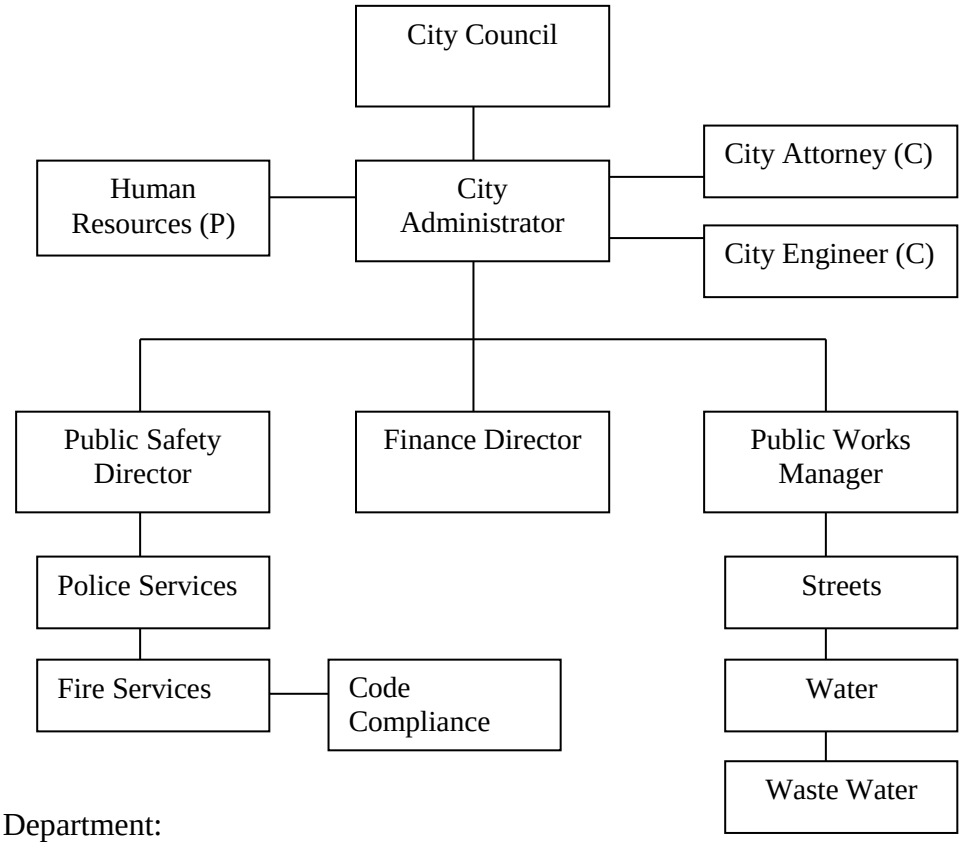
12.3.1 Existing Governance structure and departments

The Mayor and City Council are elected by the voters of the City of Guadalupe. The City Council exercises the legislative powers of the City and other city officials oversee the daily operations. The Council appoints the City Administrator. City administration includes the officials appointed by the City Council and officials elected by the citywide vote, including the City Clerk, Treasurer, Director of Public Safety (Police and Fire Chief,) Public Works supervisor, Finance Director, Human Services Director, Parks and Recreation Director, Contracted City Planner, Contracted City Engineer and Contracted City Attorney. Guadalupe has a Mayor and four Council members.

After FEMA approval and City Council adoption, the 2011 LHMP was also utilized and referenced during the City's annual planning process to update the 2013 City Emergency Operations Plan, the City General Plan and the recent 2016 THIRA.

The LPT is integrated into the development review process within the City of Guadalupe. As a small entity, the same core group of designated staff members have multiple responsibilities with a focus on their respective disciplines. It is within the scope of responsibility of the LPT to incorporate the Multi-Hazard Mitigation plan into all of the various plans within the City. It is the intent of the LPT to meet annually to review the Hazard Mitigation Plan detail for continued application to the various projects and programs.

The City of Guadalupe's organizational chart is provided below. Department heads under contract are noted as (C); part-time positions are notes as (P).



- Fire Department:
  - Administration*:* Develop, implement and monitor policies, procedures, budgets, fees, automatic aid agreements, mutual aid agreements, and liaison with other City departments and outside agencies.
  - Fire and Life Safety Program: Manage Building and Planning Departments, coordinate adoption of codes and ordinances, review site and building plans for fire code compliance, develop and present public education programs and manage the City's General Code Compliance program.
  - Operations and Emergency Medical Services: Maintain the department's personnel, apparatus, equipment and fire stations in a state of readiness to respond to the

community's needs, develop and implement standard operating procedures for various types of emergency responses, respond to all types of emergencies, and train and interact with neighboring jurisdictions and regional agencies. Manage the department's EMT program, respond to medical emergencies and other calls for service, and participate with other community and regional health care providers to reduce public illness and injury.

- Emergency Planning and Management: Coordinate the City's Disaster Preparedness Program, liaison with all City departments and divisions, as well as other public and private organizations. Develop, coordinate and implement hazard-specific response plans, and maintain the operational readiness of the City's Emergency Management Team, the Emergency Operations Center (EOC) and other key elements.

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

program. Solid waste collection is done through a private contractor.

- Responsible for planning and implementation associated with the following City plans:
  - Water Quality Emergency Notification Plan
  - Water Division Emergency Response Plan
  - Sewer Overflow Response & Prevention Plan
  - Wastewater Treatment Plant (WWTP) Operations Plan

- Engineering Department (Contract Service):
  - Reviews engineering on private and public grading, floodways, retention basins, transportation infrastructure and structures to assure compliance with Federal, State and local laws, regulations and ordinances on seismic and structural stability.
  - Develops engineering ordinances and policies that help protect and preserve City infrastructure
  - Evaluates all circulation elements for projected traffic impacts
  - Determines needed infrastructure improvements, drainage systems, water system and water/sewer treatment capabilities
  - Provides response personnel for evaluation of damaged infrastructure and rescue situation.
  - Provides technical assistance as needed in the City's EOC
  - Coordinates other response agencies assisting with damage assessment
- Police Department:
  - Responds to safety concerns involving threats and/or damage to life or property. Acts as the enforcement entity for violations of State and local laws and ordinances
  - Primary emergency responders to acts of civil disobedience and public disorders and terrorism
  - Security and support personnel during emergency rescue and management
  - Investigative services for crimes that occur within the city
  - Participates in the development of emergency response plans and implements the emergency response plans and policies, focusing on evacuation procedures and traffic control

12.3.2 Administrative and Technical Capacity

The administrative and technical capabilities of Guadalupe, as shown in Table 12-3, provides an identification of the staff, personnel, and department resources available to implement the actions identified in the mitigation section of the Plan. Specific resources reviewed include those involving technical personnel such as planners/engineers with knowledge of land development and land management practices, engineers trained in construction practices related to building and infrastructure, planners and engineers with an understanding of natural or manmade hazards and floodplain managers. Guadalupe's department heads multitask in many areas because of budgetary constraints.

Table 12-3 City of Guadalupe: Administrative and Technical Capacity

Staff/Personnel Resources	Y/N	Department/Agency and Position
1. Planner(s) ensures compliance with planning, zoning regulations and CEQA and NEPA	Y	Planning – Contract Planning Firm
2. Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Y	Engineering – Contract City Engineer
3. Planners or Engineer(s) with an understanding of natural and/or manmade hazards	Y	Planning & Engineering – Contract Planning Director & City Engineer
4. Floodplain manager	Y	Engineering – Contract City Engineer
5. Surveyors	N	Engineering – Contract City Engineer
6. Staff with education or expertise to assess the community's vulnerability to hazards	Y	Fire and Police through the Director of Public Safety
7. Personnel skilled in GIS and/or HAZUS	N	Contract out to Consultant
8. Scientists familiar with the hazards of the community	Y	Contract out to Consultants
9. Emergency Manager	Y	Director of Public Safety
10. Grant writers	Y	Police Department and Contract Planning and Engineering Firms

12.3.3 Legal and Regulatory Capabilities

The legal and regulatory capabilities of Guadalupe are shown in Table 12-4, which presents the existing ordinances and codes that affect the physical or built environment of Guadalupe. Examples of legal and/or regulatory capabilities can include: the City's building codes, zoning ordinances, subdivision ordnances, special purpose ordinances, growth management ordinances, site plan review, general plans, capital improvement plans, economic development plans, emergency response plans,

real estate disclosure plans and state and federal laws.

It is important to note that during the LHMP update planning process all of the City's plans, programs, codes, and policies were evaluated to determine their effectiveness in risk education and reduction efforts, as well as, its usefulness to implement mitigation measures. Any shortfalls or areas where the plans, programs, codes, and policies could be improved or expanded were identified and captured under annual review, the annual planning process and Mitigation Actions chapter of this plan. If no mitigation actions were identified, then it can be assumed that the planning team determined that no shortfalls or areas for improvement are needed.

Table 12-4 City of Guadalupe: Legal and Regulatory Capability

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

(e.g. county or regional political entity), [1] CA Building & Fire Code, [2] Storm Drains, [3]General Plan

12.3.4 GIS, Computer and Communication Technology

The City Fire Department is trained in fire, rescue, EMS and hazardous material. Guadalupe is

fully functional on the internet and is in the process of website development. The City has a basic website which is operational.

The City has a dedicated television channel available for community service information (non-commercial) through its contract with Charter Cable TV. This channel is available for both pre-recorded and live information broadcasts.

12.3.5 Financial Resources

In the past 4 years, the National, State, and Local economy has been very slow. As a result, the City has seen a significant decrease in revenues and have experienced a reduction in services and staff.

The General Fund balance is an important element that can show the City's financial strengths or weaknesses. For Fiscal Year 2016-2017 (FY 16-17), the City of Guadalupe's operating budget has been set at $3,920.000. The revenue budget for the City contains more than 50 line items representing different sources, each governed by a distinct set of conditions particular to that revenue source. The largest revenue factor and the core of the resource base that enables the City's provision of community services is the local revenue portion of Guadalupe's General Fund. The City's revenue base is determined by different community conditions such as the current population, employment and income, economic activity within the City, and the growth of invested value from residential and commercial construction, business investment in plant and equipment, and demand for local real property. National, State, and regional economic conditions can also affect the City's revenue base by creating demand for community goods and services produced within Guadalupe. The largest expenditure categories are for operations and maintenance.

Over the last few years, California's budget has diminished rapidly due to decreased tax revenues from an economic recession. The overall health of California's economy has a significant influence on local cities and counties, as local government appropriations are usually the first to have their appropriations diminished due to downturns in the economy.

The city's major economic drivers for its revenue base are from sales tax, population growth, employment, construction, property values, and commercial activities.

Table 12-5 shows specific financial and budgetary tools available to Guadalupe such as community development block grants; capital improvements project funding; authority to levy taxes for specific purposes; fees for water and sewer services; impact fees for developers for new development; ability to incur debt through general obligations bonds; Guadalupe Redevelopment Agency and withholding spending in hazard-prone areas.

Table 12-5 City of Guadalupe: Fiscal Capability

Financial Resources	Accessible or Eligible to Use (Yes/No)
1. Community Development Block Grants (CDBG)	Y
2. Capital improvements project funding	Y
3. Authority to levy taxes for specific purposes	Y – Vote required
4. Fees for water and sewer service	Y
5. Impact fees for developers for new developments/homes	Y
6. Incur debt through general obligation bonds	Y
7. Incur debt through special tax and revenue bonds	Y – Vote required
8. Incur debt through private activity bonds	N
9. Withhold spending in hazard-prone areas	N
10. Other – SBCAG Grant	N
11. Other – Other Grants	N
12. Guadalupe Redevelopment Agency (Deferred, no interest loans; matching loans; matching grants)	Y
13. Zoning incentives, fee waivers, design rebates	Y
14. Recreation, Trails to Beach, Historic preservation, Duneship, Brownfield grants, CREF	Y

12.3.6 Relevant Plans, Policies, Programs, and Ordinances

The City of Guadalupe has a range of guidance documents and plans for each of its departments.

These include a General Plan, with the 2015 draft Housing Element which had been approved in May of 2016. The City uses building codes, zoning ordinances, subdivision ordinances, and various planning strategies to address how and where development occurs. One of the essential ways the City guides its future is through policies laid out in the General Plan.

Within the Guadalupe Municipal Code Title 15, the city codifies and adopts the California Building Fire Code and Building Code. The latest versions of the state-wide codes are titled 2016 and will become effective in January, 2017. Within these regulations are mandates to clear vegetation, post unreinforced masonry buildings, fire preventions requirements and many health and safety related requirements.

To remain consistency within the state, Guadalupe has adopted the following codes for enforcement within the City:

1) 2016 California Fire Code
2) 2016 California Building Code, Volume One and Two
3) 2016 California Administrative Code
4) 2016 California Electric Code
5) 2015 National Electric Code (NIC)
6) 2016 California Plumbing Code
7) 2016 California Mechanical Code
8) 2016 California Energy Code
9) 2016 California Green Building Standards Code
10) 2016 California Referenced Standards Code

In addition, the Guadalupe City Council enacted a Municipal Code section to authorize placard (or tagging) buildings during emergency situations deeming structures unsafe pending a formal review and inspection. This proactive section allows our fire and building personnel to assess damage and make a temporary assessment after earthquake or other disasters to swiftly protect the community and conclude the magnitude of damage during a calamity while awaiting other supportive resources to evaluate structural safety.

Another future program to aid in the management and response to a disaster will be the

implementation of a CERT team. This objective was previously identified but not completed in the previous plan. However, we have now established a Neighborhood Watch program that would like to receive the CERT training and a nearby public agency has offered their instructor.

In addition, the Paid-Call Firefighting staff has been augmented with additional Reserve Firefights since 2015. These training individuals do not staff routinely assigned shifts but are available during emergencies and disaster preparation or response.

City Of Guadalupe General Plan

Land Use Element

The City of Guadalupe General Plan Use Element designates land uses to reflect the ongoing development and character of the City in terms of traffic patterns, potential hazardous areas (i.e. floodplains,) sensitive habitat, and other factors. Industrial uses support the local employment, and are planned with appropriate buffer zones to create a pleasant. Commercial zones are divided into two types, with the central business district that encourages pedestrian circulation and a general commercial district that allows for more vehicles and is geared toward services for tourists. Residential areas are designed and planned to comply with housing densities in the City's General Plan and Zoning Ordinance. When defining the residential zoning, the City of Guadalupe finds a delicate balance between urban areas and open spaces. The Agricultural Land Use designation is involved primarily with active agricultural uses while the Open Space Land Use designation is a combination of grazing activities, sensitive environmental habitats, and passive recreational areas.

Public Facilities/Parks Land Use category is concerned with water, sewage, drainage, school, parks and fire protection services in order to provide for continued development and expansion of the City of Guadalupe. The quality and adequacy of public facilities are two of the most important factors of an expanding economy and growth of a community. The Point Sal Dunes Specific Plan approved 253 residential units and reserves open space along the Santa Maria River. The City approved an 800 home residential development known as Pasadera (also referred to as DJ Farms Specific Plan) with associated commercial support. There are about 20 homes currently under construction in this development.

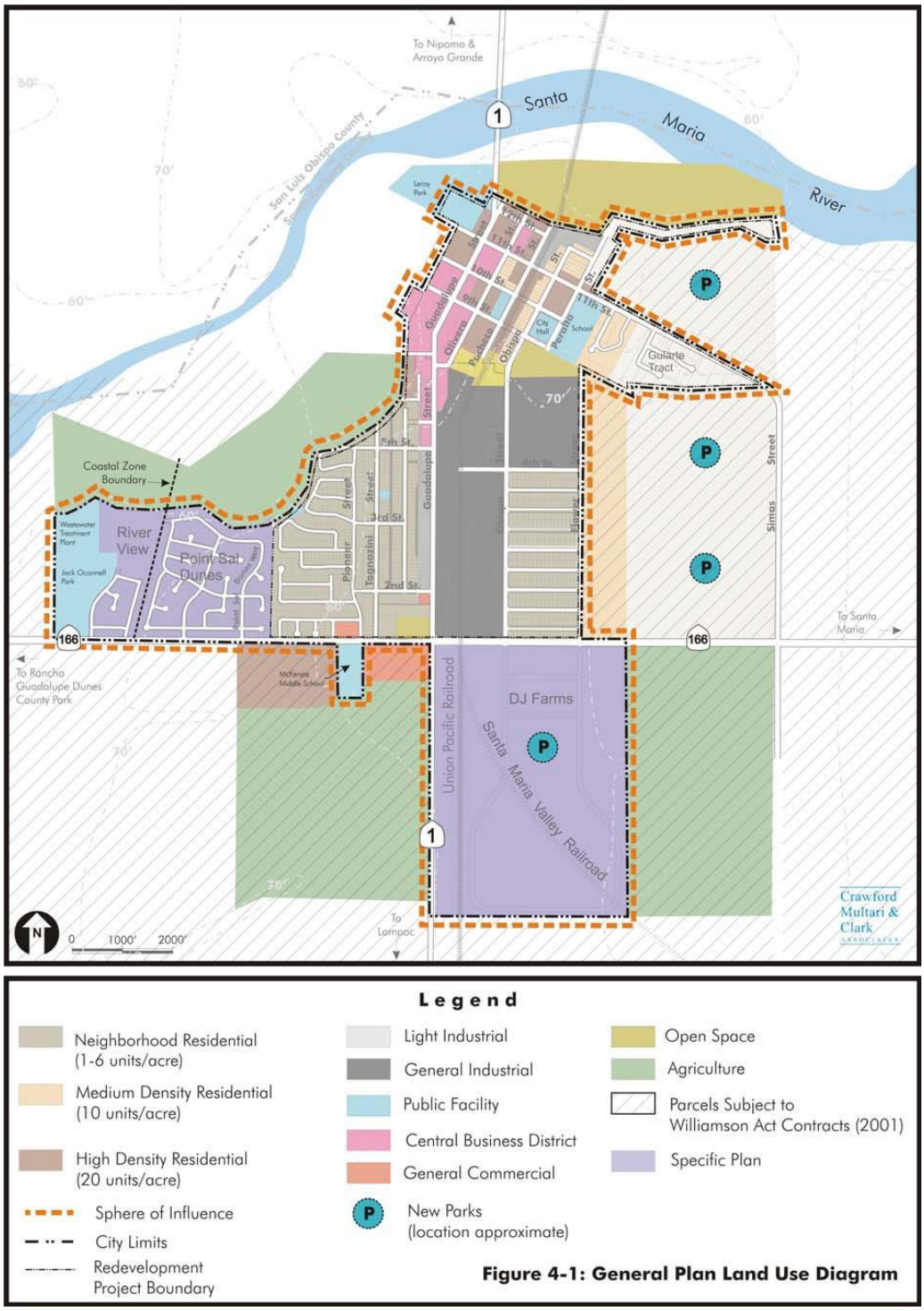


Figure 4-1: General Plan Land Use Diagram

Housing Element

The 2015 (Draft) Housing Element Update provides a comprehensive analysis of Guadalupe's demographic, economic, and housing characteristics as required by State Law. The housing component of the general plan requires local governments to balance the need for growth,

including the need for additional housing, against other competing local interests. Guadalupe experienced a 39 percent increase in the total number of housing units from 1980 to 2003 (US Census Bureau, 1980, 1990, 2000), yet from 1990 to 2000 Guadalupe's housing stock increased a mere five percent. Guadalupe is committed to affordable homes for residents with an emphasis on increased energy efficiency in new and existing homes. Cal Poly recently conducted a survey of the housing stock in Guadalupe. It was found that the majority of housing stock is in sound condition. Houses in Guadalupe seem to be improving in quality over the past years, possibility due to rehabilitation grant programs funded by the Guadalupe Redevelopment Agency and also from housing recently constructed. This Agency also provided financing for infrastructure and housing improvements until it was dissolved by state law.

Residential development in the City is constrained by environmental factors including: City boundaries and limits, protected agriculture, coastal zone proximity, flood zones, and seismic faults. About 60 acres in Guadalupe lies within the coastal zone. The City annexed this land in 1990 and prepared a local coastal plan (LCP) that was certified by the California Coastal Commission. The uses for the site include a community park, single family residences, open space and the City's wastewater treatment plan. The Alquist-Priolo Earthquake Fault Zoning Act (Public Resources Code Section 2621, et seq.) restricts development on the surface traces of known active faults mapped by the State Geologist. However, the San Simeon Earthquake in 2003 did affect many buildings in Guadalupe, primarily due to the fact that they are Unreinforced Masonry buildings (URM). The City of Guadalupe has land within 100-year and 500-year flood zones, but none of these lands are currently developed or are considered for future development.

Safety Element

The Safety Element is designed to allow for planning that will prevent development in areas that may be at risk to natural and human made hazards. Such hazards include seismic activity, flooding, fire hazard areas, and noise impact areas. The overall goal is to protect the public health, welfare, and safety from the potential hazards of flooding, earthquakes, and fire.

Seismic Activity

There are no known faults within the City of Guadalupe. The closest faults are the Pezzoni fault, approximately ten miles south of Guadalupe, and the Santa Maria fault, approximately eight miles to the east. Safety measures related to seismic activity and earthquakes involve prevention of damage and restitution of services. Building requirements should follow recommendations set forth by the California Building Code, which establishes building requirements for all new structures based on predicated earthquake intensities.

The City of Guadalupe will implement the following goals, objectives and policies as set forth in the City's general Plan.

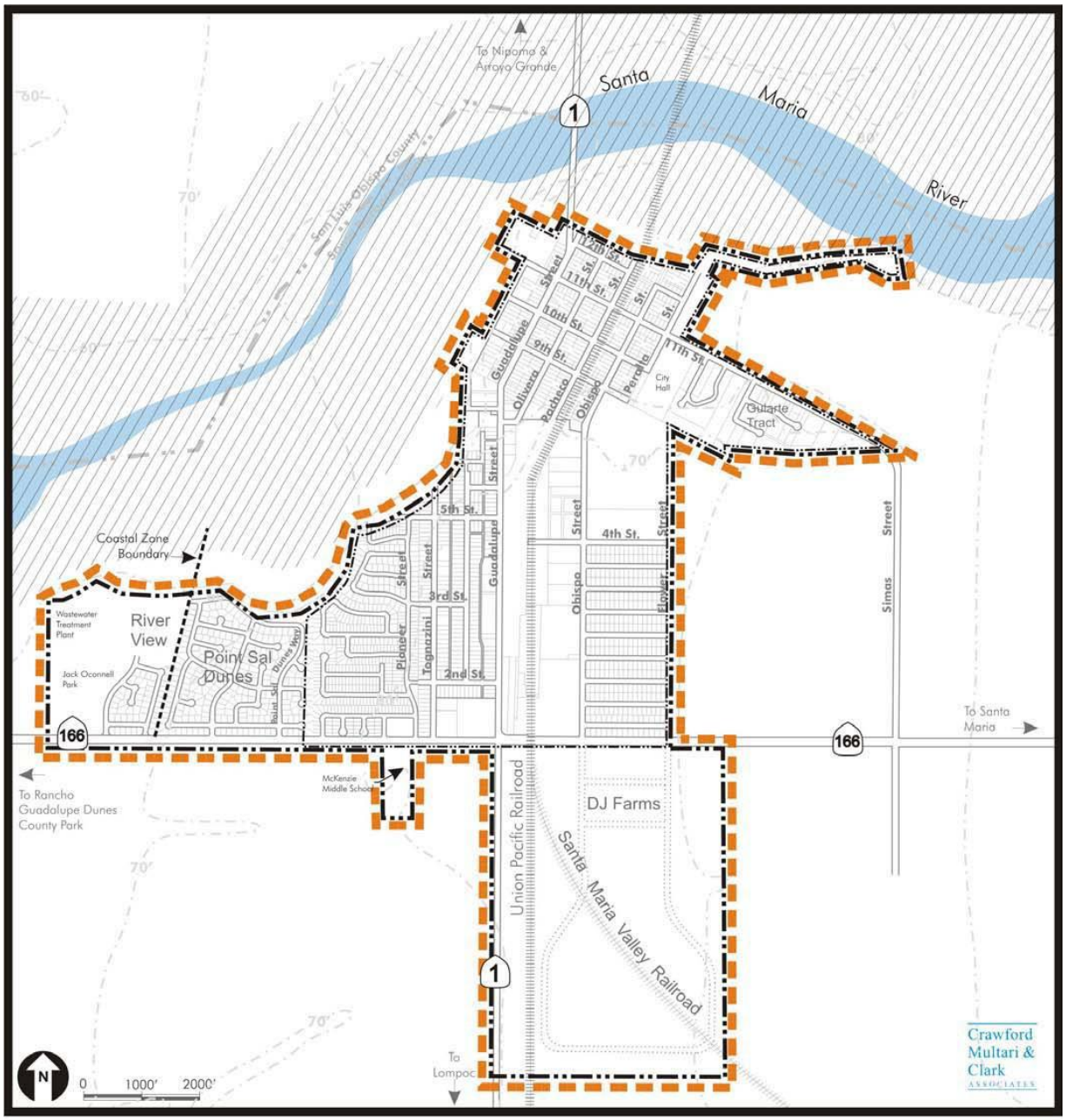
Seismic: Adopt and enforce building and grading codes which protect the City from seismic event damages as outlined in the California Building Code as adopted by the City, and the General Plan.

Figure 11-2: Seismic Hazard

<u>Flooding</u>

Policies to discourage development in hazardous flood areas include:

- Liquefaction: No building will be permitted along the Santa Maria River.
- Encourage passive open space uses within floodplains.
- Prohibit development in floodways.
- New development will not be sited in areas of shallow groundwater.
- Adopt and use the most current edition of the California Building and Fire Codes with local amendments.



Legend

Sphere of Influence

City Limits

100-Year Floodplain

Note: Map for illustration purposes, only. For detailed flood information, consult Flood Insurance Rate Maps for Santa Barbara County.

Figure 11-1: Areas Subject to Flooding in a 100-Year Storm

Fire

Fire protection is an important safety consideration for the City of Guadalupe. Fire capabilities of new developments must be carefully planned to give maximum service at minimum cost. Land use, circulation, water and fire service are all important factors of service costs and system adequacy.

The City recognizes the importance of circulation, to minimize response time to fires and other emergencies, and submits all subdivision plans to the Fire Chief for review and approval.

Policies to encourage quicker and better fire response include:

- Every building and development project should be reviewed and approved by the fire department prior to issuance of the building permit.
- Improve water system capabilities as they affect fire service.
- Adopt and use the most current edition of the California Building and Fire Codes with local amendments.

Zoning and Subdivision Ordinances

The State of California has empowered all cities and counties to adopt zoning ordinances. The City of Guadalupe had a five member Planning Commission, which was an advisory body to the City Council. The Commission was established under State law to provide relief in special cases where the exact application of the terms of the ordinance would be unduly restrictive and cause a hardship, in addition to generally reviewing zoning and subdivision proposals. The Planning Commission hears and decides upon the interpretation and the application of the provisions of the Zoning and Subdivision Ordinances. Although the Commission has certain discretionary powers in making its decisions, the Commission must always abide by and comply with the powers granted to it by the local Zoning and Subdivision Ordinances and the State's enabling acts. However, the Planning Commission was dissolved due to financial concerns and all zoning issues are determined by the Guadalupe City Council, which is responsible for all functions of the Planning Commission as described above.

Storm Water Management Program

The City of Guadalupe will be taking steps toward a storm water management program. This program fell victim to the financial shortfalls experienced during the entire previous mitigation

plan. All related assets such as the existing storm water infrastructure, recommended upgrades, necessary permitting and design criteria will be included in the plan. Out of necessity, some of the storm drain shortfalls have been cleared but the project at this time is continuing.

The City of Guadalupe's Public Works Department continually maintains the City's storm water system. The system has approximately 2.1 miles of underground storm water system piping; approximately 1.1 miles of open ditch which affronts agricultural properties and receives field runoff as well as storm runoff; approximately 0.5 miles of open ditch that carries excess water which accumulates in an area known as Guadalupe Wetlands/ Lake and also receives agricultural runoff; 83 drop inlets; 3 box culverts with runs of approximately 125 ft.; and 22 manholes equipped with drop inlets and four outlet sites. This is what functions as the City of Guadalupe's current storm water system.

The goal of the Storm Water Management Program (SWMP) is to protect the health and safety of the public and the environment, meeting Clean Water Act mandates through compliance with Phase II of the National Pollutant Discharge Elimination System (NPDES) permit requirements and applicable regulations. It further fosters heightened public involvement and awareness of discharge risks. Storm drains typically flow into creeks that have already passed through a variety of land uses, including natural, agricultural, urban and industrial, and often through more than one permit jurisdiction. The City is faced with the challenge of requiring and implementing controls to reduce the discharge of pollutants in storm water runoff to the technology-based standard of "Maximum Extent Practicable" (MEP) as required by § 402(p)(3)(B)(iii) of the Clean Water Act, 33 U.S.C. § 1342(p)(3)(B)(iii).

Building Codes

The State of California has adopted the 2016 California Building Codes which becomes effective in January of 2017. These new regulations will be enforced in the City of Guadalupe. The California Uniform Statewide Building Code is based on the International Building Code with State amendments. The City has adopted the 2016 California Building Codes with local amendments and which also become effective in 2017. A copy is available for review in the City's Building & Planning Department.

The City provides for and enforces State, City, and County Codes for building residential and

commercial structures, enforcing environmental codes and guidelines for maintaining existing structures.

The City of Guadalupe has an ISO rating of 4 based on a determination letter dated April 28, 2014. In addition, our ISO rating for buildings was 1.

The ISO is an insurer-supported organization that provides advisory insurance underwriting and rating information to insurers. The ISO uses a rating scale of 1 to 10 with 1 being the highest rating given.

Floodplain Management Ordinance

The NFIP consideration is the responsibility of the Local Planning Team outline in 12.2.3. This Team is responsible for the NFIP updates and application to potential development projects. An extension of the levee to protect the low lying are has been sought and has been identified in the Master plan. Until remedied, the city will not issue building permits in the flood plan without some type of individual mitigation proposed and reviewed by the LPT. Reference to this hazard is located in section 12.4.6 et seq.

The City of Guadalupe refers to the Santa Barbara County Floodplain Ordinance by reference. It is important to note, however, that many parts of the City flood due to storm water infrastructure, not because of their proximity to 100-year floodplain.

The FIRMs were developed through the NFIP and were last updated in September 2005 and made available in GIS format as Digital Flood Insurance Rate Maps. These are shown in Section 5.3.3 which discusses the location and extent of the flooding hazard throughout Santa Barbara County. These are also on file with the Santa Barbara Operational Area Office of Emergency Management, County Flood Control, and online at the Santa Barbara County Public Works Department’s website. The FIRMs are used by both the public and private sector to determine flood insurance requirements and rates and to administer the City's Flood Zone Management Ordinance.

Floodplain districts identified in the FIRMs include the following flood hazard zones and definitions:

- **Zone A** is the flood insurance rate zone that corresponds to the 100-year floodplains that are determined in the Flood Insurance Study by approximate methods. Because detailed hydraulic analysis is not performed for such areas, no Base Flood Elevations or flood hazard factors are determined.
- **Zone AO** is the flood insurance rate zone that corresponds to areas of 100- year shallow flooding where depths are between one (1) and three (3) feet; average depths of inundation are shown, but no flood hazard factors are determined.
- **Zone A1-A30** is the flood insurance rate zone that corresponds to areas of 100-year flood; base flood elevations and flood hazard factors are determined.
- **Zone B** is the flood insurance rate zone that corresponds to areas between limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths less than one (1) foot or where the contributing drainage area is less than one square mile; or areas protected by levees from the base flood.
- **Zone C** is the flood insurance rate zone that corresponds to areas of minimal flooding.

All potential development projects located within floodplains must follow an established development review process. Developments involving drainage ditches or watercourses in floodplains must receive Federal, State and Local review and permits as required by the Floodplain Administrator and the Guadalupe Municipal Code.

Repetitive Loss Properties

Repetitive loss properties are defined as property that is insured under the NFIP that has filed two or more claims in excess of $1,000 each within any consecutive 10-year period since 1978. The City has several properties on which there have been repetitive flood losses, but they have no insurance.

The primary water flow that affects these "Repetitive Loss" properties originates outside of the jurisdiction of the City of Guadalupe and 100% of the flow pathway is also outside of the City's jurisdiction. The City has been in communication with the various jurisdictional authorities, which include, but are not limited to: U. S. Army Corps of Engineers, Santa Barbara County Flood Control, CA State Regional Water Quality Control Board, U. S. Fish and Wildlife Service, CA Department of Fish & Game, and the owners of private property outside of the City's jurisdiction. The primary need is the continuation of the existing levy system protecting

the low lying areas at the north-west end of the city. Funding sources will continue to be sought to mitigate this ongoing hazard.

SEMS Multi-Hazard Functional Plan

In early October 2004, the City of Guadalupe submitted its Standardized Emergency Management System (SEMS) Multi-Hazard Functional Plan to the State of California for approval. The 2004 plan component remains in effect through this 2016 update. The Plan discussed mitigation in the form of training and exercises, which are essential at all levels of government to make emergency operations personnel operationally ready. All emergency plans should include provisions for training. The objective is to train and educate public officials, emergency response personnel and the public. The best method for training staff to manage emergency operations is through exercises. Exercises are conducted on a regular basis to maintain the readiness of operational procedures.

Exercises provide personnel with an opportunity to become thoroughly familiar with the procedures, facilities and systems which will actually be used in emergency situations. There are several forms of exercises:

- Tabletop exercises provide a convenient and low-cost method designed to evaluate policy, plans and procedures and resolve coordination and responsibilities. Such exercises are a good way to see if policies and procedures exist to handle certain issues.
- Functional exercises are designed to test and evaluate the capability of an individual function such as evacuation, medical, communications or public information.
- Full-scale exercises simulate an actual emergency. They typically involve complete emergency management staff and are designed to evaluate the operational capability of the emergency management system. Hazard Assessment

The City has experienced some staff turnover, layoffs and finally some restoration of services by the hiring of new employees, through the recession. While all previous staff had completed the Introductory SEMS/NIMS training, the staffing changes have resulted in the need for initial training and advanced SEMS/NIMS training based on job responsibilities. The SEMS/NIMS training of employees will be completed prior to the next mitigation plan update.

12.3.7 Development Plan Inclusion

Development in the City of Guadalupe over the last five years in these sub regions, much like the county as a whole, has been limited to infill type projects. One large housing development has broken ground which had been in the planning stage for the past twenty years. This development complied with EIR, is outside any of the identified hazard zones and complies with all current building and safety requirements.

Additionally, there are no other major planned development projects. However, any new major developments will need to meet all current building codes and standards. This includes an assessment of the development against the city General Plan, especially the Safety Element which has incorporated lessons learned from the Multi-Jurisdictional Hazard Mitigation Plan update process.

12.4 HAZARD ASSESSMENT

The Hazard Assessment presented here reflects the City's 2016 review and modifications to the updated risk assessment presented in Sections 5 and 6 of the County Plan. Applicable hazard information from the City's previous plans was incorporated during the development of this section.

A brief description of the community is provided to assist in understanding the hazard assessment. The City of Guadalupe lies approximately three miles from the Pacific Ocean along State Highway 1, which runs through the center of the downtown central business district. It is located 10 miles west of Santa Maria, at the northern border of Santa Barbara County. Surrounding the city on the East, West, and South are several square miles of flat, open agricultural land. After reviewing the localized hazard maps and exposure/loss table above, the following hazards were identified by the Guadalupe LPG 2016 as their top nine.

Table 12.6 City of Guadalupe - Hazard Ranking and Planning Consideration 2016

Hazard Type and Ranking	Planning Consideration Based on Hazard Level
Flood	Significant
Earthquake	Significant
Hazardous Materials Release	Moderate
Train Accident	Moderate
Agricultural Pests and Disease	Moderate
Levee Failure/Dam Failure	Moderate
Tsunami	Limited

12.4.1 Flood

The City of Guadalupe ranked the flooding hazard as being a significant planning concern to the City.

12.4.1.1 Description of Hazard

A flood is a general and temporary condition of partial or complete inundation on land that is normally dry. Several factors determine the severity of floods, including rainfall intensity and duration, antecedent moisture conditions, surface permeability, and geographic characteristics of the watershed such as shape and slope. Other causes can include a ruptured dam or levee, rapid ice or snow melting in the mountains, under-engineered infrastructure, or even a poorly placed beaver dam can overwhelm a river or channel and send water spreading over adjacent land or floodplains.

A large amount of rainfall in a short time can result in flash flood conditions, as can a dam failure or other sudden spill. The National Weather Service's definition of a flash flood is a flood occurring in a watershed where the time of travel of the peak of flow from one end of the watershed to the other is less than six hours.

Another form of flooding occurs when coastal storms produce large ocean waves that sweep across coastlines making landfall. Storm surges inundate coastal areas, destroy dunes, and cause flooding. If a storm surge occurs at the same time as high tide, the water height will be even greater. The County historically has been vulnerable to storm surge inundation associated with tropical storms and El Nino.

12.4.1.2 Location and Extent of Hazard

The geographical location, climate, and topography of the city of Guadalupe make it prone to flooding. In regions such as Santa Barbara County, without extended periods of below-freezing temperatures, floods usually occur during the season of highest precipitations or during heavy rainfalls after long dry spells. Additionally, due to the Mediterranean climate and the variability of rainfall, stream flow throughout the County is highly variable and directly impacted from

rainfall with little snowmelt or base flow from headwaters.

The primary area of flooding is located along the levee at the north and north/west section of the City. That area is at a lower grade than the remainder of the City and has a history of flooding as outlined below. Maps indicating the flood hazard are located in section 15.5.1.

12.4.1.3 History of Hazard

The City of Guadalupe sustained flood damage in February 1993, February 1998, March 2001, December 2010, and March 2011 due to heavy rains. A Local Emergency was declared on February 5, 1998, March 21, 2001, and December 19, 2010 following substantial storm flooding. As a result of the repeated flooding events, City Staff have begun discussions with Santa Barbara County Flood Control, U. S. Army Corps of Engineers and other related entities in an effort to develop a mitigation plan to reduce the potential for future flooding events (See Section 12.3.6.6). A Wetlands Lake with undersized culverts affects Gularte Tract and Mary Buren Elementary School, City Hall and entire downtown core of the city. The areas of most concern for storm-related flooding are the 800 – 900 block of Pioneer Street, 4700 Block of 11th Street, the wastewater treatment plant, and most of the western portion of the City bordering the Santa Maria River. This threat is due to the areas low elevation in relation to the Santa Maria River and the lack of a levee structure between the river and this area. The majority of the western portion of the City faces a moderate to high risk of flooding due to the lack of a levee structure between the Santa Maria River and the properties. Wild land fires have removed vegetation from over 100,000 acres of land in the National Forest to North East of Santa Maria. An increased runoff is expected upon relief from the current drought. A significant portion of this runoff will travel down the Santa Maria River, increasing the threat to the City.

12.4.1.4 Probability of Occurrence

The probability of flooding in Guadalupe is similar to that of Santa Barbara County. A map in the County HMP shows the location of the special flood hazard zones in Santa Barbara County. The flood hazard zones depicted on the map are derived from FEMA's Flood Insurance Rate Maps (FIRM) and indicate the probability of flooding happening over a given period of time. Flood zones are geographic areas that defined varying levels of flood risk. Each zone reflects the

severity or type of flooding in the area. The FIRM boundaries are developed by FEMA to convey flood risk.

12.4.1.5 Climate Change Considerations

Climate change is both a present threat and a slow-onset disaster. It acts as an amplifier of existing hazards. Extreme weather events have become more frequent over the past 40 to 50 years and this trend is projected to continue. Rising sea levels, changes in rainfall distribution and intensity are expected to have a significant impact on coastal communities and cities like Guadalupe.

12.4.2 Earthquake

The City of Guadalupe ranked the earthquake hazard as being a significant planning concern.

12.4.2.1 Description of Hazard

An earthquake is caused by a release of strain within or along the edge of the Earth's tectonic plates producing ground motion and shaking, surface fault rupture, and secondary hazards, such as ground failure. The severity of the motion increases with the amount of energy released, decreases with distance from the causative fault or epicenter, and is amplified by soft soils. After just a few seconds, earthquakes can cause massive damage and extensive casualties.

12.4.2.2 Location and Extent of Hazard

Santa Barbara County Officials have indicated that the City of Guadalupe is located in Seismic Zone 4, which is the highest potential status for earthquake activity in the State of California. Most of the downtown consists of reinforced masonry buildings relieving some of the risk. The City had identified 21 buildings within the city limits that were un-reinforced masonry construction (URM), two of which remain un-reinforced. In 2007, the City Redevelopment Agency allocated approximately $3 million in RDA funds in the form of grants to assist owners of URM buildings in retrofitting their building to seismic safe standards. The RDA has since been dismantled and no longer exists.

Guadalupe has realized a reduced threat from URM buildings, but many of the non-URM buildings in the city are more than 50 years old and are subject to damage due to an earthquake. Public facilities and a significant portion (>70%) of the residential occupancies within the city are old construction and have a potential for incurring serious damage in the event of an earthquake. The State of California deadline for retrofitting of URM buildings was December 31, 2012. All non-retrofitted buildings are deemed uninhabitable and posted as such. Legal research will be needed to determine a defensible plan of action and submitted to the City Council for direction regarding the long term solution for the remaining URM buildings.

12.4.2.3 History of Hazard

On December 22, 2003 at 11:15 in the morning a magnitude 6.5 earthquake struck the central California coast. The event, known as the San Simeon Earthquake, was located 11 kilometers northeast of San Simeon, and 39 kilometers west/northwest of Paso Robles. Although the San Simeon Earthquake had a more significant impact on San Luis Obispo County, the event was reportedly felt as a MMI VI in Guadalupe and Santa Maria and as a MMI V in Lompoc, Santa Ynez and Solvang. According to reports on the San Simeon earthquake by the U.S. Geological Survey and U.C. Berkeley Seismological Laboratory, two (2) people were killed, 40 people were injured, over 40 buildings collapsed or were severely damaged and more than 10,000 homes and businesses were without power. The most severe damage was to un-reinforced masonry (URM) structures that had not yet been retrofitted to better withstand earthquakes. There was minor damage to more than 30 URM buildings in the City of Guadalupe.

12.4.2.4 Probability of Occurrence

Statewide, the rate of earthquakes around Magnitude 6.7 (the size of the 1994 Northridge earthquake) has been estimated to be one per 6.3 years (more than 99% likelihood in the next 30 years); in southern California, the rate is one per 12 years (93% likelihood in the next 30 years).

12.4.2.5 Climate Change Considerations

To date, no credible evidence has been provided that links climate to earthquakes; however, climate and weather does play a significant role in the response and recovery from earthquakes. Effects from climate change could create cascading complications and impacts.

12.4.3 Hazardous Material Release

The City of Guadalupe ranked the Hazardous Material Release as being a moderate planning concern.

12.4.3.1 Description of Hazard

As defined by the Code of Federal Regulations (CFR), a hazardous material means a "substance or material that the Secretary of Transportation has determined is capable of posing an unreasonable risk to health, safety, and property when transported in commerce, and has designated as hazardous under section 5103 of Federal hazardous materials transportation law (49 USC. 5103). The term includes hazardous substances, hazardous wastes, marine pollutants, elevated temperature materials, materials designated as hazardous in the Hazardous Materials Table (see 49 CFR 172.101), and [other specified materials]." (49 CFR § 105.5)

Hazardous materials include:

- Explosives
- Flammable, non-flammable, and poison gas
- Flammable liquids
- Flammable, spontaneously combustible, and dangerous when wet solids
- Oxidizers and organic peroxides
- Poisons and infectious substances
- Radioactive materials
- Corrosive materials

The term "release" includes spilling, leaking, pumping, pouring, emitting, emptying, discharging, escaping, leaching, dumping, or disposing into the environment of any hazardous material. Hazardous Materials Releases (HMRs) may be intentional or accidental, and may occur at fixed facilities or on transport vehicles.

HMRs are harmful in three ways:

1. Life safety concerns. Chemical, biological, and radiological agents can cause significant health risks to those exposed to them; biological agents can be additionally dangerous if they are infectious. Flammable and explosive materials also present life safety concerns if they are exposed to heat and/or flame.
2. Environmental cleanup. Release of a hazardous material requires clean-up per environmental regulatory requirements. This could be simple or could require costly and time-consuming clean-up actions to remediate the contaminated areas and/or materials, and people and/or animals exposed by the release

3. Operational delays. Delays caused by a HMR could lead to significant economic losses due to traffic delays (mobile or airborne releases) or operational shut-down (fixed facilities).

Most HMRs occur with little or no warning. In some cases, such as with gases and biological hazards, they can be difficult to detect until symptoms present themselves in those affected. HMRs can occur at fixed facilities or during transit. HMRs at fixed facilities may be external or internal. External releases may involve industrial storage, fires, or malicious acts and may create airborne plumes that can affect a wide area and last for hours or days. Internal releases can be localized or widespread depending on the transmissibility of the material and transmission routes. For example, if the material is transmissible through air and located near an intake, it can be distributed throughout the building through the heating/ventilation system. Hazardous materials are primarily transported by road, rail, ship, or air. The majority of mobile releases are due to accidents on highways, but can occur as a result of incidents on railroads, in the air, or on boats.

12.4.3.2 Location and Extent of Hazard

The City of Guadalupe has several industries that use hazardous materials. The agricultural industry uses large quantities of ammonia to operate their refrigeration systems, and there are significant quantities of fertilizers and pesticides stored and dispensed in the community and surrounding land. In addition, Highways 1 and 166 pass through the community and local and interstate trucks regularly pass through the city. One of the primary threats to the community from these trucks is the large quantities of diesel fuel they carry and the close proximity of the highways to storm drainage systems that serve the region.

In addition, any long-term closure of Highways 1 or 166 due to an incident related to these highways will severely limit access to the City by mutual aid providers and disaster relief assistance. The closure of Highways 1 or 166 could also significantly affect the City's economy as we are dependent on upon sales tax dollars.

12.4.3.3 History of Hazard

One significant hazardous material incident occurred in 1990. A large explosion occurred while welding a gasoline tank which had fatal results and caused significant damages to surrounding buildings. While the risk of other hazardous material incidents has increased with larger

quantities of material storage, our occurrence level remains low.

12.4.3.4 Probability of Occurrence

The most likely scenario in Guadalupe is a hazardous material spill due to a release from one of the agricultural facilities.

The City of Guadalupe Fire Department works closely with local industry and monitors and audits risk management and prevention programs. The City of Guadalupe Fire Department is also involved with Hazardous Material guidelines per CUPA (County Fire Hazardous Material Unit) established Business Plans are complied with. Regular site visits are also performed with CUPA. Professional response training has been provided to the Firefighters by the largest agriculture cooler in the city.

12.4.3.5 Climate Change Considerations

Weather can play a significant factor in hazardous material releases. While there is little evidence to link climate change increase occurrences of hazardous material releases, it could impact the response and recovery efforts.

12.4.4 Train Accident

The City of Guadalupe ranked the train accident hazard as being a moderate planning concern to the City.

12.4.4.1 Description of Hazard

Train accidents are defined as any accidents involving public or private trains carrying passengers or cargo along the rail corridor. Train accidents, like other transportation accidents, are less likely to lead to a state or federal disaster declaration, than other hazards previously and afore mentioned.

12.4.4.2 Location and Extent of Hazard

The Union Pacific Railroad bisects the City from north to south paralleling Highway 1 adjacent to the main downtown corridor of the City. The railroad carries both passengers and cargo through the City on a daily basis. While the City has only had two derailment incidents in recent history, the potential for train-related incidents are ever-present, and some of the cargo carried by the

trains include hazardous materials. Another concern is that in some areas of the City, the trains pass in very close proximity to residential and commercial occupancies (in some cases within +-35 feet), which provides a potential threat to the occupants of these structures. Due to the fact that the railroad passes through the downtown corridor of the City, should a train carrying hazardous materials be involved in an incident and those materials are released, the entire City could be at significant risk. Consequently, any derailment with hazardous materials on board with even a remote potential for release or fire would require an evacuation of all persons from the City of Guadalupe.

In addition, any incident along the railroad right-of-way could adversely affect the ability of emergency services to respond to calls for service in a timely manner. The long-term closure of Highways 1 or 166 could also significantly affect the City's economy as we are dependent local commerce.

12.4.4.3 History of Hazard

Two known train derailments in the City of Guadalupe history are known. The first derailment occurred in 1952 and the second around 2005. In the most recent incident, box cars derailed exposing their commercial product that was subjected to looting. Surrounding damage was minimal and there is no record of injury during that incident.

An earlier incident occurred in the 1940's or 1950's which was caused substantially more property damage but no documentation could be located to better define the extent of the event.

12.4.4.4 Probability of Occurrence

Recent interests in expanding the use of the Phillips processing plant located to our north would significantly increase the number of rail passages through the City of Guadalupe. As proposed, the movement of hazardous and flammable materials could raise the risk assessment for rail transportation. In October of 2016, the project was rejected by San Luis Obispo County but an appeal is anticipated. Should the proposal gain approval, our risk assessment for rail transportation would require a review based on volume and types of materials. Even with approval, the preparation of the site for the expanded processing service would likely take years and offer sufficient time to address the mitigate action to the increased risk.

12.4.4.5 Climate Change Considerations

There is no known linkage between climate change and train accidents.

12.4.5 Agricultural Pests and Disease

The City of Guadalupe ranked the Agricultural Pests and Disease hazard as being a moderate planning concern to the City.

12.4.5.1 Description of Hazard

Agricultural pests and disease infestation occur when an undesirable organism inhabits an area in a manner that causes serious harm to agriculture crops, livestock or poultry, and wild land vegetation or animals. Countless insects and diseases live on, in, and around plants and animals in all environments. Most are harmless, while some can cause significant damage and loss. Under some conditions, insects and diseases that have been relatively harmless can become hazardous. For example, severe drought conditions can weaken trees and make them more susceptible to destruction from insect attacks than they would be under normal conditions.

12.4.5.2 Location and Extent of Hazard

The agriculture industry is a major factor in the City's economy. The City is surrounded by agricultural activities, employing thousands of people, which contributes significantly to the local economy. The City is home to a multi-million dollar produce processing facility that employs several hundred community residents. There are several different threats to the agricultural industry locally. The threats include, but are not limited to; pest infestation, disease, intentional vandalism and terrorism, fallout from the Diablo Canyon Power Plant, and adverse weather. With agriculture being such a vital industry to the community, the loss of any portion of this industry would be devastating to the local economy and it is in the City's best interest to work toward protecting this vital industry.

12.4.5.3 History of Hazard

Santa Barbara County has a history of insect infestation. Infestations of Mediterranean Fruit Fly, Oriental Fruit Fly, Gypsy Moth, Glassy-winged Sharpshooter, Asian Citrus Psyllid, and Light-

Brown Apple Moth have all occurred in the last 30 years. Diseases such as Chrysanthemum White Rust and Pierce's Disease of Grapes have caused significant losses to local growers.

12.4.5.4 Probability of Occurrence

Due to its interaction with the global economy, its mild Mediterranean climate, and its diversified agricultural and native landscape, Guadalupe currently experiences and will continue to experience periodic losses due to agricultural pests and diseases.

12.4.5.5 Climate Change Considerations

Farmers contend with a wide range of crop-damaging pests and pathogens. Continued climate change is likely to alter the abundance and types of many pests, lengthen pests' breeding season, and increase pathogen growth rates. For example, the pink bollworm, a common pest of cotton crops, is currently a problem only in southern desert valleys because it cannot survive winter frosts elsewhere in the state.

12.4.6 Levee Failure/Dam Failure

The City of Guadalupe ranked the hazard from Levee failure/Dam failure, as being a limited risk to the City.

12.4.6.1 Description of Hazard

There are several areas in California that use levees to protect land from peak flood levels and/or to protect land that is below sea level. The first type of levee should be designed to withstand peak flood levels that are caused by rapid snow melt or intense rainfall within the watershed. The second type of levee should be designed to withstand nominal water levels on a continuous basis as well as peak flood levels. Failure of levees is defined as conditions that breach and/or degrade the levees.

In California, levees protect farmland, ranchland, rural residential areas, urban residential areas, and infrastructure such as roads, highways, and waterways or canals.

Dams fail due to old age, poor design, structural damage, landslides flowing into a reservoir, or

terrorist actions. Structural damage is often a result of a flood, erosion, or earthquake. A catastrophic dam failure could inundate the area downstream. The force of the water is large enough to carry boulders, trees, automobiles, and even houses along a destructive path downstream. The potential for casualties, environmental damage, and economic loss is great. Damage to electric generating facilities and transmission lines could impact life support systems in communities outside the immediate hazard area.

12.4.6.2 Location and Extent of Hazard

The Santa Maria River travels along the northern border of the City. There is an existing levee along the south side of the river, which ends at the intersection of Highway 1. Along the northern border of the City, west of Highway 1, there is no levee structure and the primary protection from river flooding in that area is the difference in elevation between the river and adjacent properties. The estimated difference in elevation between the river and adjacent properties ranges from approximately 10 to 15 feet. The lack of a levee structure leaves the commercial, residential, agricultural, and open space properties within this area at risk of flooding should there be major rains or a failure of the Twitchell Dam (See Section 12.3.6.6).

12.4.6.3 History of Hazard

The construction of the Santa Maria River Levee was completed in 1963 by the U.S. Army Corps of Engineers. The levee was constructed to provide protection against flooding and debris flow from the City of Santa Maria; including the main business district (overflow area), adjacent agricultural lands in the Santa Maria Valley, and valuable residential, commercial, industrial, and public properties which would likely be subject to flooding. In addition, protection is available for US Highway 101, State Highway 1, Southern Pacific Railroad, Santa Maria Valley Railroad, three highway bridges, and one railroad bridge; all of which were previously subject to overflow in the Santa Maria Valley. Without protection from the levees, the standard project flood would inundate most of the Santa Maria Valley, including 80% of the city of Santa Maria.

The Santa Maria River Levee was designed to protect Santa Maria Valley from a standard project flood ranging in magnitude from 150,000 cubic feet per second (cfs) at the downstream

end of the left levee to up to 160,000 cfs at Fugler Point. The Bradley Canyon Levees and channel improvements were designed to accommodate the standard project flood, which can range in magnitude from 7,000 to 9,000 cfs. However, flood flows much less than the design discharges significantly damaged the levee system in 1966, 1969, 1980 and 1998. Damages from each of these floods occurred at different locations, under relatively low flow conditions, and were caused by flow impingement on the levee structure. In 1981 about a fourth of the project was protected from further undermining with groins and other features but a subsequent 600 ft breach in 1998 in a reach without groins indicating that future damage was likely.

In 2009, the Army Corps of Engineers improved the riverside slope of south levee with soil cement revetment and steel sheet pile wall protection from Blosser Road to the Bradley Canyon confluence. A portion of the Bradley Canyon levee was also improved in 2013.

The State of California and the federal government have a rigorous Dam Safety Program. This is a proactive program that ensures proper planning in the event of failure but also sets standards for dam design and maintenance. Because of this, many potential issues have been addressed and/or resolved. Prior to the implementation of this program Santa Barbara did experience a dam related incident.

Built in 1917, the Sheffield Dam only survived for eight years, failing catastrophically during an earthquake in 1925. It was built on sandy soil which liquefied during the event. The center 300-feet of the 720-feet long dam broke off and was carried away on the liquefied soil, spilling 30 million gallons of water. Damage estimates are unavailable.

12.4.6.4 Probability of Occurrence

Several floods have occurred since the levees were constructed, each with relatively low peak discharges. Because the natural channel averages about 2,000’ in width, the floods did not fill the channel but meandered and impinged against the existing levees. This impingement undermined the levee toe causing considerable damage and jeopardized adjacent properties, demonstrating that the levee was vulnerable to smaller discharges and as a result would not provide the protection for which it was designed. The levee improvements by the Corps will reduce the probability of impinging flows undermining the levee in critical areas. Those portions of the levee that were not improved will still be subject to the possibility of

undermining and failure.

Dam failure events are infrequent and usually coincide with the events that cause them, such as earthquakes, landslides and excessive rainfall and snowmelt. There is a "residual risk" associated with dams; residual risk is the risk that remains after safeguards have been implemented. For dams, the residual risk is associated with events beyond those that the facility was designed to withstand. However, the probability of occurrence of any type of dam failure event is considered to be low in today's regulatory and dam safety oversight environment.

12.4.6.5 Climate Change Considerations

Increased rainfall, runoff, and snow pack melt from climate change could generate more water than the levees were designed to support. Additionally, climate change conditions could damage earthen levees creating weaknesses that would also reduce its level of protection.

Increased rainfall from changing climate conditions could present a risk to dams in Santa Barbara County if volume of runoff is greater than the dam's capacity. This could cause the County to release stored water into the downstream water courses in order to ensure the integrity of the dam.

12.4.7 Tsunami

The City of Guadalupe ranked the hazard from Tsunami, as being a limited risk to the City.

12.4.7.1 Description of Hazard

A tsunami is a series of long waves generated in the ocean by a sudden displacement of a large volume of water. Underwater earthquakes, landslides, volcanic eruptions, meteoric impacts, or onshore slope failures cause this displacement. Tsunami waves travel at speeds averaging 450 to 600 miles per hour. As a tsunami nears the coastline, its speed diminishes, its wavelength decreases, and its height increases. Depending on the type of event that creates the tsunami, as well the remoteness of the event, the tsunami could reach land within a few minutes or after several hours. Low-lying areas could experience severe inland inundation of water and deposition of debris more than 3,000 feet inland.

12.4.7.2 Location and Extent of Hazard

The City of Guadalupe is located approximately three miles from the Pacific Ocean. According to the latest edition of the Santa Barbara County Tsunami Inundation Maps, the City is outside of the tsunami threat zone.

12.4.7.3 History of Hazard

The relative threat for local tsunamis in Santa Barbara can be considered low due to low recurrence frequencies. Large, locally-generated tsunamis are estimated to occur once every 100 years. Thirteen possible tsunamis have been observed or recorded from local earthquakes between 1812 and 1988. These tsunami events were poorly documented and some are very questionable.

12.4.7.4 Probability of Occurrence

The University of Southern California (USC) Tsunami Research Group has modeled areas in Santa Barbara County that could potentially be inundated in the event of a tsunami. This model is based on potential earthquake sources and hypothetical extreme undersea, near-shore landslide sources. The data was mapped by Cal OES for the purpose of Tsunami Evacuation Planning. Extreme tsunami inundation areas were mapped and used to profile maximum potential exposure.

The threat of a tsunami to the City cannot be totally dismissed, and thus will be included in this plan. While the City is considered outside of the tsunami threat zone, there are tsunami-related threats that could adversely affect the City. Those threats include, but are not limited to: increased traffic and the associated potential for traffic collisions as a result of evacuations of other nearby communities, and potential damage to the groundwater basin due to salt water intrusion.

12.4.7.5 Climate Change Considerations

Tsunamis are created by earthquakes or other earth movements, to date, no relationship has

been made between climate change and the occurrences of earthquakes or other earth movements.

The City of Guadalupe ranked the hazard from Tsunami, as being a limited risk to the City.

12.5 VULNERABILITY ASSESSMENT

The purpose of this section is to estimate the potential vulnerability (impacts) of hazards within the city on the built environment (residential, non-residential, critical facilities, etc.) and population. To accomplish these two (2) different approaches will be used: 1) analysis of exposure of critical facilities to hazards; and 2) a qualitative estimate of the impacts to hazards. It is important to note that the first approach can only be applied to hazards that have an exposure area (footprint). For those hazards where an exposure layer does not exist, a brief qualitative assessment of the potential vulnerability will be presented.

Analysis of Exposure of Critical Facilities to Hazards

The City of Guadalupe identified 12 critical facilities to be included in the Vulnerability Assessment portion of the plan. These facilities primarily included utilities, government, and educational structures. Of the data that was available, it was shown that these buildings are worth approximately $170 million in structure value.

The results of the critical facilities shown to be impacted (at least moderately) from each hazard are shown in the table below:

Vulnerability	Specific Risk	% of Critical Facilities Impacted	Exposure
Flood			
	FEMA Flood Zone	0%	$0
	Flood Overlay Zone	0%	$0
Fire			
	Fire Severity Zone	0%	$0
	Fire Threat	92%	$98,500,000
Dam Inundation/Levee Failure		100%	$103,500,000
Hazardous Materials Release		100%	$103,500,000
Train Accident		50%	$57,000,000
Earthquake			
	Groundwater/Liquefaction Severity	100%	$103,500,000

	Peak Ground Acceleration	100%	$103,500,000
Agricultural Pests		0%	$0
Tsunami		0%	$0

It is worth noting that a majority of the City of Guadalupe critical facilities evaluated were at least moderately impacted by the following threats:

- Flooding – Rain Storms
- Dam (Twitchell) Failure
- Hazardous Materials Release
- Train Derailment
- Earthquake
- Groundwater/Liquefaction Severity

As the City continues to assess its vulnerability the collection of better data will help to improve the risk assessment process in order to direct planning and mitigation decisions.

Table 12.8 presents the 12 identified critical facilities and available values. The Map ID number for each critical facility corresponds to those found on the following maps showing the location of the critical facilities in relation to the County's profiled hazards. Using a GIS and the data shown in these maps, it was determined which critical facilities are exposed to which hazards by whether or not they fall within the mapped hazard area. The results of the exposure analysis are included in this section.

Table 12.8 Guadalupe Critical Facilities

Map ID	Critical Facility	Address	Bldg Value
1	Pioneer Street Water Tank and Equipment	500 Block Pioneer St	$8,500,000
2	Wastewater Treatment Plant	5200 West Main St	$28,000,000
3	McKenzie Junior High School	4710 West Main St	$28,500,000
4	Obispo Street Water Tank and Equipment	300 Obispo St	$7,000,000
5	Mary Buren Elementary School	1050 Peralta Street	$35,200,000
6	City Hall	918 Obispo Street	$20,000,000
7	Guadalupe Senior Citizen Center	4545 10th Street	$3,500,000
8	Tenth Street Water Tank and Equipment	4550 10th Street	$7,000,000
9	Fire Station #1 and Veterans Memorial Building	1025 Guadalupe Street	$15,000,000
10	Boys and Girls Club	4691 11th Street	$2,500,000
11	La Guardia St. Sewer Lift Station	4200 La Guardia	$7,000,000
12	Pioneer St. Sewer Lift Station	800 Pioneer Street	$7,000,000

Of the critical facilities identified above, numbers 1, 2, 4, 6, 7, 8, 9, 10, 11, and 12 are owned by the City of Guadalupe. The remaining two facilities, numbers 3 & 5, are owned by the Guadalupe Union School District.

The baseline used for valuation is the replacement cost to each facility. Using the analogy of a disaster which causes a catastrophic and un-repairable damage, the functions are too critical to eliminate its use and would need to be rebuilt.

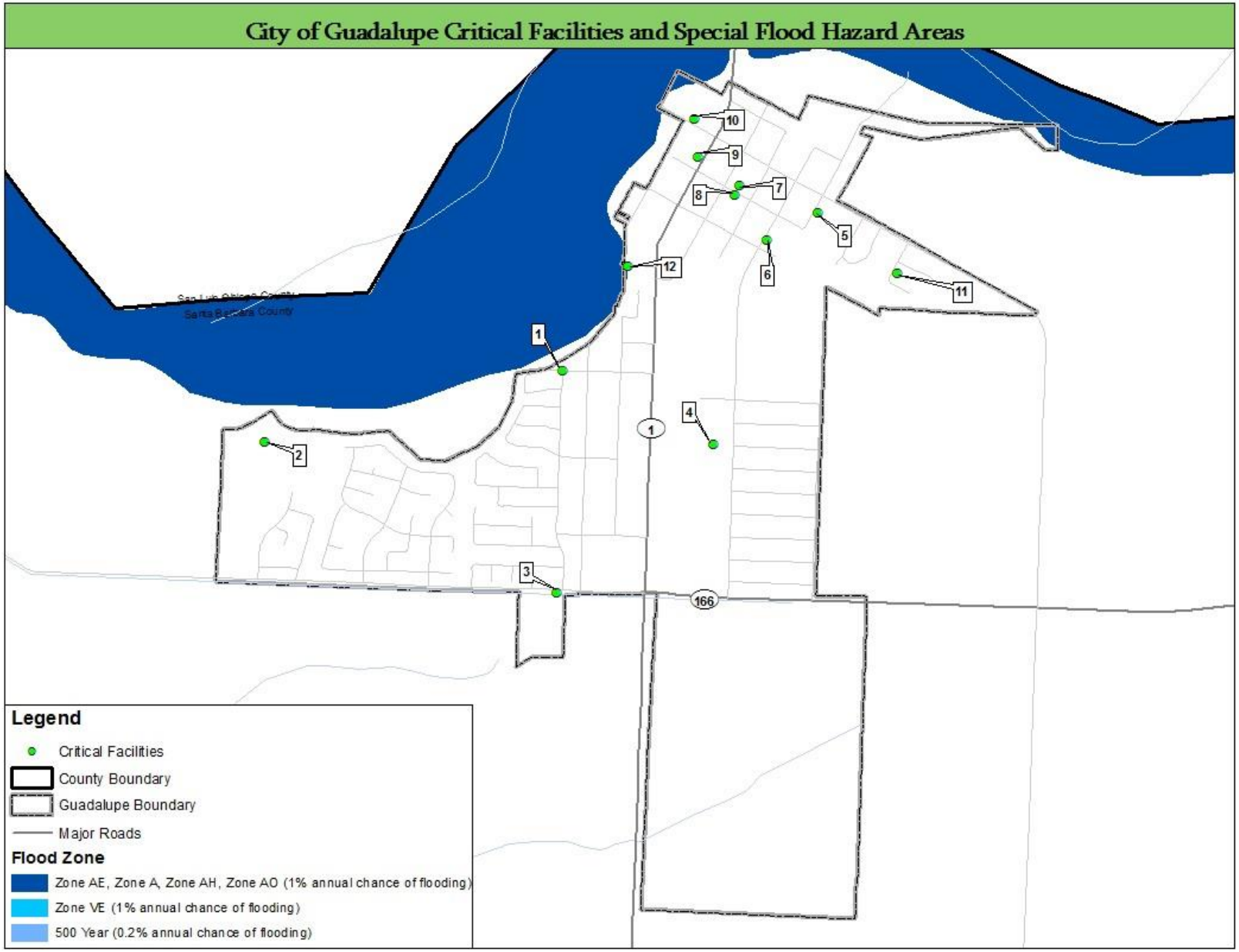
While the valuations are believed to be valid for 2016, the actual replacement cost could escalate sharply depending on many factors at the time of an actual loss. These figures are estimates only and not derived from an actual appraisal. It is important to note that the risk assessment is designed to focus on the facilities and the numbers are provided to identify a potential financial exposure.

12.5.1 Flood Vulnerability

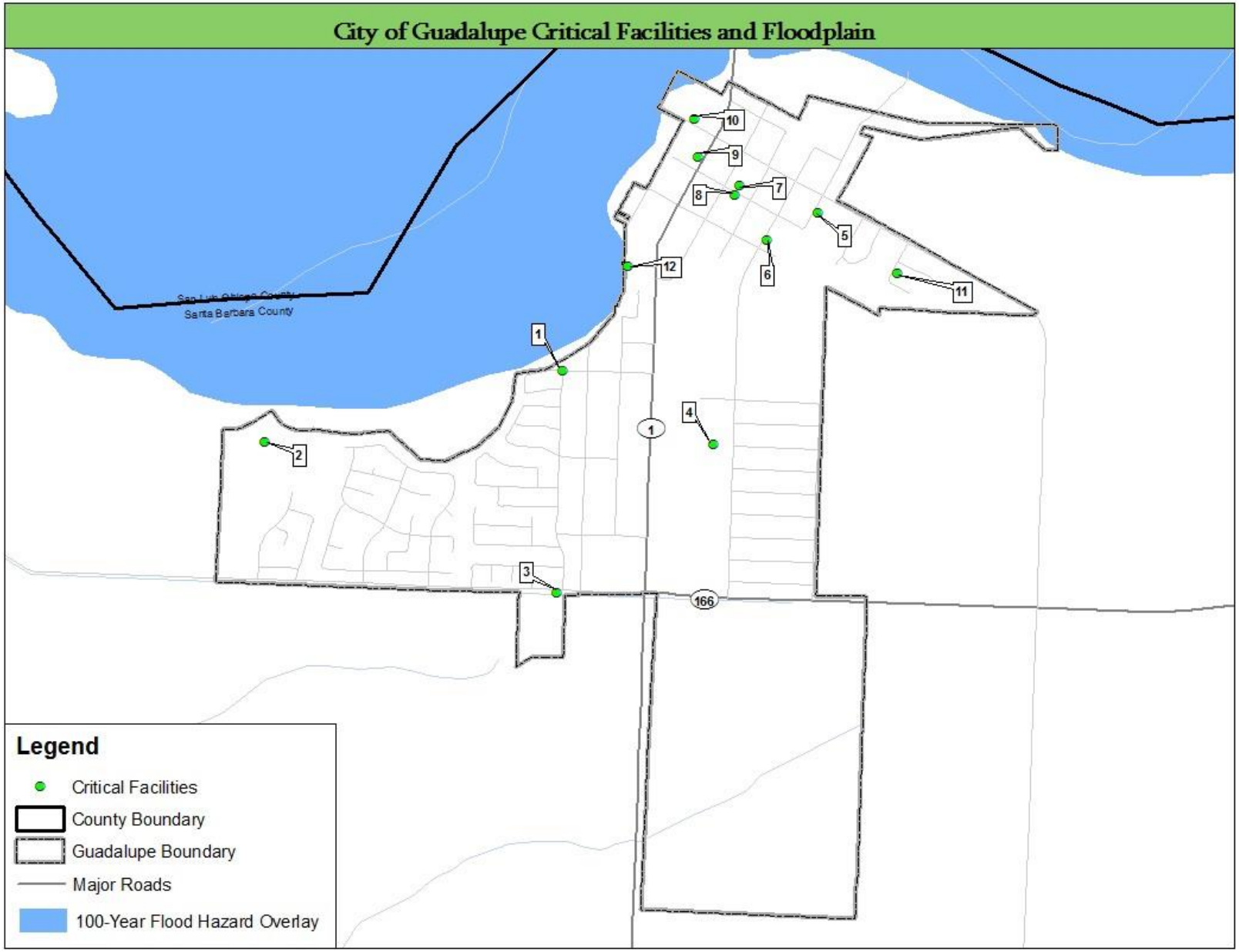
			Flood Hazard	
Map ID	**Critical Facility**	**Bldg Value**	**FEMA Flood Zone**	**Flood Overlay Zone**
1	Pioneer Street Water Tank and Equipment	$8,500,000	Outside Floodplain	Outside Flood Overlay Zone
2	Wastewater Treatment Plant	$28,000,000	Outside Floodplain	Outside Flood Overlay Zone
3	McKenzie Junior High School	$28,000,000	Outside Floodplain	Outside Flood Overlay Zone
4	Obispo Street Water Tank and Equipment	$7,000,000	Outside Floodplain	Outside Flood Overlay Zone
5	Mary Buren Elementary School	$35,200,000	Outside Floodplain	Outside Flood Overlay Zone
6	City Hall	$20,000,000	Outside Floodplain	Outside Flood Overlay Zone
7	Guadalupe Senior Citizen Center	$3,500,000	Outside Floodplain	Outside Flood Overlay Zone
8	Tenth Street Water Tank and Equipment	$7,000,000	Outside Floodplain	Outside Flood Overlay Zone
9	Fire Station #1 and Veterans Memorial Bld	$15,000,000	Outside Floodplain	Outside Flood Overlay Zone
10	Boys and Girls Club	$2,500,000	Outside Floodplain	Outside Flood Overlay Zone
11	LaGuardia St. Sewer Lift Station	$7,000,000	Outside Floodplain	Outside Flood Overlay Zone
12	Pioneer St. Sewer Lift Station	$7,000,000	Outside Floodplain	Outside Flood Overlay Zone
	Exposure	**169,200,000**	**$0**	**$0**

None of the critical facilities are located within a known floodplain. Although all facilities are located outside of the flood overlay zone, other flooding risk may still remain based on a critical infrastructure failure, such as a broken water distribution pipe. The anticipated flood hazard from a natural disaster remains low. These same critical facilities may be at risk through various threats.

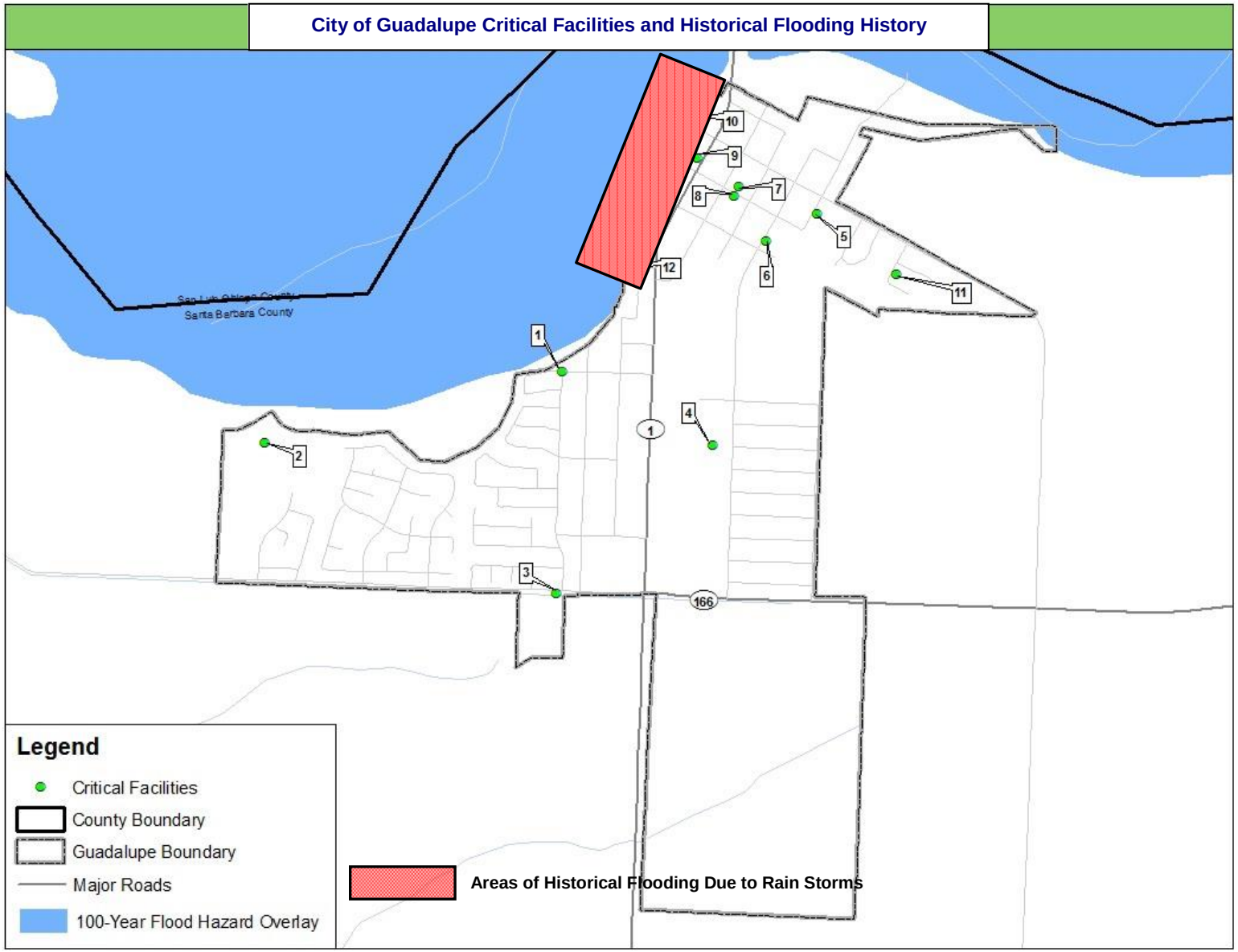
An area of repetitive flooding exists along the level in the north-west corner of the city. The existing levee was upgraded protecting the City of Santa Maria and travels to the City of Guadalupe stopping at Highway One. In the low lying area beyond the levee exists repetitive flooding impacting some housing, a public park and the Boys and Girls Club. Insufficient funds exist to raze the youth center and rebuild on higher ground. More importantly, heavy floodwater inundation further downstream endangers the wastewater treatment facility at the top of the bluff overlooking the Santa Maria River. This risk is significant and could have catastrophic results attempting to continue habitable residences with the loss of a wastewater treatment facility.



Source: Flood Insurance Rate Map (FIRM) Boundaries, Santa Barbara County GIS



Source: Overlay – Flood Hazard, Santa Barbara County GIS


City of Guadalupe Critical Facilities and Historical Flooding History
Santa Barbara County
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9
10
11
12
1
166
Legend
Critical Facilities
County Boundary
Guadalupe Boundary
Major Roads
100-Year Flood Hazard Overlay
Areas of Historical Flooding Due to Rain Storms

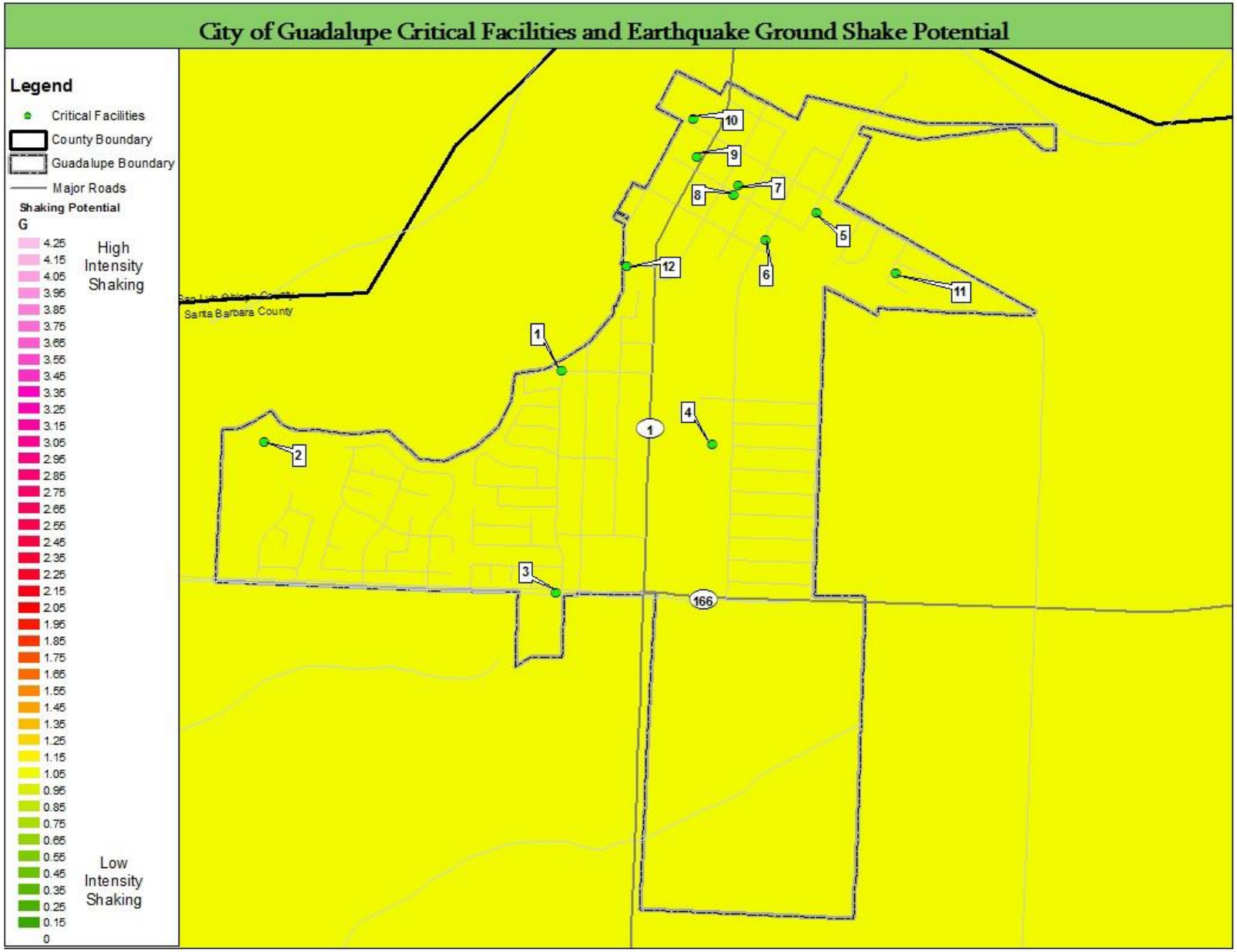
12.5.2 Earthquake Vulnerability

Map ID	Critical Facility	Bldg Value	Groundwater/Liquefaction Severity	Peak Ground Acceleration
1	Pioneer Street Water Tank and Equipment	$8,500,000	High/High	1.05
2	Wastewater Treatment Plant	$28,000,000	High/High	1.05
3	McKenzie Junior High School	$28,500,000	High/High	1.05
4	Obispo Street Water Tank and Equipment	$7,000,000	High/High	
5	Mary Buren Elementary School	$35,200,000	High/High	1.05
6	City Hall	$20,000,000	High/High	1.05
7	Guadalupe Senior Citizen Center	$3,500,000	High/High	1.05
8	Tenth Street Water Tank and Equipment	$7,000,000	High/High	1.05
9	Fire Station #1 and Veterans Memorial Building	$15,000,000	High/High	1.05
10	Boys and Girls Club	$2,500,000	High/High	1.05
11	LaGuardia St. Sewer Lift Station	$7,000,000	High/High	1.05
12	Pioneer St. Sewer Lift Station	$7,000,000	High/High	1.05
	Exposure	**$169,200,000**	**$169,200,000**	**1.05**

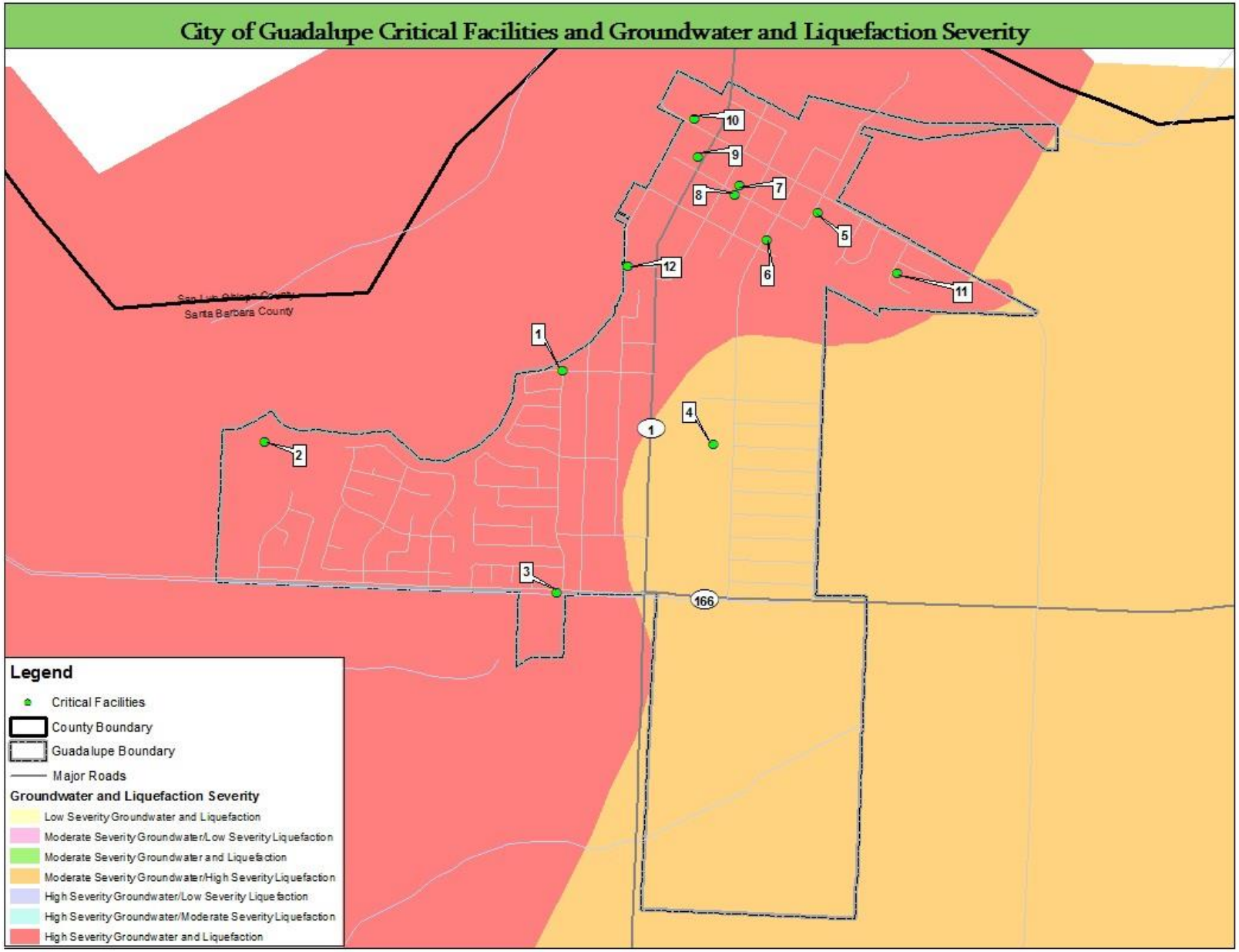
Note: Although the Obispo Street Water Tank and Equipment are mapped in the Moderate zone for groundwater/liquefaction severity, the City of Guadalupe considers this facility at High risk.

Most of the downtown consists of reinforced masonry buildings relieving some of the risk. The City had identified 21 buildings within the city limits that were un-reinforced masonry construction (URM), two of which remain un-reinforced. In 2007, the City Redevelopment Agency allocated approximately $3 million in RDA funds in the form of grants to assist owners of URM buildings in retrofitting their building to seismic safe standards. The RDA has since been dismantled and no longer exists.

Guadalupe has realized a reduced threat from URM buildings, but many of the non-URM buildings in the city are more than 50 years old and are subject to damage due to an earthquake. Public facilities and a significant portion (>70%) of the residential occupancies within the city are old construction and have a potential for incurring serious damage in the event of an earthquake. The State of California deadline for retrofitting of URM buildings was December 31, 2012. All non-retrofitted buildings are deemed uninhabitable and posted as such. Legal research will be needed to determine a defensible plan of action and submitted to the City Council for direction regarding the long term solution for the remaining URM buildings.



Source: Seismic Shaking Hazard, Obtained from California Geological Survey.



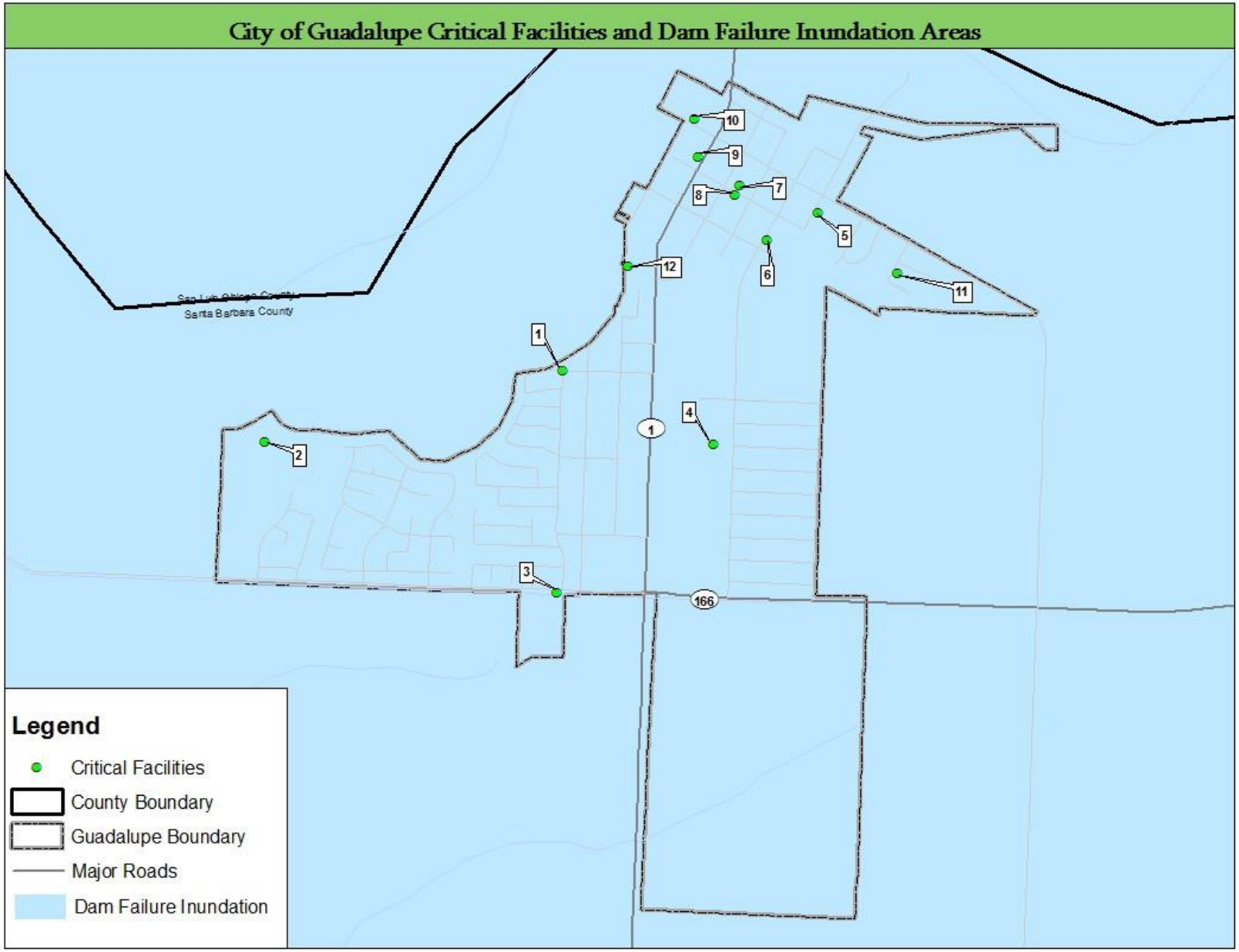
Source: Groundwater Liquefaction, Santa Barbara County GIS

12.5.3 Dam/ Failure Vulnerability

Map ID	Critical Facility	Bldg Value	Dam Inundation Zone
1	Pioneer Street Water Tank and Equipment	$8,500,000	Twitchell Inundation Zone
2	Wastewater Treatment Plant	$28,000,000	Twitchell Inundation Zone
3	McKenzie Junior High School	$28,500,000	Twitchell Inundation Zone
4	Obispo Street Water Tank and Equipment	$7,000,000	Twitchell Inundation Zone
5	Mary Buren Elementary School	$35,200,000	Twitchell Inundation Zone
6	City Hall	$20,000,000	Twitchell Inundation Zone
7	Guadalupe Senior Citizen Center	$3,500,000	Twitchell Inundation Zone
8	Tenth Street Water Tank and Equipment	$7,000,000	Twitchell Inundation Zone
9	Fire Station #1 and Veterans Memorial Building	$15,000,000	Twitchell Inundation Zone
10	Boys and Girls Club	$2,500,000	Twitchell Inundation Zone
11	LaGuardia St. Sewer Lift Station	$7,000,000	Twitchell Inundation Zone
12	Pioneer St. Sewer Lift Station	$7,000,000	Twitchell Inundation Zone
	Exposure	**$169,200,000**	**$169,200,000**

The City is aware of the possibility that an old landfill site may be present just outside of the city limits (Info per Santa Barbara County Environmental Health Department). This site is generally located north of the city limits, in the vicinity of Peralta Street, between existing commercial and agricultural uses and the Santa Maria River Levee. Should the existing levee fail, the resultant flooding could unearth the old landfill contents and distribute them throughout the area. Further research is on-going as to the status of this suspected landfill site.

Property adjacent to and in the water flow area as identified by the Twitchell Dam inundation maps must be evacuated during a levee failure. The facilities that may qualify for temporary housing and/or temporary shelters are within the identified inundation zone and thus are not available. The City does not have a suitable relocation facility and thus evacuations will require re-location outside of the City. The City's contract Engineer will review flood protection considerations when new projects go through the City's approval process, the Planning Commission, and City Council.

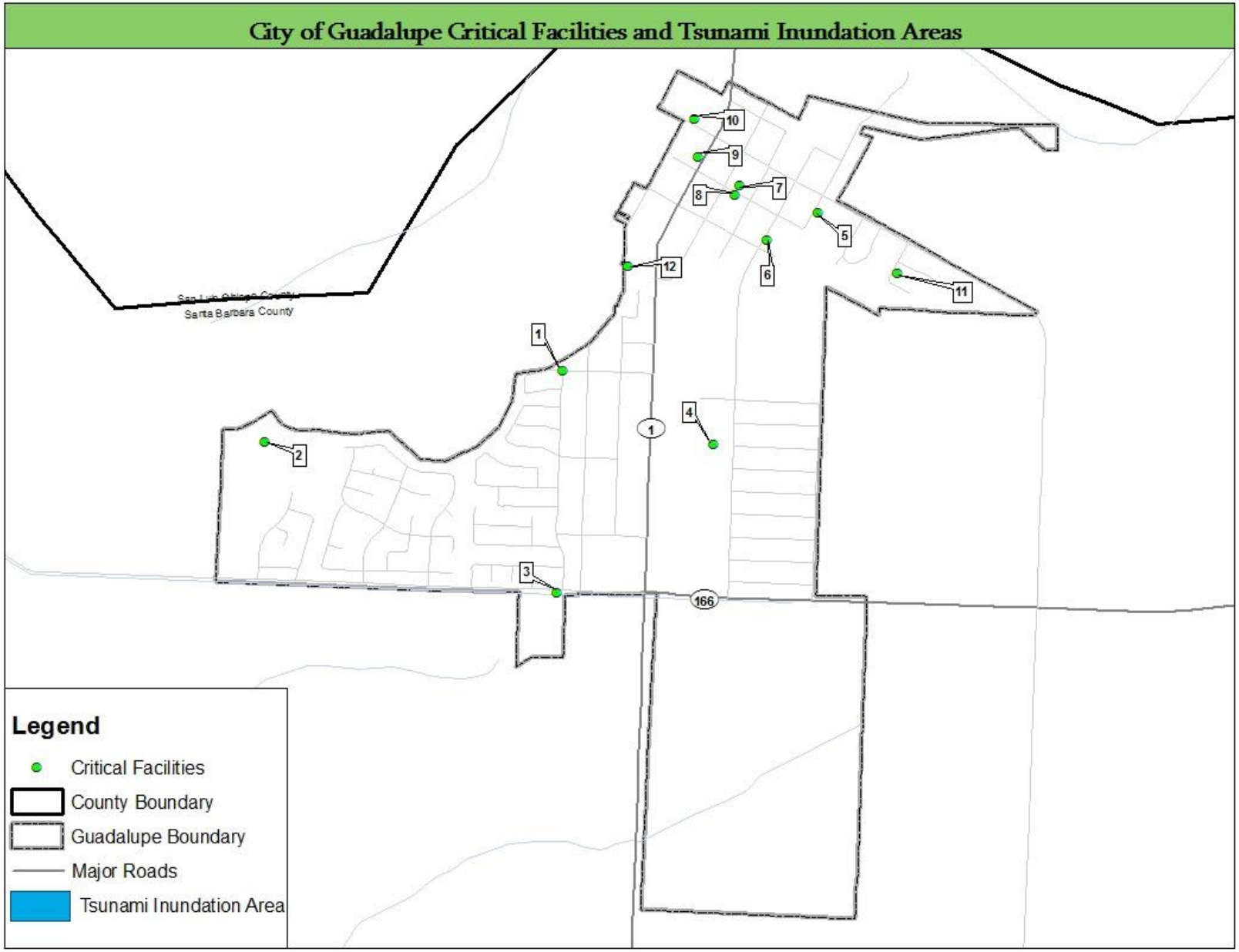


Source: Santa Barbara County Flood Control and Water Conservation District

12.5.4 Tsunami Vulnerability

Map ID	Critical Facility	Bldg Value	Tsunami Inundation Area
1	Pioneer Street Water Tank and Equipment	$8,500,000	Outside Tsunami Inundation Area
2	Wastewater Treatment Plant	$28,000,000	Outside Tsunami Inundation Area
3	McKenzie Junior High School	$28,500,000	Outside Tsunami Inundation Area
4	Obispo Street Water Tank and Equipment	$7,000,000	Outside Tsunami Inundation Area
5	Mary Buren Elementary School	$35,200,000	Outside Tsunami Inundation Area
6	City Hall	$20,000,000	Outside Tsunami Inundation Area
7	Guadalupe Senior Citizen Center	$3,500,000	Outside Tsunami Inundation Area
8	Tenth Street Water Tank and Equipment	$7,000,000	Outside Tsunami Inundation Area
9	Fire Station #1 and Veterans Memorial Building	$15,000,000	Outside Tsunami Inundation Area
10	Boys and Girls Club	$2,500,000	Outside Tsunami Inundation Area
11	LaGuardia St. Sewer Lift Station	$7,000,000	Outside Tsunami Inundation Area
12	Pioneer St. Sewer Lift Station	$7,000,000	Outside Tsunami Inundation Area
	Exposure	**$169,200,000**	**$0**

The Tsunami vulnerability it limited due to the distance and elevation change from the ocean to the city limits. The only possibility is a surge up the Santa Maria River canal which has some remote potential of creating a hazard.



Source: Tsunami Run-up Limits, Santa Barbara County GIS

Qualitative Estimate of Impacts Analysis

12.5.5 Agricultural Pests and Disease

As mentioned earlier a significant agricultural pest or disease event will have an impact on the environment and the local economy. However, virtually all of the farming is conducted in the unincorporated county area surrounding the City of Guadalupe. Crops are currently brought into the city for cooling, packing and distribution. Those crop values are not available.

12.5.6 Train Accident

In the unlikely event of a significant train accident there could be considerable impact on the population, economy, and the environment.

Trains running through Guadalupe, and in close proximity to U.S. Highway 101 in some areas, carry commuters and all other types of commodities including hazardous materials, fuel (including oil), agriculture, meats, and non-consumables. A hazardous material incident on rails or roadway has the potential to shut down both rail and street transportation routes where the rail line and streets are in close proximity.

12.6 MITIGATION STRATEGY

In preparation of the 2016 update of this plan, the City's Local Planning Team reviewed the Mitigation Priorities and validated them for relevance. Additionally, the City made minor recommendations to the County-wide goals and objectives to better reflect the needs for the City. This section contains the City's updated and most current mitigation strategy as of October 2016.

12.6.1 Mitigation Priorities

General Observations — Strengths

- Several policies exist that have hazard mitigation elements or effects such as development and building code regulations, the Retrofit Ordinance, the Zoning Ordinance, the General Plan, and other codes and plans discussed in more detail in this section
- A General Plan is in place and will help steer future growth of the City
- Existing codes will ensure that new development (including tear down and rebuild projects) will be built to modern standards. With the current trend of replacing existing substandard buildings with new ones, and through attrition, a safer community will be constructed
- Housing improvement funds and programs are limited, impacting the opportunity to build a safer community
- Better mapping of floodplains and other hazard areas are available for emergency

management

- The Wetlands Lake is under review to find resources to mitigate future flooding
- All flooding areas have been mapped
- All high hazardous substance inventories have been documented by the County of Santa Barbara
- Existing Code Compliance Program includes the inspection of all vacant properties at least once per year, and the property owners are required to maintain their properties clean and the vegetation cut
- A building to house the fire engines and public works vehicles was proposed previously, and the project is still under consideration, dependent upon available funding. A public works building should be completed by the end of this fiscal year. Fire truck locations are at the American Legion building and City Hall which are both considered at risk
- The City has identified 21 buildings within the city limits that are un-reinforced masonry construction (URM), two of which are city-owned. In 2007, the City Redevelopment Agency (RDA) allocated approximately $3 million in RDA funds in the form of grants to assist owners of URM buildings in retrofitting their building to seismic safe standards. At this time, the owners of 19 of the 21 buildings have participated in the URM Retrofit Grant Program and the retrofitting is complete. That retrofit funding opportunity has expired and the two remaining URM building are not open to the public.

General Observations — Weaknesses

- The City is prone to flooding during heavy rain storms, and the lack of a levee structure between the Santa Maria River and along the northern boundary of the City. Flooding has occurred requiring a Local Emergency Proclamation on several occasions.
- The City of Guadalupe is located in Seismic Zone 4, which is the highest potential status for earthquake activity in the state of California. All but two of the identified unreinforced masonry buildings have been upgraded. The remaining buildings will likely wait for grant funding.
- Because the City of Guadalupe is located next to the Santa Maria River down-stream of the Twitchell Dam, the City could sustain substantial flooding in the event of a dam failure.
- Hazardous materials storage, transportation and use within the City poses an ongoing risk to the community.
- Evacuation remains an issue, particularly as the City continues to grow. A more efficient and diverse means of notification to community residents of the need for evacuation or shelter-in- place due to local emergencies is currently in need of updating. However the county has implemented a reverse 911system which will assist in making emergency notifications.
- The goals and objectives were developed by considering the risk assessment findings, localized hazard identification and loss/exposure estimates, and an analysis of the

jurisdiction's current capabilities assessment. These preliminary goals, objectives and actions were developed to represent a vision of long-term hazard reduction or enhancement of capabilities.

Goals and Objectives

The City of Guadalupe modified the goals and objectives as determined by the County-wide Mitigation Advisory Committee to meet the specific needs of the City. These goals and objectives represent a vision of long-term hazard reduction or enhancement of capabilities.

Goal 1: Promote disaster-resistant future development.
Objective 1.A: Facilitate the development or updating of the General Plan. Update the General Plan and zoning ordinances as needed to limit (or ensure safe) development in hazard areas.
Objective 1.B: Facilitate the adoption of building codes and development regulations that protect existing assets and require disaster resistant design for new development in hazard areas.
Objective 1.C: Facilitate consistent enforcement of the General Plan, zoning ordinances, and building and fire codes
Objective 1.D: Address identified data limitations regarding the lack of information about new development and build-out potential in high hazard areas.
Objective 1.E: Educate the professional community on design and construction techniques that will minimize damage from the identified hazards
Notes: This goal focuses on the programmatic/policy approaches to reducing risk to future new development. Building codes are updated on a regular basis in California. The objectives for this goal are ongoing to ensure that the best and most recent building and fire codes are adopted in each of the participating jurisdictions. New fire codes are currently under proposed adoption for 2016.

Goal 2: Build and support capacity and commitment for existing assets, including people, critical facilities/infrastructure, and public
Objective 2.A: Increase awareness and knowledge of hazard mitigation principles and practice among local government officials.
Objective 2.B: Provide technical assistance to local governments to implement their mitigation plans.
Objective 2.C: Address data limitations identified in Hazard Profiling and Risk Assessment
Objective 2.D: Decrease the vulnerability of public infrastructure including facilities, roadways, and utilities.
Objective 2.E: Protect existing structures with the highest relative vulnerability to the effects of identified hazards through structural mitigation projects.
Notes: This goal focuses on the programmatic and structural approaches to reducing risk to existing development. The term "local government" is used to refer to city, county, and special districts.
Goal 3: Enhance hazard mitigation coordination and communication.
Objective 3.A: Educate the public to increase awareness of hazards, potential impact, and opportunities for mitigation actions.
Objective 3.B: Monitor and publicize the effectiveness of mitigation actions implemented countywide.
Objective 3.C: Participate in initiatives that have mutual hazard mitigation benefits for the County, Cities, State, Tribal, and Federal governments.
Objective 3.D: Encourage other organizations, within the public, private, and non- profit sectors, to incorporate hazard mitigation activities into their existing programs and plans.
Objective 3.E: Continue partnerships between the state, local, and tribal governments to identify, prioritize, and implement mitigation actions.

Objective 3.F: Continuously improve the City's capability and efficiency at administering pre- and post-disaster mitigation programs.
Objective 3.G: Support a coordinated permitting activities process and consistent enforcement.
Note: This goal focuses on communication and coordination required for successful mitigation of risk.

12.6.2 Mitigation Progress

This section lists the previous projects and action status 2011.

Mitigation Actions From 2011			
Action #	**Mitigation Action Description**	**Status**	**Prioritization***
2011-1	Community Emergency Response Team (CERT) Training	No Action	Medium
2011-2	Develop the previously proposed combination Public Works and Fire facility, and upgrade the facility design to serve as a fire station to accommodate existing and future staffing.	In progress	Medium
2011-3	Disaster Early Warning System and Evacuation Plan	Completed . Reverse	High
2011-4	Prepare Drainage Study and Master Plan	Deferred & revised	Low
2011-5	Earthquake retrofit program for Unreinforced Masonry Buildings.	In progress	High
2011-6	Mitigation of Repetitive Flooding	In progress	High

12.6.3 Mitigation Approach 2016

Mitigation Actions for Future Implementation	
Action #	**Mitigation Action Description**
2016-1	Community Emergency Response Team (CERT) Training
2016-2	Design and obtain cost estimates for the previously proposed Public Safety facility, and upgrade the facility design to serve as a fire and police station to accommodate existing and future staffing.
2016-3	Disaster Early Warning System and Evacuation Plan
2016-4	Prepare Drainage Study and Master Plan

2016-5	Earthquake retrofit program for Unreinforced Masonry Buildings. Post required warning signs and research legal options.		
2016-6	Mitigation of Repetitive Flooding		
2016-7	Improve storm water drainage along Highway 166 and Main Street to the western city limit	New	High

*Discussion of the rationale for these priorities is included in the implementation plan status reports following this page.

12.6.4 Implementation Plan

Mitigation Action # 2016 – 1		
Project Description: Community Emergency Response Team (CERT) Training Work with the City of Santa Maria, Allan Hancock College and the private foundations to schedule CERT training courses for Guadalupe residents. Advertise the training courses on the City's government access channel, Facebook and in the Santa Maria Times. Coordinate with Senior Citizens groups, downtown merchants, and property owners to ensure they are notified of training courses. Conduct training courses twice a year at different times and locations. CERT is a positive and realistic approach to emergency and disaster situations where citizens may initially be on their own and their actions can make a difference. While people will respond to others in need without the training, one goal of the CERT program is to help them do so effectively and efficiently without placing themselves in unnecessary danger. In the CERT training, citizens learn to manage utilities and put out small fires, treat the three medical killers by opening airways, controlling bleeding, and treating for shock, provide basic medical aid, search for and rescue victims safely, organize themselves and spontaneous volunteers to be effective, and collect disaster intelligence to support first responder efforts.		
Applicable Hazards		
Significant ☒Flooding (Rain Storms) ☒Earthquake	Moderate ☒Train Derailment ☒Hazardous Materials Release ☒Agriculture (pests and disease)	Limited ☒Flooding (Dam/Levee Failure) ☒Tsunami
Existing and Potential Resources: General Fund, State Grants, Private Grants, Santa Barbara County funding.		
Responsible Department: City of Guadalupe Fire Department,		
Target Completion Date: Ongoing.		
Cost Benefit Consideration: Cost Beneficial - The relatively low cost of instituting CERT training and other education programs should easily be offset by damages avoided if only a portion of the community participates in training.		
Status Report: This is a Medium priority as we have limited staff available to present the program on a regular basis. With our partnership in the City of Santa Maria, we have an instructor, but he is being shared between three organizations.		

Mitigation Action # 2016 – 2		
Project Description: Develop the previously proposed combination Public Safety facility, and upgrade the facility design to serve to accommodate existing and future staffing. The Public Works Component has been met with existing plans and currently available funds.		
Applicable Hazards		
Significant ☒Flooding (Rain Storms) ☒Earthquake	Moderate ☒Train Derailment ☒Hazardous Materials Release ☐ Agriculture (pests and disease)	Limited ☒Flooding (Dam/Levee Failure) ☒Tsunami
Existing and Potential Resources: General Fund, special revenue funds, State Grants, Federal Grants, Santa Barbara County funding, Private Grants.		
Responsible Department: City Fire Department and Police Department, and FEMA pre disaster mitigation grants.		
Target Completion Date: 4 to 9 years		
Cost Benefit Consideration: Highly Cost Beneficial. This facility would provide a new location for Public Safety personnel and equipment and provide a new and safer facility for the Fire and Police operations.		
Status Report: This is a Medium priority as we will need to identify funding to modify the existing plans to expand the scope of the project. There is currently no funding identified and no real prospect for funding in the near future for this project. An estimate for the project is approximately $7 million.		

Mitigation Action # 2016 – 3		
Project Description: Disaster Early Warning System and Evacuation Plan in the event of a major earthquake, levee failure, train derailment, or hazardous materials leak. Explore strategies to develop an early warning/public emergency notification system. Finish development of a comprehensive evacuation plan. Better develop Reverse 911 and Everbridge resources and update policies accordingly.		
Applicable Hazards		
Significant ☒Earthquake ☒Flooding (Rain Storms)	Moderate ☒Train Derailment ☒Hazardous Materials Release ☒Agriculture (pests and disease)	Limited ☐ Tsunami ☒Flooding (Dam/Levee Failure)
Existing and Potential Resources: General Fund, FEMA Grant, Brownfield Act, Federal Grants, State Grants, and Private Grants.		
Responsible Department: Fire Department, supported by; Planning Department, Police Department, Public Works Department, City Administrator, and OES Coordinator.		
Target Completion Date: 2 years		
Cost Benefit Consideration: Highly Cost Beneficial – The cost of developing an early warning and evacuation plan would easily be offset by the reduction in injuries and potential loss of life if residents were not immediately informed of a disaster and if no evacuation plan were in place. A disaster early warning plan could includes the Santa Barbara County Sheriff's Department to prepare a database of all phone numbers in Guadalupe, both residential and commercial so that a Reverse 911® system could be used in the event of an emergency, including the voluntary registration of cell phone numbers into the Reverse 911® System database. The acquiring of a general community warning system such as a siren or public address system could prove to be very costly and is currently beyond the capability of the City's General Fund. While this type of system is beneficial, it does come with a significant amount of labor-intensive public education. Fully embrace and train in the Everbridge program and update operational policies to include these added communications systems.		
Status Report: This is a High priority as there have been several threats to the community identified in this plan which would clearly benefit from the warning system. The threats to the community identified and that would be of benefit from the acquisition of this type of system could be categorized as "Low Occurrence, High Consequence." A potential funding source has been identified which makes it very viable.		

Mitigation Action # 2016 – 4		
Project Description: Prepare Drainage Study and Master Plan Prepare a Drainage Study and Master Plan for the City that would identify drainage strengths and weaknesses in the City and surrounding areas. The study would show potential vulnerabilities and potential mitigation measures. Preparation of a Drainage Master Plan would identify existing facilities and potential upgrades and provide the Planning Commission and the City Council with usable guidelines pertaining to drainage prior to granting new project approval. A Drainage Master Plan would also identify potential drainage vulnerabilities and suggest mitigation measures.		
Applicable Hazards		
Significant ☒Flooding (Rain Storms) ☐ Earthquake	Moderate ☒Train Derailment ☒Hazardous Materials Release ☒Agriculture (pests and disease)	Limited ☒Flooding (Dam/Levee Failure) ☐ Tsunami
Existing and Potential Resources: General Fund, FEMA Grant, CREF, Recreational, Duneship trails to beach, County Levee and bike path funding.		
Responsible Department: City Engineer, Public Works, County Flood Control, and Flood Consultant.		
Target Completion Date: 5 years		
Cost Benefit Consideration: Cost Beneficial – This strategy can be cost beneficial. Extreme flooding and erosion can cause huge losses and create safety hazards for residents and transient visitors. Preparation of a Drainage Study and Master Plan would identify potential vulnerabilities and subsequently implementing mitigation measures can be expected to produce benefits significantly higher than the cost of a Drainage Study. Erosion of levee which serves as future bike path. Erosion of floodplain leading to dunes which serves as future trail to beach. Wetlands preservation and development of recreational walkways, riding trails and educational nature continuum to dunes, beach and levee.		
Status Report: This is a low priority as there is no funding available for this planning process, and even less funding available to implement the results of the planning process. We will continue to monitor the marketplace for funding, and once identified, we will pursue the funding.		

Mitigation Action # 2016 – 5		
Project Description: Earthquake retrofit program for Unreinforced Masonry Buildings. Notify the two remaining URM building owners and tenants that after the deadline, all URM buildings that are not in compliance will have to be vacated and will be posted as unsafe. Legal research will be necessary before taking additional action.		
Applicable Hazards		
Significant ☐ Flooding (Rain Storms) ☒ Earthquake	Moderate ☐ Train Derailment ☐ Hazardous Materials Release ☐ Agriculture (pests and disease)	Limited ☒ Flooding (Dam/Levee Failure) ☐ Tsunami
Existing and Potential Resources: Follow up work will be financed by City General Fund using existing Staff. Funding for URM building retrofits after December 31, 2010 will be from private sources acquired by the building owners.		
Responsible Department: Fire Department and Building Department with support from: Planning Department, Engineering Department, Police Department, Public Works Department, City Administrator, City Council, Contract City Attorney, unreinforced masonry building owners, and local business merchants.		
Target Completion Date: January 30, 2019		
Cost Benefit Consideration: Highly Cost Beneficial: The City committed approximately $3 million in Redevelopment Agency funds in the form of grants to assist URM building owners with seismic retrofitting of their buildings. The State of California had established a deadline of December 31, 2012 for completion of the seismic retrofitting of URM buildings. The City has an obligation to its residents and visitors to ensure that those URM buildings that are not retrofitted are posted "Unsafe to Occupy" and their continued use prohibited both for their safety and to comply with State Law. Follow up through legal actions as appropriate using the services of the Contract City Attorney may also be necessary.		
Status Report: This is a High priority as the entire downtown core of the City consists of URM buildings. While the City Redevelopment Agency has provided grant funding to assist the property owners in getting the retrofitting completed, the need to ensure the retrofitting of the URM buildings is brought to closure is vital to the economic survival of our community.		

Mitigation Action # 2016 – 6		
Project Description: Mitigation of Repetitive Flooding of the 800-900 blocks of Pioneer Street and the LeRoy Park area, and protection of the northwest portion of the City from flooding. Working with Federal, State and Local officials, along with the private property owners of the affected areas, develop and implement a plan to extend the Santa Maria River Levee west from the Highway 1 bridge (where it currently terminates) to at least the western city limits. As an alternative, continue the extension of the levee to include the Guadalupe Dunes County Park to protect the access to the beach. Develop alternatives to the construction of the levee extension as a temporary alternative until the levee extension project can be accomplished.		
Applicable Hazards		
Significant ☒ Flooding (Rain Storms) ☐ Earthquake	Moderate ☐ Train Derailment ☐ Hazardous Materials Release ☐ Agriculture (pests and disease)	Limited ☒ Flooding (Dam/Levee Failure) ☐ Tsunami
Existing and Potential Resources. There are no specific funding sources identified that are available at this time. Potential sources for funding could include, Federal Grants, FEMA Disaster Mitigation Funds, State Grants and Disaster Mitigation Funds, County Disaster Mitigation Funds, Private Grants, and other Federal funding allocations.		
Responsible Department: City Administrator, with support from Federal, State, and Local entities.		
Target Completion Date: December 31, 2021		
Cost Benefit Consideration: Highly Cost Beneficial: The City has incurred several disaster declarations due to flooding from the Santa Maria River and the lack of a protective levee structure along the City's northern border, west of Highway 1. The City's wastewater treatment plant is very vulnerable to inundation from the river flow, and damage to that facility would be catastrophic to the community. In addition, the recent storm damage to the access road to the Guadalupe Dunes County Park has virtually eliminated vehicle access to the parking area for the park, and has significantly reduced the number of visitors to the beach, as they must now walk nearly one mile from the temporary parking area to the beach. This reduction in visitors has adversely affected the City's sales tax associated with patronization of the local stores and restaurants.		
Status Report: This is a High priority as the City has experienced repeated losses in the 800 block of Pioneer Street due to flooding from storms. This area is in desperate need of both immediate (temporary) and permanent (long-term) solutions to the flooding problems. The ideal solution would be the extension of the Santa Maria River Levee west from its current terminus at the Highway 1		

bridge, to the western City limits. However, that process will be very protracted and expensive as there are numerous Federal, State and Local entities that must be involved and approve the project. Even a short-term solution such as a pilot channel in the river to move the flow of the river to the north side of the riverbed requires extensive review and permitting from numerous Federal, State and local entities. In addition to the onerous permitting process, any solution, temporary or permanent is going to involve tens of millions, if not hundreds of millions of dollars to bring to fruition. That funding is not currently available, and in this current economy, it is unlikely to become available any time soon.

Mitigation Action # 2016 – 7		
Project Description: Improve drainage along Highway 166 and continuing along Main Street in Guadalupe to the western city limit. Improve and expand capacity of drainage along Highway to mitigate chronic flooding along the highway and Main Street, which is an extension of Highway 166.		
Applicable Hazards		
Significant ☒ Flooding (Rain Storms) Earthquake	Moderate Train Derailment Hazardous Materials Release ☒Agriculture (Chemical run off)	Limited ☒Flooding (Dam/Levee Failure) Tsunami
Existing and Potential Resources: Follow up work should be financed by CalTrans, Measure A funds, or other alternative grant funding source.		
Responsible Department: Public Utilities Department, Planning Department, Engineering Department, City Administrator, City Council, Contract City Attorney, and CalTrans.		
Target Completion Date: January 30, 2019		
Cost Benefit Consideration: Moderately Cost Beneficial: CalTrans completed a highway shoulder expansion and improved storm drain runoff within the past two years. The improvements eased and increased the flow of water along the highway until reaching the City of Guadalupe, where construction halted. This improved flow and capacity resulted in a higher run off volume which dumped in the storm drain through the City which had not been improved. The solution through the unincorporated area created a chronic flooding problem within Guadalupe in storm drains that were not designed to carry the increased level of flow. The result is a overflowing drains, plugged under passes and water and an unsafe quantity of water and debris through the City of Guadalupe.		
Status Report: This is a High priority as the exclusive access to the housing developments west of Pioneer has only one route of escape during a flood which is through areas of flooding. This is a recently identified risk which was created upstream by the improvements of others without mitigating the impact as the water flows toward the ocean. A peripheral concern is in the agricultural chemical runoff which travels without obstruction into the City.		

12.7 PRIOR PLAN ACTIVITY

The previous plan mitigation progress demonstrated some room for improvement. While some progress was attained in mitigation of the earthquake risks, most of the remaining actions were left incomplete. Several factors weighed heavily into this shortfall of progress,

the great recession eliminating the Redevelopment Agency and its funding, a critical financial shortfall and the loss of the Fire Chief. The duties of the fire service are now managed by the Police Chief who serves the City as the Director of Public Safety.

The recession heavily struck the City of Guadalupe with a loss of grant funding which had aided in repair and maintenance of the community, particularly in its infrastructure. Other financial losses brought the community to the brink of dis-incorporation, saved only by the voter approval of three separate tax measures.

With the loss of the RDA, along went rental income for some of the businesses as well as redevelopment aid. Virtually all earthquake mitigation came to a halt due to a lack of funds. Fortunately, the majority of unreinforced masonry building had undergone seismic upgrades prior to the collapse of the RDA.

Still relating to a financial shortfall, the Fire Chief position was eliminated during the previous action cycle losing a designated driver for the projects. The duties of the Fire Chief were absorbed by the Police Chief under a renamed title the Director of Public Safety. While the salary saving assisted in retaining cityhood, there was an insufficient support system to properly manage the all of the tasks incumbent upon both departments. Operationally, the move felt much less impact. But the associated responsibilities suffered.

With that said, the CERT team was attempted without sufficient volunteers to proceed (2011-1.) At this point, a successful Neighborhood Watch program has been completed laying the foundation for a public safety minded volunteer force interested in CERT Training.

No progress was attained on the design of a combined public works and fire station (2011- However, the public works has been funded for a workshop construction during FY 2016/2017. This allows the public works component to operate independently and paves the way for a revised objective of a consolidated public safety facility housing the police and fire operations.

The disaster Early Warning System was completed through the county implementation of a reverse 911 system (2011-3.) This basic system provides an improved communication

during emergency systems to notify the community of the threats and recommended actions.

Mitigation activity relating to the preparation of a drainage and study and master plan was largely deferred (2011-4.) Some drainage improvements were accomplished based on necessity when dealing with excessive storm water runoff created by the State Highway storm water enhancement increasing water flow along Highway 166 draining into the unimproved city drainage system. Aside from the State ceasing to continue improvement in water flow upon reaching the Guadalupe City Limits, there remained a shortfall of funding to properly address this objective.

Seismic upgrades to mitigate the risk of unreinforced masonry buildings has nearly been completed. There are only two remaining buildings without the upgrades, neither of which are open to the public. One has recently changed ownership and reuse plans are underway, mandating an upgrade for use. The other building is owned by the city and will await available Community Development Block Grant Funds or other source before proceeding. Other options for the structure have been discussed but there is not a plan for moving forward, as of this writing.

One area of repetitive flooding remains unaddressed due to the abandonment of the levy rehabilitation project to extend to the west providing protection of City assets (2011-6.) This issue has met with recognition by the County as a potential candidate for mitigation.

12.8 PLAN MAINTENANCE

The City of Guadalupe will be responsible for ensuring that this annex is monitored on an on-going basis. The City will continue to participate in the countywide Mitigation Advisory Committee and attend the annual meeting organized by the County Office of Emergency Management to discuss items to be updated/added in future revisions of this plan.

Major disasters affecting the City of Guadalupe's community, legal changes, notices from Santa Barbara County (lead agency for the County-wide Plan), and other significant events may trigger revisions to this plan or a convening of the Local Planning Team. The City of Guadalupe local planning team, in collaboration with the Santa Barbara County Office of Emergency Management, and the other communities of the County, will determine how often and when the plan should be updated. In order to remain eligible for mitigation grant funding

from FEMA, the City is committed to revising the plan at a minimum of every five years.

The City's Director of Public Safety or other designee will contact the county four years after this plan is approved to ensure that the county plans to undertake the plan update process. The jurisdictions within Santa Barbara County should continue to work together on updating this multi-jurisdictional plan.

The public will continue to be involved whenever the plan is updated and as appropriate during the monitoring and evaluation process. Prior to adoption of updates, the City will provide the opportunity for the public to comment on the updates. A public notice will be published prior to the meeting to announce the comment period and meeting logistics. Moreover, the City will engage stakeholders in community emergency planning.

Comments or suggestions regarding this plan may be submitted at any time to Gary L. Hoving, Director of Public Safety, 918 Obispo Street, (P.O. Box 908,) Guadalupe, CA 93434.

Contact information: ghoving@ci.guadalupe.ca.us, 805-343-2112

City of Lompoc

Local Hazard Mitigation Plan

August 27, 2017

Developed by

Kurt Latipow
Fire Chief
Lompoc Fire Department

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SECTION 1 INTRODUCTION

This annex was prepared in 2015-2016 as part of an update to the Santa Barbara County Multi-Hazard Multi-Jurisdictional Hazard Mitigation Plan. The City of Lompoc (City) participated in the County wide Mitigation Advisory Committee, reviewed all portions of the previous hazard mitigation plan pertaining to the City, and incorporated relevant components into this annex. This document contains updated capability assessment information, a new vulnerability assessment, and an updated/revised mitigation strategy. The methodology and process for developing this annex is explained throughout the following sections.

Across the United States, natural and manmade disasters have led to increasing levels of death, injury, property damage, and interruption of business and government services. The impact on families and individuals can be immense and damages to businesses can result in regional economic consequences. The City recognizes the consequences of disasters and the need to reduce the impacts of natural hazards. The elected and appointed officials of the City also know that with careful selection, mitigation actions in the form of projects and programs can become a long-term, cost effective means for reducing the impact of natural hazards.

The City's '*Multi-Jurisdictional Hazard Mitigation Plan* (Plan), was prepared and formulated with citizen participation, responsible officials, other stakeholders and support from the State of California Governor's Office of Emergency Services (CalOES) and the Federal Emergency Management Agency (FEMA) The Plan guides the City toward greater disaster preparedness and resistance in harmony with the character and needs of the City.

Mitigation is commonly defined as action(s) taken to reduce or, where possible, eliminate risks to people and property from hazards and their effects. ***Hazard mitigation*** focuses attention and resources on actions that will reduce or eliminate long term risks to persons or property from natural hazards.

The impact of expected yet often unpredictable natural and human-caused events can be reduced through planning. History has demonstrated that it is less expensive to mitigate against disaster damage than to repeatedly repair damage in the aftermath. A mitigation plan states the aspirations and specific courses of action jurisdictions intend to follow to reduce vulnerability and exposure to future hazard events.

It is the City's hope the Plan continues to be used as a tool for all stakeholders to increase public awareness of local hazards and risks, while at the same time providing information about options and resources available to reduce those risks. Informing and educating the public about potential hazards will help City residents and visitors protect themselves against their effects.

The emphasis of the Plan is on the assessment of identified risks, identifying mitigation measures for existing exposures, and ensuring critical infrastructure are capable of surviving a disaster. Hazard mitigation strategies help to eliminate losses by limiting new exposures in identified hazard areas, diverting the hazard by reducing the impact, and developing an awareness of hazard area location to avoid future development.

Federal legislation has historically provided funding for disaster preparedness, response, recovery, and mitigation. The Disaster Mitigation Act of 2000 (DMA 2000) is legislation designed to improve the delivery of mitigation programs through sound and viable planning. The legislation reinforces the importance of mitigation planning and emphasizes planning for disasters before they occur. As such, DMA 2000 establishes a pre-disaster hazard mitigation program, outlining requirements for the post-disaster Hazard Mitigation Grant Program (HMGP).

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

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

- Preparing and submitting a local mitigation plan;
- Reviewing and updating the Plan every five years; and
- Monitoring Projects.

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

This Plan has been prepared to meet FEMA and CalOES requirements thus continuing the Cities eligibility for funding and technical assistance from state and federal hazard mitigation programs, such as the HMGP, Pre Disaster Mitigation, and Flood Mitigation Assistance programs.

SECTION 2 PURPOSE AND AUTHORITY

Authority to create this Plan is derived from the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Public Law 93-288), as amended by the DMA 2000. The requirements and procedures for mitigation plans are found in the Code of Federal Regulations (CFR) at Title 44, Chapter 1, Part 201 and the associated Interim Final Rule changes. The federal law and associated rule changes and regulations establish planning and funding criteria for states and local communities.

- *Enhance Public Awareness and Understanding* – to help residents of the City to better understand the natural hazards that threaten safety and welfare; economic vitality; and the operational capability of critical infrastructure;
- *Create a Decision Tool for Management* – to provide information that managers and leaders of local government, business and industry, community associations, and other key institutions and organizations need to take action to address vulnerabilities to future disasters;
- *Promote Compliance with State and Federal Program Requirements* – to ensure that the City can take full advantage of state and federal grant programs, policies, and regulations that encourage or mandate that local governments develop comprehensive hazard mitigation plans;
- *Enhance Local Policies for Hazard Mitigation Capability* – to provide the policy basis for mitigation actions that should be promulgated by the City to create a more disaster-resistant future; and
- Achieve *Regulatory Compliance* – To qualify for certain forms of federal aid for pre- and post-disaster funding, local jurisdictions must comply with the federal DMA 2000 and its implementing regulations (44 CFR Section 201.6). DMA 2000 intends for hazard mitigation plans to remain relevant and current. Therefore, Local plans are updated every five years. This means that the Hazard Mitigation Plan for the City uses a “five-year

planning horizon". It is designed to carry the City through the next five years, after which its assumptions, goals, and objectives will be revisited and the Plan resubmitted for approval. Section 7 details specific goals and objectives with regard to implementing mitigation activities over the life of this Plan. In Section 8, the City has outlined an approach ensuring the Plan is implemented, evaluated, monitored and updated.

SECTION 3 PLANNING PROCESS

3.1 OVERVIEW

The planning process implemented for updating the City's *Local Hazard Mitigation Plan* (LHMP) utilized two (2) different planning teams. The first team is the Santa Barbara County, Office of Emergency Management, Mitigation Advisory Committee (MAC) and the second is the City of Lompoc Local Planning team (LPT).

The planning process followed the concepts and principles outlined in the Comprehensive Preparedness Guide (CPG) 101. Both the MAC and the Local Planning teams focused on these underling philosophies:

- *Focus on the mitigation strategy*
  The mitigation strategy is the plan's primary purpose. All other sections contribute to and inform the mitigation strategy and specific hazard mitigation actions.
- *Process is as important as the plan itself*
  In mitigation planning, as with most other planning efforts, the plan is only as good as the process and people involved in its development. The plan should also serve as the written record, or documentation, of the planning process.
- *This is the community's plan*
  To have value; the plan must represent the current needs and values of the community and be useful for local officials and stakeholders. Develop the mitigation plan in a way that best serves your community's purpose and people.
- *Intent is as important as Compliance*
  Plan reviews will focus on whether the mitigation plan meets the intent of the law and regulation; and ultimately that the plan will make the community safer from hazards.

The planning process for the City's LHMP incorporated the following steps:

- *Plan Preparation*
  - Form/Validate planning team members
  - Establishing common project goals
  - Setting expectations and timelines
- *Plan Development*
  - Validate and revise the existing conditions/situation within planning area; the *Capabilities Assessment and Hazard Assessment Sections* in the LHMP
  - Develop and review the risk to hazards (exposure and vulnerability) within the planning area; the *Vulnerability Assessment Section* in the LHMP
  - Review and identify mitigation actions and projects within the planning area; the Mitigation Strategy in the LHMP
- *Finalize the Plan*
  - Review and revise the plan
  - Approve the plan

- Adopt and disseminate the plan

Throughout this process, opportunities for public involvement was offered and encouraged. More details about public engagement are provided in Appendix B, Public Involvement and Section 3.4

The MAC team was guided through the planning process; and as material was shared and decisions were made, it was the MAC team's responsibility to bring these findings back to their Local Planning Team. Below is a summary of the collaborative planning process of the Local Planning team and MAC.

3.2 City of Lompoc Planning Team 2016

The City's Local Planning Team collaborated to identify critical facilities, provide relevant plans, report on progress of city mitigation actions and provide suggestions for new mitigation actions.

Table 3.1 Lompoc Planning Team Members

Name	Title
Patrick Wiemiller	City Manager
Kurt Latipow	Fire Chief
Mike Brown	Battalion Chief / Asst. Emergency Services
Kevin McCune	Public Works Director / City Engineer
Pat Walsh	Police Chief
Stacy Lawson	Senior Environmental Coordinator
Brad Wilke	Management Services
Teresa Gallavan	Economic Development/ACM
Larry Bean	Utility Department
Lucille Breese	Economic Development/Planning Division

The LPT is a standing committee that works together to discuss and provide input on a variety of Emergency Management and Preparedness issues. The LPT is led by the City Manager and the Fire Chief. The LPT has representation from all of City Departments.

The Lompoc LPT was utilized for the updating of the City's component of the Santa Barbara County Plan. To assist with this effort the City hired a consultant to support and assist with the development of the Plan. The City's LHMP is contained as an annex in the Santa Barbara County's Plan.

3.2.1 Local Planning Team Process

Meetings were conducted to review the existing LHMP, update the capabilities, vulnerabilities and hazard assessments, and discuss existing, recurring, or new mitigation strategies. This was developed as a city-wide hazard mitigation plan focusing on interdepartmental collaboration to implement mitigation strategies throughout the city.

Each of the following sections detail the methodologies for development and updates since the 2011 Plan. As necessary, the discussions of local planning documents have been revised to reflect updates since 2011.

The *Hazard Assessment,* detailed in Section 5, presents the methodology in which the Local Planning team reviewed the previously identified hazards and discussed revisions to their prioritization. A profile for each hazard is included which summarizes the type of hazard, location and extent, history of past occurrences, and probability of future occurrences. The hazard identification and ranking documented in this section form the foundation for prioritizing mitigation actions.

The Local Planning team reviewed the previous *Mitigation Strategies* and reported on progress made in implementing the listed actions. In addition, based on updates to the hazard identification, profiles, vulnerability assessments, and the capability assessment new mitigation actions were identified. The progress report and new mitigation actions are presented in the updated *Mitigation Strategy* (Section 7).

The Local Planning team held regular meetings and continually worked on the Plan. The Local Planning team coordinated and consulted with other stakeholders to identify and delineate natural hazards within the City to assess the risks and vulnerable properties in identified hazard areas. From the start, every attempt was made to establish an open public process to provide an opportunity for all sectors of the overall community to be involved in the planning process. In some cases direct public input was successful and in others the residents were represented in the process by their jurisdictions staff, by necessity.

Meeting documentation is included in Appendix B Public Involvement.

The Local Planning Team met regularly to review the 2011 LHMP and made recommendations for the 2016 LHMP. The LPT meeting summary is listed in the table below.

Table 3.2 Overview of Planning Team Meeting Summary

Meeting Dates	Summary of Discussions
December 17, 2012	**Meeting # 1:** Discussed sections 1-3 of the Plan. LPT agreed no modifications required.
April 15, 2013	**Meeting # 2:** Reviewed Section 4 of the Plan, Capability Assessment. Discussed Department roles in Hazard Mitigation.
December 16, 2013	**Meeting # 3:** Reviewed Sections] 5 of the Plan, Hazard Assessment. Discussed relevant hazards impacting Lompoc. Consider including Drought in the next LHMP.
April 21, 2014	**Meeting # 4:** Reviewed Section 5 of the Plan, Vulnerability Assessment. Discussed and agreed no modifications to Plan, at this time.
December 15, 2014	**Meeting # 5:** Reviewed Section 7 of the Plan, Mitigation Strategies. Mitigation action 2011-1 is complete. Actions 2011-2 and 2011.3 will be complete in 2015.
April 20, 2015	**Meeting # 6:** Reviewed Section 8 of the Plan, Plan Maintenance. City Manager and Fire Chief Emphasized the importance of staying current with Mitigation Actions and being aware of developing vulnerabilities.
December 21, 2015	**Meeting # 7:** Fire Chief notified the LPT of the upcoming revision process lead by Santa Barbara County Office of Emergency Management. 2011 Action 2011-2 and 2011-3 have been achieved
April 18, 2016	**Meeting # 8:** Reviewed 2011 LHMP. Agreed to include Drought and Water Shortage in upcoming Plan Revision.

3.3 Mitigation Advisory Committee (MAC)

3.3.1 MAC Team Members

The Mitigation Advisory Committee (MAC), formed in 2004, is a standing committee that works together throughout the year to discuss and provide input on a variety of activities. The MAC is led by Santa Barbara

County Office of Emergency Management and has representation from all of the local jurisdictions, as well as County Departments and CalOES.

The MAC was utilized for the updating of the Plan. To assist with this effort Santa Barbara County Office of Emergency Management hired a consultant to support and assist each jurisdiction with their Local Hazard Mitigation Plan; contained as an annex in the Plan. The table below (Table 3.3) lists the members of the MAC.

Table 3.3 Members of the Mitigation Advisory Committee 2016

Names	Section 1 Organization	Section 2 MAC Member Status
Michael Dyer	Santa Barbara County – Emergency Manager	New Member
Shannon McCrone	Santa Barbara County – Emergency Services Planner	New Member
Robert Troy	Santa Barbara County – Deputy Director Emergency Management	New Member
Tylor Headrick	Santa Barbara County- GIS/Emergency Services Planner	New Member
Steve Oaks	Santa Barbara County Fire – Battalion Chief	New Member
Rob Hazard	Santa Barbara County Fire – Captain	New Member
Rudy Martel	Santa Barbara County Agricultural Commissioner	New Member
Joyce Tromp	Santa Barbara County Flood Control	New Member
Jon Frye	Santa Barbara County Flood	New Member
Tom Fayram	Santa Barbara County Public Works Deputy Director	Returning Member
Matthew Schneider	Santa Barbara County Planning and Development Deputy Director-Long Range Planning	New Member
Marc Bierdzinski	City of Buellton – City Manager/Planning Director	Returning Member
Mimi Audelo	City of Carpinteria – Program Manager	New Member
Claudia Dato	City of Goleta – Senior Project Manager (Public Safety)	Returning Member
Gary Hoving	City of Guadalupe – Public Safety Director	New Member
Kurt Latipow	City of Lompoc – Fire Chief	New Member
Yolanda McGlinchey	City of Santa Barbara – Emergency Services Manager	Returning Member
Roy Dugger	City of Santa Maria – Emergency Preparedness Coordinator	Returning Member
Bridget Elliott	City of Solvang – Associate Engineer	New Member
Jim Caesar	UCSB – Emergency Manager	Returning Member
Lindsey Stanley	Cal OES – Emergency Services Coordinator	New Member
Andrew Petrow	Consultant	New Member

3.3.2 Overview of MAC Meetings

The MAC meetings were arranged and scheduled to follow the planning process steps outlined in Section 3.1. Each meeting was designed to walk the MAC members through sections of the Santa Barbara County *Multi-Jurisdictional Hazard Mitigation Plan* and annexes. In addition to reviewing and validating material, the intent

was to also educate MAC members on the planning process and purpose of each section. By taking this step, it will help ensure that each MAC member could bring this knowledge back to their Local Planning Teams. The table below (Table 3.4) provides a list and the main purpose of each of the MAC meetings.

Table 3.4 Mitigation Advisory Committee (MAC) Meetings Summary

Date	Purpose
April 2015	**Kick Off (in person)** • Reviewed and discussed the hazards in the Plan; including initial ranking. • Each jurisdiction was asked to review their previous goals and objectives with a local planning team.
December 2015	**MAC Meeting (in person)** • Recap of previous MAC meeting • Goal of the project • Understanding of HMP update requirements • Validation of team members • Proposed Planning Process • Review of Capabilities Assessment Section
January 2016	**MAC Meeting (conference call)** • Recap of previous MAC meeting • Review of Capabilities Assessment Section • Discussion of public outreach efforts • Preparation for next MAC meeting
February 2016	**MAC Meeting (in person)** • Recap of previous MAC meeting • Review of Hazard Assessment Section • Presentation of Vulnerability Assessment results • Discussion of public outreach efforts • Preparation for next MAC meeting
March 2016	**MAC Meeting (conference call)** • Recap of previous MAC meeting • Review of Capabilities Assessment and Vulnerability Assessment Sections • Preparation for next MAC meeting
April 2016	**MAC Meeting (in person)** • Recap of previous MAC meeting • Initial discussion of mitigation projects and actions
May 2016	**MAC Meeting (conference call)** • Recap of previous MAC meeting • Discussion of mitigation actions and projects • Discussion of update process • Preparation for next MAC meeting
June 2016	**MAC Meeting (in person)** • Recap of previous MAC meeting

Date	Purpose
	• Discussion of mitigation actions and projects • Discussion of update process

See Appendix B for sign-in sheets and presentations, where applicable.

3.4 Public Outreach

There were two (2) different Public Outreach campaigns used during the City's LHMP update process: the first informing the Community of LHMP Update, and the second educating the Community of Hazards. The second campaign (educating of the Community of Hazards) is an ongoing campaign

3.4.1 Informing the Community of the HMP Update process

On July 29, 2016 the City issued a press release announcing the commencement of the hazard mitigation planning process. This announcement invited the public to notify the City of their interest to participate in the planning process or submit comments. A copy of this press release and local publications may be found in Appendix B.

Final drafts of the City's LHMP were also made available to the public through the City website, and hard copies were available in select locations. Input from the public was presented to the Local Planning Team for consideration of incorporation into the LHMP.

3.4.2 Ongoing Public Outreach

The City utilizes several platforms to educate the public about hazards in the community, relevant programs to safeguard and protect themselves from disaster, and actions they can take to prepare themselves for events. The relevant programs are also identified in Section 4.2.4. Below is a list of the different platforms used and a brief summary of some of the programs:

- Be Aware and Prepare
- Disaster Preparedness
- Emergency Management
- Wildfire Action Plans
- Ready-Set-Go
- Disaster Preparedness for Pets
- Earthquake
- Smoke Alarm Facts
- Hot Weather Safety
- LISTOS
- Social Media
- Public Events
- Public Service Announcements (Radio and Television
- Drought Education
- Flood emergency awareness

3.5 Public Review Period

On July 25, 2016 the City issued a press release regarding the preparation of the LHMP. The press release, was sent to the Lompoc Register, local Media, and was posted on the city's WEB site which included a telephone number and email address for comments during the drafting state.

The city posted a copy of the LHMP Draft for public review on its WEB site during a public comment period from 7/25/2016 through 8/16/2016. Additionally the city provided an email address as well as telephone number for comment.

A Public Meeting was scheduled on 8/3/2016, at the City of Lompoc City Hall Chambers from 6:30 P.M. to 7:30 P.M. The Council Chambers were opened at 6:00 by Fire Chief Latipow. The Chambers remained open until 7:00 as no citizens attended the Public Meeting.

SECTION 4 CAPABILITY ASSESSMENT

4.1 CITY OF LOMPOC – INTRODUCTION

This annex was prepared in 2015-2016 as part of an update to the Santa Barbara County Multi-Hazard Plan. The City participated in the County wide Mitigation Advisory Committee, reviewed all portions of the previous hazard mitigation plan pertaining to the City, and incorporated relevant components into this annex. This document serves as a hazard mitigation planning tool for the City. It contains updated capability assessment information, a new vulnerability assessment, and an updated/revised mitigation strategy. The methodology and process for developing this annex is explained throughout the following sections.

The first settlers in the Lompoc Valley were the Chumash Indians. The Chumash and their predecessors lived in the Lompoc Valley for nearly 10,000 years prior to European contact. The establishment of La Purisima Mission in 1787 marked the earliest European settlement in the Lompoc Valley. The original mission, located at what is now the foot of F Street in downtown Lompoc, was destroyed by an earthquake in 1812. Remnants of the mission can be seen at this site which has been preserved as a State Historical Landmark. The mission was rebuilt over several years beginning in 1813 at its current location on the north side of the Valley. The Mission, the most authentically restored in the mission system, is now a State park.

The Lompoc Land Company was formed and incorporated in August of 1874 for the purpose of purchasing almost 43,000 acres to establish a temperance colony. The City of Lompoc was incorporated on August 13, 1888. A number of wharves were constructed during this period serving as shipping points for incoming supplies and outgoing agricultural produce until the turn of the century when the railroad replaced shipping as the primary means of commercial transportation.

The completion of the coastal railroad between San Francisco and Los Angeles in 1901, and the subsequent extension of a spur into Lompoc, provided the impetus for growth in the Valley. Fields were cleared and leveled for agricultural production of specialized crops including flower seeds. The flower seed industry so dominated agricultural production that the area was dubbed the "Valley of Flowers." The Johns-Manville Corporation and others began the mining of diatomaceous earth in the southern hills. The mining industry continues to be a major employer.

In 1941, Camp Cooke was established as an Army training base which was renamed Vandenberg Air Force Base (VAFB) in 1958. VAFB was the first missile base of the United States Air Force. The Space Shuttle program was slated to begin launches in the late 1980's. However, when the Challenger exploded during take-off in 1986, the West Coast Shuttle Program was terminated, leaving Lompoc in a severe recession.

The Lompoc Valley responded to the Shuttle disaster by focusing on tourism as a means of fighting its way through the recession. By focusing on the natural beauty of the Valley, its flower industry, the pristine Central Coast, and by developing a successful downtown mural program, the City has built an excellent tourism

industry that is to this day a primary component of the Lompoc economy. Today, the City is dubbed "The City of Arts and Flowers."

4.1.1 Economy and Employment

Lompoc Valley enjoys a healthy and diversified economy. Home to Vandenberg Air Force Base, which contributes $1.7 billion to the regional economy and is the largest employer in Lompoc and is the powerhouse driving the county's economy.

The study evaluated the impact of Vandenberg in terms of population, output, jobs, labor income and taxes generated using data from fiscal year 2004. The report accounted for both direct impacts created by the base and additional impacts that occurred in relation to base activity with a multiplier effect of 1.92, which means every dollar spent by Vandenberg generates another 92 cents in business.

Located on nearly 100,000 acres outside of Lompoc, Vandenberg's impact is stable due to its role as a classified military installation for rocket and missile launches. As of December 2007, Vandenberg had 2,919 military members, 941 civilian and 2,835 contract employees. Col. Steve Tanous, then Commander 30th Space Wing, affirmed that the base was scheduled to get 272 more military positions, 43 civilian jobs and 160 reservists through relocation of units, along with the growth of other programs. Construction activities on base include a $40 million Astrotech Space Operations payload processing facility, a $16.8 million fitness center, and a $13 million new home for the Joint Space Operations Center.

The Allan Hancock College fire, police and emergency services training academies have relocated to Lompoc. The $46 million Public Safety Training Center project includes a City donation of 39 acres of land adjacent to the college for a total of almost 100 acres that will be dedicated to the academies, a high speed driving course and further expansion. It should be noted Allan Hancock College is the alternate seat of government and alternate EOC for the City in the event City Hall and the EOC are unable to be used.

Major employers in Lompoc Valley include:

- Vandenberg AFB
- Lompoc Unified School District
- Lockheed Martin Corporation
  U.S. Department of Justice (Lompoc Federal Correctional Complex)
- City of Lompoc
- Lompoc Valley Medical Center
- Boeing
- World Minerals
- Retail operators: Wal-Mart, Vons, Home Depot, etc.
- Entrepreneurs, especially boutique winemakers

Lompoc Valley's agricultural roots have shifted to value-added products such as flower seed research and development and wine production. Over the past decade, Lompoc's affectionately termed "Wine Ghetto" has become a production center for some of the finest wines in the country. In less than five years, the number of Lompoc's premium artisanal wines grew from five to 30 labels. There are now 34 labels produced in 15 wineries across town. Local winemaker camaraderie continues to spawn innovation and de facto winery incubators continue to launch new wine labels.

As Lompoc's boutique wineries grow, they move into larger facilities and hire more employees. A few years ago, Brewer-Clifton moved into a new 12,000 square foot production facility. Loring Winery and Pali Winery constructed a 30,000 square foot wine facility for processing, operational offices, case good storage, barrel rooms and fermentation rooms. More recently, Flying Goat Cellars purchased a 3,600 square foot industrial condo for wine production at JM Development's new industrial condos on West Laurel. Several other wine facilities in the works will create more growth opportunities with more available production space.

Other targeted industries for the city include Internet, entertainment technology and multimedia. Citywide broadband service has positioned Lompoc to develop as a media and communications center with at least three competitors offering service. The city seeks to attract production talent, digital production companies and pre-and post-production operations.

On the local level, Allan Hancock College Film & Video Production Program, with a 30+ year history, and the City's state-of-the-art TAP TV media studio provide training grounds for an emerging technology workforce. City sponsorship of the Santa Barbara International Film Festival also enhances student opportunities through the festival screenwriting and filmmaking contests and field trips to the movies.

The City partners with the Santa Barbara County Film Commission to promote the area for film locations. The production of commercials and films such as "Sideways" contribute to the community's economic vitality. Film location managers increasingly take an interest in business-friendly Lompoc and the surrounding area. Most recently, "There Will Be Blood" and "Grindhouse" were filmed on Jalama Road and used Lompoc facilities.

On the manufacturing side, Goleta-based Far West Technology recently expanded into Lompoc and created six new full time jobs for packaging of dosimetry products. Raytheon Vision Systems opened a manufacturing division in Lompoc rather than expand its Goleta headquarters. The 55,600 square foot facility in Lompoc employs 30 workers who develop and manufacture infrared sensors for scientific, commercial and government applications. Expansion of the Raytheon facility in Lompoc is now underway.

In 2013, DenMat, a leading manufacturer of high-quality dental products, moved its world headquarters from Santa Maria into an 81,000 square foot building near the Lompoc airport. A privately held company, DenMat supplies dental products and equipment to dental professionals across the nation and in more than 60 countries around the world. They also offer a full-service Dental Laboratory featuring the popular Lumineers and Snap-On Smile brands. As an accredited continuing education provider, DenMat offers educational courses for dentists and their staff in locations nationwide. DenMat has a workforce of 400 employees.

The population of Lompoc Valley is about 65,000, much of which is young and Hispanic. The recent housing boom attracted many young professionals from Los Angeles and Santa Barbara. Non-residential investment is now paving the way for job opportunities with industrial, commercial and public infrastructure growth. Lompoc's comparative advantage in housing prices, information technology and overall quality of life will continue to attract a young, edgy technology workforce. Additionally, the city continues to develop a wide spectrum of workforce training opportunities in the valley.

4.2 Development and Population Growth

4.2.1 Current Population Information

The current city population (2016) is 42,434, a decrease of 420 since 2012. Of that total, 3,649 are attributed to the federal prison. The total non-prison population is 38,694. Community growth is expected to be very modest.

A population forecast for the City was published by the Santa Barbara County Association of Governments in 2002. Its projections have not matched real population growth. The California Department of Finance, Demographic Research Unit (DRU), released its population forecast, by county, on January 31, 2013. For the purpose of this report the City population is projected to increase at the same rate as DRU projects for all of Santa Barbara County. Using this methodology, the City population should reach 44,331 by the year 2035.

4.2.2 Future Geographic Growth Potential

Annexation of unincorporated territory into the city limits occurs on occasion, usually when a property owner wishes to develop land in a manner that requires urban services. One area already in the process of annexation is the Summit View area in the city's northeast corner. Another area being considered for annexation is to the city's west out to Bailey Ave. In addition, the city park area along the river to the city's east is proposed for annexation.

4.3 Climate

4.1 Average Temperatures & Rainfall

Period	Minimum Fahrenheit	Average Fahrenheit	Maximum Fahrenheit	Average Rainfall
January	39.5	52	64.2	2.90
April	44.2	55	66.4	.03
July	52.2	61	70.9	.01
October	47.8	61	73.8	.39
Yearly	46.0	57	68.7	13.88

4. 3.1 Physical Features

Lompoc is part of California's Central Coast. Rolling hills surround the Valley on the north, south and east. The Valley is open at its western end to the Pacific Ocean on the undeveloped Gaviota Coast. The Pacific Ocean is 8 miles from downtown Lompoc. The Santa Ynez River runs east to west through the Valley while Burton Mesa, a chaparral forest with sandy soil, lies to the north. The hills to the south are mined for diatomaceous (fossil) earth.

Lompoc is 98 feet above mean sea level and has a mild climate. A northwest breeze is common (average hourly wind speed: (61 m.p.h.). There is moderate rainfall, daily fog and no snow.

Lompoc is located in the mid-western portion of the county, adjacent to VAFB, and is separated from the rest of the county by the Purisima, Santa Rita, Santa Rosa, and White hills. The Santa Ynez River also traverses the Lompoc Valley in a westerly direction and eventually drains into the Pacific Ocean. This area includes the City of Lompoc and the communities of Vandenberg Village and Mission Hills. Vandenberg Village is located in the Lompoc Valley at the westerly end of the Santa Ynez River Basin, and is bordered by VAFB to the west and the City of Lompoc to the south. Vandenberg Village has a population of approximately 6,497 and is 5.2 square miles. The low to medium density residential core is surrounded primarily by agriculture and open space.

4. 4 Infrastructure

The infrastructure of City of Lompoc supports the industries and the residents of the City. The Public Works Department maintains major roads and local streets. City's Airport is a General Aviation airport located within the city limits. Groundwater is the primary source of potable water for City residents. The City has experienced excessive drought conditions over the last 5 years, and is severely taxing its water resources. The City distributes electricity to the citizen and industries in the City.

4. 5 Jurisdiction Description

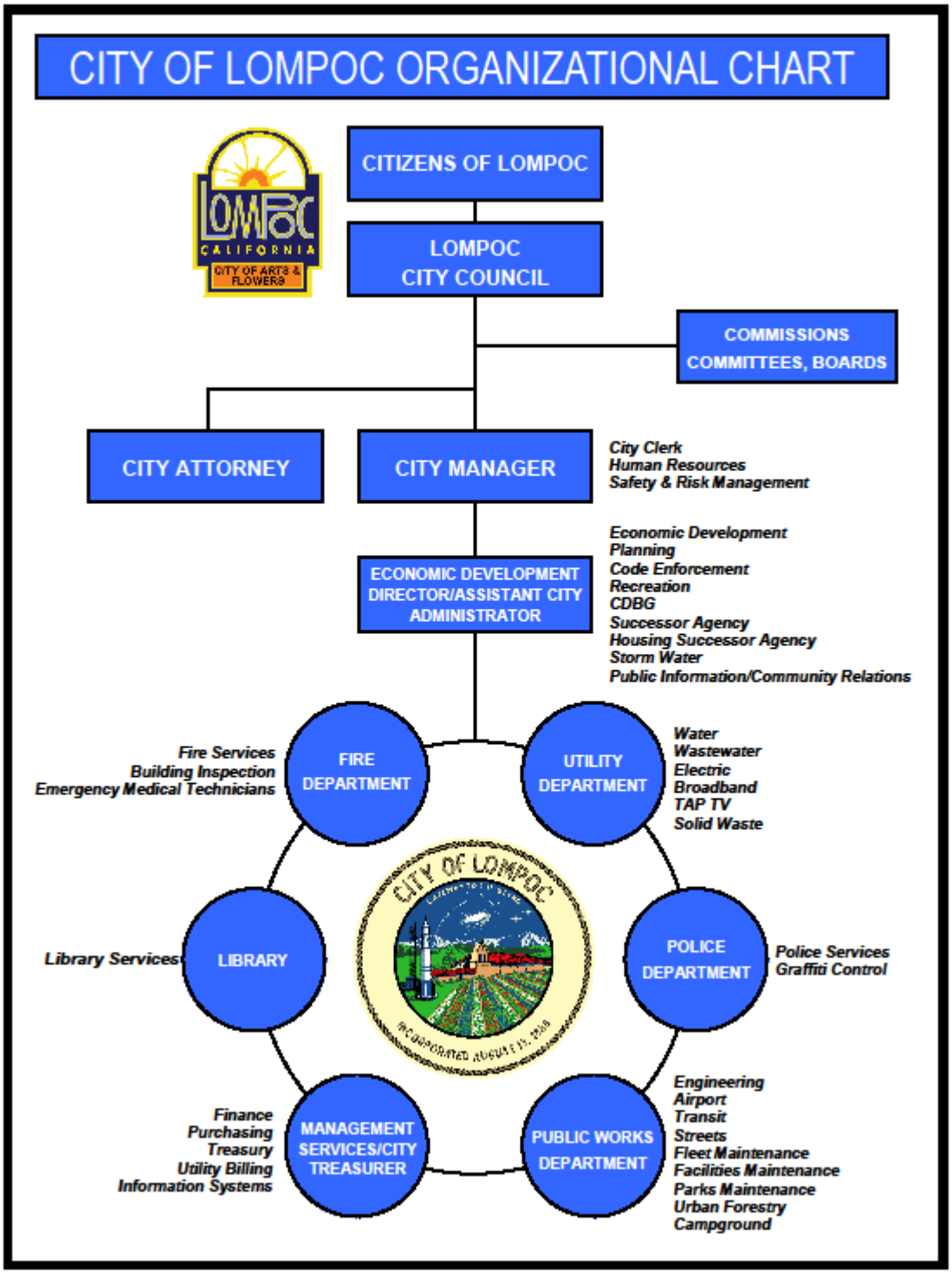
The City identified current capabilities and mechanisms available for implementing hazard mitigation activities. This section presents a discussion of the roles of key departments, administrative and technical capacity, fiscal resources, and summaries of relevant planning mechanisms, codes, and ordinances.

4.5.1 Key Departments and Form of Governance

The City utilizes the Council-Manager form of local governance, which includes an elected Mayor and four Council Members, and an appointed City Manager. The Mayor is elected every two years and the four council members are elected every four years.

The City Council is Lompoc's legislative body, setting policy, approving budgets, and setting tax rates. Council Members also hire the City Manager, who is responsible for the day-to-day administration of the City, and serves as the Council's chief advisor. The City Manager prepares a recommended budget, recruits and hires most of the City's staff, and carries out the council's policies. While the City Manager may recommend policy decisions, he is ultimately bound by the actions of the Council. The Council Members also appoint the City Attorney. The City's organizational chart is listed below:

4.2 Organizational Chart



4.5.2 Administrative and Technical Capacity

The administrative and technical capabilities of Lompoc provide an identification of the staff, personnel, and department resources available to implement the actions identified in the mitigation section of the Plan. Specific resources reviewed include those involving technical personnel such as planners/engineers with knowledge of land development and land management practices, engineers trained in construction practices related to building and infrastructure, planners and engineers with an understanding of natural or manmade hazards, floodplain managers, surveyors, personnel with GIS skills and scientists familiar with hazards in the community.

4.5.3 The Roles of City Departments in Hazard Mitigation

The following is a summary of the cities departments and their responsibilities related to hazard mitigation planning and implementation; as well as existing planning documents and regulations related to mitigation efforts within the community. Specific resources include those involving technical personnel such as planners/engineers with knowledge of land development and land management practices, engineers trained in construction practices related to building and infrastructure, planners and engineers with an understanding of natural or manmade hazards, floodplain managers, personnel with GIS skills all familiar with hazards in the community.

Many of the programs and plans of these departments have a direct relationship to loss reduction, community resiliency and Hazard Mitigation.

4.5.4 City of Lompoc Fire Department

Mission Statement The Lompoc Fire Department is dedicated to professionalism and a commitment to excellence, providing the citizens of Lompoc with the highest level of service possible, safeguarding life, property and the environment.

Vision Statement Our Team is a dynamic, innovative response force comprised of members who value and respect one another and the people we serve in the Lompoc Valley. Our vision is to improve the lives of our citizens through a legacy of skilled, compassionate, and resourceful public service.

Core Values

TEAMWORK:
Applying the strengths of our team members collectively to achieving organizational goals and objectives.
FAMILY:
Considering our citizens and each other as family members.
CUSTOMER FOCUS:
Developing and delivering services based on our citizens' needs.
RESPECT:
Treating our citizens and each other with honor and decency.
PROFESSIONALISM:
Performing every task with excellence and skill.
HUMILITY:
Performing our jobs with pride and a sense of gratitude for the opportunity we have to serve.

FIRE, EMS, BUILDING AND OTHER SERVICES COORDINATED AND OR PROVIDED BY THE FIRE DEPARTMENT

- Administers automatic aid agreements, mutual aid agreements, and contracts.

- Life Safety Division: oversees the Building and Safety Services and Prevention, Community Risk Reduction sections, coordinate adoption of codes and ordinances, review site and building plans to confirm compliance with fire, building and other related codes, develop and present public education programs and manage the City's weed abatement program.

- The Training Division's mission is to ensure that all department personnel maintain all knowledge, skills, and abilities essential to fulfilling our duty to the community. In accordance with our Training and Succession Plans, the department funds attendance to training classes, seminars, conferences, and other avenues that meet or exceed training mandates, continuing education requirements, in-service skill competency, and that provide opportunities to develop new, innovative skills sets needed to meet our evolving service demands. Personnel are encouraged to engage in training that enhances their capabilities, prepares them for promotion, and which ensures that every service we provide is carried out with skill and excellence.

- Emergency Medical Services: Manage the department's EMT program, respond to medical emergencies and other calls for service, and participate with other community and regional health care providers to reduce public illness and injury.

- Operations Division: Maintain the department's personnel, apparatus, equipment, and fire stations in a state of readiness to respond to the community's needs, develop and implement standard operating procedures for various types of emergency responses, respond to all types of emergencies, and train and interact with neighboring jurisdictions and regional agencies.

- Emergency Management: Coordinate the City's Disaster Preparedness Program, liaison with all City departments and divisions, as well as other public and private organizations, develop, coordinate and implement hazard specific response plans, and maintain the operational readiness of the City's Emergency Management Team, the Emergency Operations Center, and other key elements.

Comprehensive Emergency Management Plan

On December 1, 2015 the City revised its Comprehensive Emergency Management Plan. The Plan meets all SEMS and NIMS requirements. The Plan discusses mitigation in the form of training and exercises, which are essential at all levels of government to make emergency operations personnel operationally ready. All emergency plans should include provision for training. The objective is to train and educate public officials, emergency response personnel and the public. Lompoc Fire Department has provided EOC training for all employees at the Awareness and Field Level. It is anticipated that we will complete the Executive EOC training in 2016. In addition to the training, exercises should be conducted on a regular basis to maintain the readiness of operational procedures. Exercises provide personnel with an opportunity to become thoroughly familiar with the procedures, facilities and systems which will actually be used in emergency situations. There are several forms of exercises:

- Tabletop exercises provide a convenient and low-cost method designed to evaluate policy, plans and procedures, and resolve coordination and responsibilities. Such exercises are a good way to see if policies and procedures exist to handle certain issues.
- Functional exercises are designed to test and evaluate the capability of an individual function such as evacuation, medical, communications or public information.
- Full-scale exercises simulate an actual emergency. They typically involve complete emergency management staff and are designed to evaluate the operational capability of the emergency management system.

THE CITY OF LOMPOC EMERGENCY OPERATIONS CENTER

The purpose of the Emergency Operations Center - EOC is to provide a facility from which the City's response to an emergency can be effectively coordinated. The primary role of the EOC is to bring together all relevant information about the emergency to one location, organize that information in a useful format to the City's decision making body, and facilitate the coordination of resources needed to mitigate the effects of the emergency. Concisely, the EOC processes emergency resources, policy and priority setting. The EOC, however, doesn't provide tactical direction to the various field incident commands.

The City's EOC manages and provides mitigation planning for large scale emergencies or disasters. It is organized into two distinct functional areas: 1) EOC Management Staff, who are comprised of the City Manager or designee, Public Information Officer, Legal Officer, and the Policy Decision Group; and 2) EOC General Staff, headed by the EOC Director and includes the Operations Section, Plans/Intelligence, Logistics, and Finance Section. The document discusses extensively on the role of each staff member, describing how collaboration and coordination would occur, as well as the expected duties and procedures required during the event of an emergency. The EOC's hierarchy is also delineated in this section.

The City Manager, Director of Emergency Services, serves as EOC Director with the responsibility detailed in Lompoc City Code Section 1306. In contrast, City Management is responsible for the overall emergency policies and coordination through the joint efforts of governmental agencies and private organizations. Under direction of the EOC Director, General Staff is responsible for the call- out and release of emergency response personnel and providing for appropriate shift coverage during emergency conditions. EOC management is responsible for setting overall objectives and the City's priorities. An EOC management priority is the development and implementation of an EOC Action Plan for each operational period.

At the start of an incident, each position (grouped in sections shown below) is handled by the first arriving director; as key personnel arrive, are assigned EOC positions according to the Operations manual.

The *Operations Section Coordinator* (General Staff) is responsible for the receipt and coordination of information and requests related to the City's response to an incident. The Operations Coordinator reviews and makes changes to the Incident Action Plan as necessary and reports such changes to the EOC Director. Furthermore, he or she is assigned to primary response oriented functions, such as Law enforcement, Fire Department, Utilities Director, Public Works Director, etc.

The *Planning/Intelligence Section* is responsible for the collection, evaluation, dissemination and use of information regarding the incident, and the preparation and documentation of EOC Action Plans. This section also conducts planning meetings and summarizes the written incident action plan for incidents requiring extended operations. Intelligence collection and Resources Status are examples of the kinds of units, which may be formed within this section.

The *Logistics Section* is responsible for ensuring the logistical needs of the disaster are met. This section provides service and support, supplies, equipment, and medical support to the incident assigned personnel, and deals with transportation requirements of the incident. In addition, Logistics registers and coordinates the use of volunteers during an incident and receives and manages donations/services of individuals, private sector organizations and others not included in the formal response structure.

The *Finance/Administration Section* is responsible for monitoring costs, procurements, contracts, and other financial considerations. Logistics is required to maintain records on personnel and equipment time, providing payments to vendors, and other support to incident personnel.

Following an incident, it may be necessary to convene a Multi-agency or Interagency Coordination Group as designated by County Resolution 97-346, to develop consensus on priorities, resource allocation and response strategies. It will be responsible for interagency coordination, including: 1) establishing overall priorities, 2) allocating scarce resources, 3) developing strategies for handling Multi-Agency and Multi-Jurisdictional response problems, 4) sharing information, and 5) facilitating communications.

In summary through the establishment of the Emergency Operations Center, the City expects to have a coordinated plan that clearly details the procedures, duties and hierarchy in response to an extraordinary hazardous event. As a result, their aim is to reduce losses of life and property, as well as promote the resiliency and recovery efforts needed to minimize the threat of any [hazardous] incident in the area.

Volunteer Organizations: American Red Cross, Amateur Radio Emergency Services (ARES), Equine Evacuation, CERT, LISTOS, Voluntary Organizations Active in Disasters (VOAD) and area Faith Based Organizations.

The Fire Department has a very robust Public Education and Emergency Preparedness program. The Fire Department web page provides the following information for the public:

- Aware and Prepare
- Disaster Preparedness
- Emergency Management
- Wildfire Action Plans
- Ready-Set-Go
- Disaster Preparedness for Pets
- Earthquake
- Smoke Alarm Facts
- Hot Weather Safety
- LISTOS
- Social Media
- Public Events

- Public Service Announcements (Radio and Television)
- Drought Education
- Flood emergency awareness

The City's Fire Department is responsible for Emergency Preparedness and Emergency Management, and will use this Multi-Jurisdictional Hazard Mitigation Plan in conjunction with the Comprehensive Emergency Management Plan(CEMP)to implement strategies, projects, and policies which lead to a more resilient and safe City.

4.5.5 Police Department

- Responds to safety concerns involving threats and/or damage to life or property. Acts as the enforcement entity for violations of State and local laws and ordinances.
- Primary emergency responders to acts of civil disobedience and public disorders. Support personnel for emergency rescue and management.
- Investigative services for criminal acts that result in personal injury/death and the destruction of property.
- Develops and implements emergency response plans and policies, focusing on evacuation procedures and traffic control.
- Primary responders to acts of terrorism, focusing on suspect intervention and facility and staff protection.
- Provides public safety communications center for both police and fire.
- Provides EOC facility.

4.5.6 City of Lompoc Economic Development/Planning Division

- Develop and maintain City's general plan, zoning ordinances, and development standards.
- Oversight of City development process assuring compliance with zoning and
- General plan, and including environmental impact reports, design review, historic preservation, landscape review, habitat conservation, floodway prohibitions, and floodplain development standards.

The Planning and Economic Development Department plays an instrumental role in the Mitigation Advisory Committee ensuring this Local Hazard Mitigation Plan is consistent with other long term and comprehensive planning efforts throughout the County. The Planning and Economic Development Department identifies development policies already in place which help reduce future damage to structures from natural hazards and would play a crucial role in creating new development policies as necessary to implement the identified mitigation strategies.

The Economic Development/Planning wants to ensure the development it promotes is safely constructed and well sited with regard to risk of the identified natural hazards.

4. 5.7 City of Lompoc Public Works Department

The Public Works Department is comprised of five (5) divisions and each division performs functions that are directly related to hazard mitigation.

4. 5.7.1 Public Works Department

- City Department organized into the following divisions: Aviation, Engineering, Facilities Maintenance, Fleet Maintenance, Park Maintenance, Streets, Transit, Urban Forestry, and Campground.
- Maintains certain City infrastructure and facilities (assets) including general aviation airport, streets, buildings, parks, and vehicle fleet but excluding city utility infrastructure and treatment plants. City utility infrastructure and treatment plants are maintained by the Utility Department.
- Responds to City emergencies, includes EOC response in disasters. Assists Solid Waste, Police and Fire Departments with hazardous materials response. Implements traffic and perimeter control efforts through street department. Deploys heavy equipment assets for debris removal. Provides buses and drivers during evacuations

4.5.7.2 Engineering Division

- City Division organized under the Public Works Department.
- Reviews design and construction for all City facilities within the public right of way including public grading, floodways, retention basins, storm drains, sewer line, water line, streets and bridges to assure compliance with Federal, State, and local ordinances on seismic and structural stability.
- Develops engineering ordinances and policies that help protect and preserve City infrastructure.
- Develops and implements mitigation strategies to avoid further damage to critical facilities or to reduce/avoid damage during future hazard events.
- Evaluates all circulation elements for projected traffic impacts and determines needed street infrastructure improvements.
- Provides response personnel for evaluation of damaged infrastructure
- Responds as part of the City's EOC Team.
- Coordinates other response agencies assisting with damage assessment.

4.5.7.3 Aviation

- Maintains the Airport is a state of readiness in the event the Airport is required to receive materials and supplies to mitigation the disaster.
- Develops strategies to for use of the Airport for evacuation if required

4.5.7.4 Public Transit

- Ensures Public Transit Fleet is available for evacuation if needed during a disaster.

4.5.7.5 Streets

- Maintains streets to ensure they are open and passable to citizens during and in the aftermath of a disaster.

4.5.7.6 Fleet Maintenance

- Maintains and ensures the Fleet of city vehicles and equipment is operational in the event of a need during and after a disaster.

4.5.7.7 Facilities Maintenance

- Maintains all city facilities should they be required for evacuation or other purpose during and after a disaster.

4.5.7.8 Parks Maintenance

Maintain Parks for the use of a gathering and potential living space for residents in the event of a disaster.

4.5.7.9 Urban Forestry

- Forestry maintenance in the city to minimize damage in the event of a disaster.

4.5.7.10 Campground

- Ensures Campgrounds and maintained to receive evacuees in the event of a disaster.

The Public Works Department and its various divisions within are responsible for the construction/physical aspects of implementing structural mitigation projects throughout the City. Mitigation measures minimize the damage to the infrastructure in the event of a natural or man-made disaster.

4. 6 Utilities Department

- Maintains City's Water, Wastewater, and Electrical supply and distribution.
- Responds as part of the City's EOC Team.

4. 7 GIS, Computer and Communication Technology

Lompoc has a comprehensive GIS system maintained by the Information Systems Department. Currently, parcels, zoning and flood hazards have been mapped, including water, sewer, and storm drain. Hazard layers created for this plan will be incorporated into that system for future planning and updates. The City's GIS system is fully functional and can be used to provide the State of California Office of Emergency Services with preliminary damage assessments.

Through the Lompoc Police Department, the City has a fully functional 911 emergency telephone system, dispatch capabilities, and a reverse 911 system (Installed in April 2005) to issue warnings in advance of disasters.

4. 8. Management Services-Financial Resources

The General Fund's fund balance is an important element that can show the City's financial strengths or weaknesses. The City operates under a biennial budget as is the customer for many Central Coast municipalities. For the 2015-2017 biennial budgets, the City of Lompoc's General Fund operating appropriations have been approved at $66,817,370. The revenue estimates in the City's biennial budget contains numerous line items representing different sources, each governed by a distinct set of conditions particular to that revenue source. The largest revenue factor and the core of the resource base that enables the City's provision of community services is the local revenue portion of Lompoc's General Fund. The City's revenue base is determined by different community conditions such as the current population, employment and income, economic activity within the City, and the growth of invested value from residential and commercial construction, business investment in plant and equipment, and demand for local real property. National, State, and regional economic conditions can also affect the City's revenue base by creating demand for community goods and services produced within Lompoc. The chart below is a summary of expected General Fund revenues from the City's approved budget. The largest revenue categories are from service charges and property tax.

4.3 General Fund Financial Sources

General Fund Financial Sources			
FINANCIAL SOURCES	Adopted 15-17		Percentage of Total
Taxes and Franchises			
Property Taxes	$ 14,951,809		22%
Sales Taxes	9,719,839		15%
Transient Occupancy Taxes	3,631,870		5%
Other Taxes and Franchies	1,779,927		3%
Total Taxes and Franchise Revenues		$ 30,083,445	45%
Licenses, Permits, and Service Charges		1,029,123	2%
Fines, Forfeits, and Penalties		69,899	0%
Investments and Property Revenues		348,581	1%
Revenues From Other Agencies		1,120,646	2%
Current Service Charges		2,830,811	4%
Charges / Internal Services		16,621,735	25%
Other Revenues		1,465,172	2%
Transfers		13,455,081	20%
Total Financial Sources		$ 67,024,493	100%

Over the last few years, California's budget has diminished rapidly due to decreased tax revenues from an economic recession. The overall health of California's economy has a significant influence on local cities and counties, as local government appropriations are usually the first to have their appropriations diminished due to downturns in the economy.

The City's major economic drivers for its revenue base are from service charges, sales tax, transient occupancy tax, population growth, employment, construction, property values, and commercial activities.

Lompoc's long-term financial and programmatic policies demonstrate the City's commitment to provide for the protection of the community from unreasonable risks.

Overall, the City has indirectly referenced mitigation and hazard reduction principles throughout many of the City's aforementioned documents, plans, and policies. Integrating more direct language referencing mitigation and hazard reduction will help to reinforce the City's commitment to these principles. The indirect references can also indicate that the responsibility for hazard reduction is shared among numerous departments within the City, making it a challenge to identify a particular department to take the lead in these efforts. To address this potential issue and increase community capabilities globally, the establishment of a formalized Mitigation Advisory Committee is recommended. The Committee should receive official recognition as a working group as soon as it is feasible to begin sharing the responsibilities required to implement the City's mitigation program.

4. 8.1 Fiscal Impact

The City has various financial and budgetary tools available to Lompoc such as community development block grants; capital improvements project funding; authority to levy taxes for general and specific purposes; service charges for water, electric, solid waste, and wastewater (sewer) services; development impact fees for a variety of community services mitigating the effect of new development; ability to incur debt through

general obligations bond; and withholding spending in hazard-prone areas.

4. 8.2.2 Fiscal Capability

Financial tools	Fiscal Availability
Community Development Block Grants (CDBG)	Y
Capital improvements project funding	Y
Authority to levy taxes for general and specific purposes	Y – Vote Required
Service charges for water, solid waste, and wastewater services	Y – Prop 218 Requirements
Service charges for electric services	Y
Development impact fees to mitigate effects of new development	Y – AB1600 Requirements
Incur debt through general obligation bonds	Y – Vote Required
Incur debt through special tax and revenue bonds	Y – Vote Required
Incur debt through private activity bonds	N
Withhold spending in hazard-prone areas	N
Other – Other Grants	Y/N – Grant dependent

4. 8.2.3 Capital Improvement Plan

The City systematically plans, schedules, and finances capital projects to ensure cost- effectiveness and conformance with established policies and longer-term plans through a Capital Improvement Plan (CIP). The City is in the process of replacing the existing 2002-03 to 2016-17 CIP (2002-17 CIP) by incorporating the CIP and the CIP process into the City's biennial budget preparation process. The currently approved CIP was presented to the City Council on December 17, 2002 by the then City Administrator, Gary P. Keefe. The document outlines the approved fifteen year CIP for the fiscal periods 2002-03 through 2016-17. It is separated by departments/divisions and gives a description of the respective projects, costs, and fiscal year (FY) projected for initiation of the projects. The CIP documents the long-term projects that are important to the City in order to appropriately plan, organize and finance the projects that are needed in the community. The total projected capital expenditures for the 2002-17 CIP were projected to be $150.9 million in 2004 dollars. The City anticipates the 2016-17 to 2031-32 CIP to be available for council approval in the fall of 2016.

The 2002-17 CIP, depicting costs per department, it is expected that the Fire, Wastewater and Engineering (Bikeways) categories will require the largest cumulative expenditures between FY 07-12; this is compared to FY 12-17 where the Engineering (traffic), Wastewater, and Electric departments are the top expenditure projections during the final 5 years of the 2002-17 CIP. Below is a summary of the approved allocations of the existing 2002-17 CIP.

4.9 Relevant Governance

There are many plans, programs, codes, and policies that help govern the City of Lompoc. The purpose of this section is to present pertinent plans, programs, codes, and policies which support risk education and reduction and/or help to implement mitigation measures. It is important to note that these plans, programs, codes, and policies were not only used to update the City of Lompoc Local Hazard Mitigation Plan but they were also evaluated to determine their effectiveness in risk education and reduction efforts. Additionally, information gleaned through the City of Lompoc Hazard Mitigation Plan update process will be used in the plans; programs, codes, and policies update process. The plans, programs, codes, and policies will continue to provide the foundation and in some cases be a vehicle for the implementation of mitigation strategies. Below is a summary of the more significant relevant plans, programs, codes, and policies:

4.9.1 Relevant Plans, Policies, and Ordinances

The City has a range of guidance documents and plans for each of its departments. These include a General Plan, with a Housing Element, Public Works and Public Utilities Plans, Public Facilities Master Plan, Capital Improvement Plans, Storm Water Management Program, Parks & Recreation Master Plan, Redevelopment Project Guidelines, and Standardized Emergency Management Plan. The City uses building codes, zoning ordinances, subdivision ordinances, and various planning strategies to address how and where development occurs. One of the essential ways the City guides its future is through policies laid out in the General Plan.

4.9.2 General Plan

The General Plan is a comprehensive statement of goals and policies relating to the development of the community, the management of potential hazards, and the protection of natural and cultural resources within its study area. The General Plan directs Lompoc's future by expressing community desires and by providing the basis for regulations to protect and enhance the community's quality of life for future generations. The summary below will document the portions of Lompoc's General Plan that are applicable to hazard mitigation.

4.9.2.1 Land Use Element

Urban growth in Lompoc is restricted by the Sphere of Influence and Urban Limit Line, which delineates the City's future boundaries and service area. Growth is important to the future of Lompoc. The City encourages the development of undeveloped and vacant land within City boundaries. The City has also moved its Urban Limit Line in the 2030 General Plan indicating intent for modest growth. Additionally, in 2016 LAFCO approved annexation of 10 acres to the North of the City. In order to ensure that residents of Lompoc have access to basic needs, the City will only allow development in areas where adequate public facilities and services, such as water, utilities, and fire/police protection, are available at the time of development. To maintain an adequate supply of clean water, the City will designate groundwater recharge areas as Open Space and protect those areas from incompatible uses. Other areas may be maintained as Open Space if they are used to protect public health and safety and against natural and man-made hazards. Such areas may include regions in which topographic, geologic, or soil conditions indicate a significant danger to future occupants.

4.9.2.2 Circulation Element

Policy 2.2 of the City's 2030 General Plan encourages regulatory agencies to designate routes away from urban and environmentally-sensitive areas for the transportation of hazardous and explosive materials. Such a policy would help mitigate the negative effects to Lompoc's residents from future hazardous materials incidents.

4.9.2.3 Housing Element

Dilapidated residences and those that do not comply with the City's Uniform Building Code requirements are more likely to be negatively affected by natural hazards. Therefore, the City will provide funding for housing rehabilitation programs which encourage private and public capital participation, preserve the existing housing stock, and provide more housing opportunities within the City. The City has also funded a comprehensive Code Enforcement program with a full-time Code Enforcement Officer. Through this program, the City has compelled owners of dilapidated housing to improve its condition. When evaluating sites for housing, the City avoids environmental hazard or sensitive resource areas. The Housing Element for the 2014 – 2022 planning cycle was updated and adopted by the City Council on December 15, 2015. The California State Department of Housing and Community Development found the Housing Element in full compliance on December, 29, 2015.

4.9.2.4 Public Services Element

In an effort to avoid a power outage in Lompoc, the City requires the undergrounding of existing overhead utility distribution lines in association with new development projects. To ensure that residents have access to basic needs, the City will only allow development in areas where adequate public facilities and services, such as

water, utilities, and fire/police protection, are available at the time of development.

To minimize street flooding, the City will ensure that the storm drain system has the adequate capacity to handle runoff from a design standard storm and, where feasible, will expand the capacity of the system to control storm flows. New development will be required to minimize the amount of off-site drainage by retaining storm waters for on-site percolation, provide adequate drainage facilities for remaining off-site flows, maintain natural drainage channels, and avoid alteration of off-site drainage courses.

The City of Lompoc participates in an automatic aid agreement with Santa Barbara County Fire Department and in mutual aid agreements with VAFB, and the State of California. The City is concerned with promoting fire mitigation through its encouragement of public education regarding fire prevention, as well as safety and first aid medical procedure exercises. Fire mitigation is also performed by the City in that it amended the City Code to require the installation of automatic fire protection systems in all new buildings that exceed fire protection and on scene response capabilities of the fire department. The fire department is responsible for reviewing all development projects to determine if they adhere to fire safety requirements.

4.9.2.5 Safety Element

Lompoc is aware of the hazards that can affect the City. These hazards include: flooding, liquefaction, steep slopes, seismic hazards, wildland fires, and hazardous material incidents. In an effort to mitigate the damages caused by these hazards, the City aims to avoid placing critical facilities in hazardous areas. Several hazard maps included in this Plan detail where these hazardous areas are located within the City. The City's Zoning Ordinance will incorporate specific standards for location, designing, and reviewing critical facilities. The City will also amend the Zoning Ordinance to require all publicly-owned critical facilities to provide and maintain emergency electrical generating capability. An emergency warning system will be implemented in the City and, for event-specific risks brought to the City's attention, the City shall develop event-specific plans, procedures, or programs to manage the risk and maximize public safety.

4.9.2.5.1 FLOOD

To mitigate damage that can result from floods, the City will designate the land within floodways for open space land uses. Development may be permitted on boundaries of the floodway provided that building setback requirements from the Santa Ynez River and other streams are met and finished floor elevations are at least two feet above the 100-year flood elevations. Any development that impairs the ability of the floodway to convey floods or compounds potential flooding will be prohibited. The City will also amend the Floodplain Management Ordinance to maintain consistency with Federal and State requirements, to establish a regulatory floodway, to regulate grading and filling activities that diminish the carrying capacity of the floodway, and to establish building setbacks from the Santa Ynez River and other water bodies. Lompoc will coordinate with the Santa Barbara County Flood Control and Water Conservation District in mitigating flood impacts from new construction, and also with FEMA and the USDA Soil Conservation Service in flood protection activities. The City will create public awareness programs to educate residents on flood hazards and procedures to minimize injury and property damage before, during, and after a flooding event.

4.9.2.5.2 WILDFIRE

To help reduce the damage caused to development from wildfires, the City will determine the suitability and design of development in wildland fire hazard areas. Uses which increase the danger of wildland fires will be restricted. Implementation Measure 14 requires the Zoning Ordinance to be amended to establish the minimum distance between buildings and wildland fire risk areas to be no less than 60 feet, unless the following conditions are met: properly built access roads; available water

supply; construction with materials that are more fire resistant than standard requirements; and construction and maintenance of fuel breaks. Implementation Measure 17 requires the Fire Protection Ordinance should also be amended to allow the Fire Chief to require that developments located in areas beyond the four (4) minute response time meet more stringent construction code requirements to provide necessary fire protection. The City will also require and review landscape plans for all development projects in wildland fire hazard areas for consistency with fire-resistant and drought-tolerant landscaping concepts. Implementation Measure 21 requires the fire department and/or Urban Forester will provide public information brochures on fire-resistant landscaping to the public.

Many of these policies and development standards are designed to reduce the risk to wildfire damage. They provide a foundation for implementing the identified wildfire mitigation strategies within this Local Hazard Mitigation Plan. Through participation in the Lompoc Planning Team, the Lompoc Fire Department will use this foundation to help implement the identified wildfire mitigation strategies as resources are available.

4.9.2.5.3 SEISMIC

The City regards seismic retrofitting as a way to mitigate the damages caused by earthquakes. All seismically vulnerable buildings, including critical facilities and City owned properties, will continue to be identified by the City and those buildings will be required to be reinforced to minimize the risk of personal injury during an earthquake. For City-owned facilities, the City can apply for funding under the Earthquake Safety and Public Buildings Rehabilitation Bond Act of 1990. All new buildings should be constructed in accordance with current seismic safety design standards. Another earthquake mitigation action that the City promotes is public awareness programs, designed to create awareness of seismic hazards and procedures to minimize injury and property damage before, during, and after an earthquake.

Steep slopes are also a concern in Lompoc because development built on steep grades can be more susceptible to being impacted by an earthquake, landslides, and liquefaction. Therefore, the City may permit development on hillsides only where it can be demonstrated that geologic conditions are sound for construction purposes. Before development is allowed to be constructed on slopes, a Certified Engineering Geologist must prepare a report which includes recommendations for remedial measures to ensure the stability of natural and manufactured slopes within the area affected by the development. For areas with 20 percent slopes or greater, the stability of the slopes must be addressed by a Registered Soils Engineer. Liquefaction potential must also be evaluated by a Registered Soils Engineer for development in liquefaction hazard areas. The Zoning Ordinance will be amended to require developers proposing structures on or adjacent to steep slopes to develop and implement hillside drainage plans to reduce the risk of further movement by existing landslides, to site new structures away from steep hillsides and the toes of existing landslide surfaces, and to perform site specific slope stability investigations and analyses by a Registered Geotechnical Engineer. Critical facilities will not be permitted within areas prone to slope instability or liquefaction during an earthquake.

4.9.2.5.4 HAZARDOUS MATERIALS

To prevent hazardous material transportation incidents from affecting residential areas, open space buffers will be created between hazardous materials routes and residential neighborhoods. Also, residents within a quarter mile of new hazardous materials handling facilities will be notified immediately by the City emergency response organizations of any accidental occurrences such as spills, leaks, or eruptions that may affect the health, safety, and welfare of the public. The City will

ensure that businesses and industries that use, store, and handle hazardous materials do so in compliance with applicable City policies as well as State and local laws, guidelines, and regulations.

4.9.2.5.5 Storm Water Management Program

The City maintains an approved Storm Water Management Program (SWMP), pursuant to the National Pollutant Discharge Elimination System (NPDES) Phase II Small Municipal Separate Storm Sewer System (MS4) program. The City's SWMP was approved on October 17, 2008 by the Central Coast Regional Water Quality Control Board.

The SWMP can be found on the City's website and addresses the six minimum control measures: Public Involvement / Participation; Public Education and Outreach; Illicit Connection and Discharge Detection and Elimination; Municipal Operations Control; Construction Site Control; and New

Development / Redevelopment Control). The SWMP and its related Storm Water Management Ordinance apply to all property within the City limits and to property owned by the City, wherever it is located.

4.9.2.5.6 Zoning and Subdivision Ordinances

The State of California has empowered all cities and counties to adopt zoning ordinances. The City's original Zoning Ordinance was adopted in 1974. The City has a five member Planning Commission, which is an advisory body to the City Council. The Commission was established under State law to provide relief in special cases where the exact application of the terms of the ordinance would be unduly restrictive and cause a hardship, in addition to generally reviewing zoning and subdivision proposals. The Planning Commission hears and decides upon the interpretation and the application of the provisions of the Zoning and Subdivision Ordinances. Although the Commission has certain discretionary powers in making its decisions, the Commission must always abide by and comply with the powers granted to it by the local Zoning and Subdivision Ordinances and the State's enabling acts. Additionally, the Planning Commission may recommend actions to the City Council and the Planning Commission's actions may be appealed to the City Council.

4.9.2.5.7 Building Codes

The State of California has adopted the 2010 California Building Codes, which is enforced in the City. The California Uniform Statewide Building Code is based on the 2013 International Building Code with State amendments.

The City provides a full service Building and Safety Section, which is responsible for enforcing State, City, and County Codes for building residential and commercial structures, enforcing environmental codes and guidelines for maintaining existing structures. In 1999, the City received the highest rating for its building code effectiveness in residential and commercial construction from the Insurance Services Office (ISO).

The ISO is an insurer-supported organization that provides advisory insurance underwriting and rating information to insurers. The ISO uses a rating scale of 1 to 10 with 1 being the highest rating given. The City's evaluation can be used as a basis for providing rating credits to individual property insurance policies

4.9.2.5.8 FLOODPLAIN MANAGEMENT ORDINANCE

The City has an enforced Floodplain Ordinance requiring that all habitable floors must be built a minimum two feet above the 100-year floodplain and the special flood hazard areas. It is important to note, however, that many parts of the City flood due to storm water infrastructure – not because of their proximity to 100-year floodplain.

Floodplain districts identified in the Flood Insurance Rate Maps FIRMs include the following flood hazard zones and definitions:

- **Zone A** is the flood insurance rate zone that corresponds to the 100-year floodplains that are determined in the Flood Insurance Study by approximate methods. Because detailed hydraulic analysis is not performed for such areas, no Base Flood Elevations or flood hazard factors are determined.
- **Zone AO** is the flood insurance rate zone that corresponds to areas of 100- year shallow flooding where depths are between one (1) and three (3) feet; average depths of inundation are shown, but no flood hazard factors are determined.
- **Zone A1-A30** is the flood insurance rate zone that corresponds to areas of 100-year flood; base flood elevations and flood hazard factors are determined.
- **Zone B** is the flood insurance rate zone that corresponds to areas between limits of the 100- year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths less than one (1) foot or where the contributing drainage area is less than one square mile; or areas protected by levees from the base flood.
- **Zone C** is the flood insurance rate zone that corresponds to areas of minimal flooding.

All potential development projects located within floodplains must follow an established development review process. Developments involving drainage ditches or watercourses in floodplains must receive Federal, State and Local review and permits as required by the Floodplain Administrator and the Lompoc Municipal Code.

4.10 Repetitive Flood Loss Properties

Repetitive loss properties are defined as property that is insured under the NFIP that has filed two or more claims in excess of $1,000 each within any consecutive 10-year period since 1978. There are currently no repetitive loss properties in the City of Lompoc.

The City of Lompoc's Flood Insurance Rate Map (FIRM) numbers are 060334-720F, 736F, 737F, 738F, 739F, 743F. The FIRMs were revised in September 2005 and are used by both public and private sector to determine flood insurance requirements and rates and to administer the City's Flood Zone Management Ordinance.

4.11 Summary of Capabilities

The departments, plans, programs, and policies addressed provide an overview of Lompoc's activities related to natural disaster mitigation.

The legal and regulatory capabilities of the City are shown in the City of Lompoc Municipal Code. Existing ordinances and codes affect the physical or built environment of the City. Examples of legal and/or regulatory capabilities can include: the city's building codes, zoning ordinances, subdivision ordinances, special purpose ordinances, growth management ordinances, site plan review, general plans, capital improvement plans, economic development plans, emergency response plans, and real estate disclosure plans.

SECTION 5 CITY OF LOMPOC HAZARD ASSESSMENT

OVERVIEW

The purpose of this section is to review, update and/or validate the identified and profiled hazards in 2011 City of Lompoc Local Hazard Mitigation Plan (LHMP). The intent is to confirm the list of hazards facing the City and determine if the information and material is current and accurate. The importance of this is to ensure that all hazards are being considered and that decisions are based on the most up-to-date information. Another purpose of this section is to screen the hazards; providing an understanding of the significance by ranking higher priority hazards in the community.

To assist with this effort two (2) groups were utilized: the MAC and the Local Planning Team. The MAC group assessed information at the county-level, while the Local Planning Team assessed information as it is related to Lompoc.

As part of the planning process both groups leveraged their planning efforts and documents, including the State of California Multi-Hazard Mitigation Plan, the Lompoc General Plan, Safety Element, Seismic, and the Lompoc 2011 LHMP.

5.0 Hazard Identification

Based on the review of the Lompoc 2011 LHMP and incorporating information from other documents (i.e., the California State Multi-Hazard Mitigation Plan) and local experience and knowledge, the Local Planning Team identified the following hazards as being relevant to Lompoc (**Table 5.1**).

Table 5.1 Relevant Hazards in Lompoc

Hazard Type and Rank	Impact	Probability
Flooding	Medium	High
Earthquake	High	Medium
Dam Failure	High	Low
Wildfire	Medium	High
Drought and Water Shortage	Medium	High

5.1 Hazard Screening/Prioritization

The intent of screening hazards is to help prioritize which hazards create the greatest concern in the community. Because the original process used to rank hazards in the Lompoc 2011 LHMP is not being utilized, an alternative approach is being implemented. A summary of the process and the results of the revised hazard ranking for the 2016 LHMP Update are discussed below:

Ranking Tool Design

The ranking tool prioritizes hazards on two (2) separate factors:

- Probability of the hazard affecting the community
- Impact (*potential*) of the hazard on the community

To further assist with the process, the following definition of “High”, “Medium”, and “Low” probability and impacts were utilized:

Probability

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

Impact
High- Catastrophic/Critical: Major loss of function, downtime, and/or evacuations
Medium- Limited: Some loss of function, downtime and/or evacuations
Low- Negligible: Minimal loss of function, downtime and/or evacuations

Based on the revised list of hazards and utilizing the alternative ranking approach, the MAC screened the hazards. The results of the assessment are in **Table 5.2**. The shading of the matrix boxes indicates the priority level: RED = tier 1; GREEN = tier 2; and GRAY = tier 3.

Table 5.2 Hazard Screening and Ranking

Rank	High Impact	Medium Impact	Low Impact
High Probability		• Flooding • Wildfire • Drought and Water Shortage	
Medium Probability	• Earthquake		
Low Probability	• Dam Failure		

LOCAL PLANNING TEAM HAZARD ASSESSMENT

The Local Planning Team leveraged the work completed by the MAC. As part of the Local Planning Team's efforts it reviewed the information and material from the State of California Multi-Hazard Mitigation Plan, the Lompoc General Plan, Safety Element, Seismic, and the Lompoc 2011 LHMP, as well as, other documents, plans, and material provided by the Local

The Local Planning Team determined the most prudent course of action was to review and validate the hazard screening effort completed by the MAC. After internal discussions of the impact to the hazards impacting Lompoc, the Local Planning Team adopted the following hazard screening and rankings (*see* Table 5.2).

5.2 HAZARD PROFILES

The following sections represent work done by the MAC and confirmed by the Local Planning Team. The information provided below is relevant to Lompoc. In other words, if a particular hazard is not a threat to a community it is not included in the HMP. The following material is intended to be an overview of the hazards;

more information may be found in the State of California Multi-Hazard Mitigation Plan, the Lompoc General Plan, Safety Element, Seismic, and other documents.

5.3 Earthquake

5.3.1 Description of Hazard

An earthquake is caused by a release of strain, within or along the edge of the Earth's tectonic plates, which produces ground motion and shaking, surface fault rupture, and secondary hazards, such as ground failure. The severity of the motion increases with the amount of energy released, decreases with distance from the causative fault or epicenter, and is amplified by soft soils. After just a few seconds, earthquakes can cause massive damage and extensive casualties.

The effect of an earthquake on the Earth's surface is called the intensity. The intensity scale consists of a series of certain key responses such as people awakening, movement of furniture, damage to chimneys, and finally, total destruction. The scale currently used in the United States is the Modified Mercalli Intensity (MMI) Scale. It was developed in 1931 by the American seismologists Harry Wood and Frank Neumann. This scale, composed of 12 increasing levels of intensity that range from imperceptible shaking to catastrophic destruction, is designated by Roman numerals. It does not have a mathematical basis; instead it is an arbitrary ranking based on observed effects.

Most people are familiar with the Richter scale, a method of rating earthquakes based on strength using an indirect measure of released energy (**Table 5.3**). The Richter scale is logarithmic. Each one-point increase corresponds to a 10-fold increase in the amplitude of the seismic shock waves and a 32-fold increase in energy released. An earthquake registering 7.0 on the Richter scale releases over 1,000 times more energy than an earthquake registering 5.0.

Table 5.3 Richter Scale

Richter Magnitudes	Earthquake Effects
Less than 3.5	Generally not felt, but recorded.
3.5-5.4	Often felt, but rarely causes damage.
Under 6.0	Slight damage to well-designed buildings. Can cause major damage to poorly constructed buildings over small regions.
6.1-6.9	Can be destructive in areas up to about 100 kilometers across residential areas.
7.0-7.9	Can cause serious damage over larger areas.
8 or greater	Can cause serious damage in areas several hundred kilometers across.

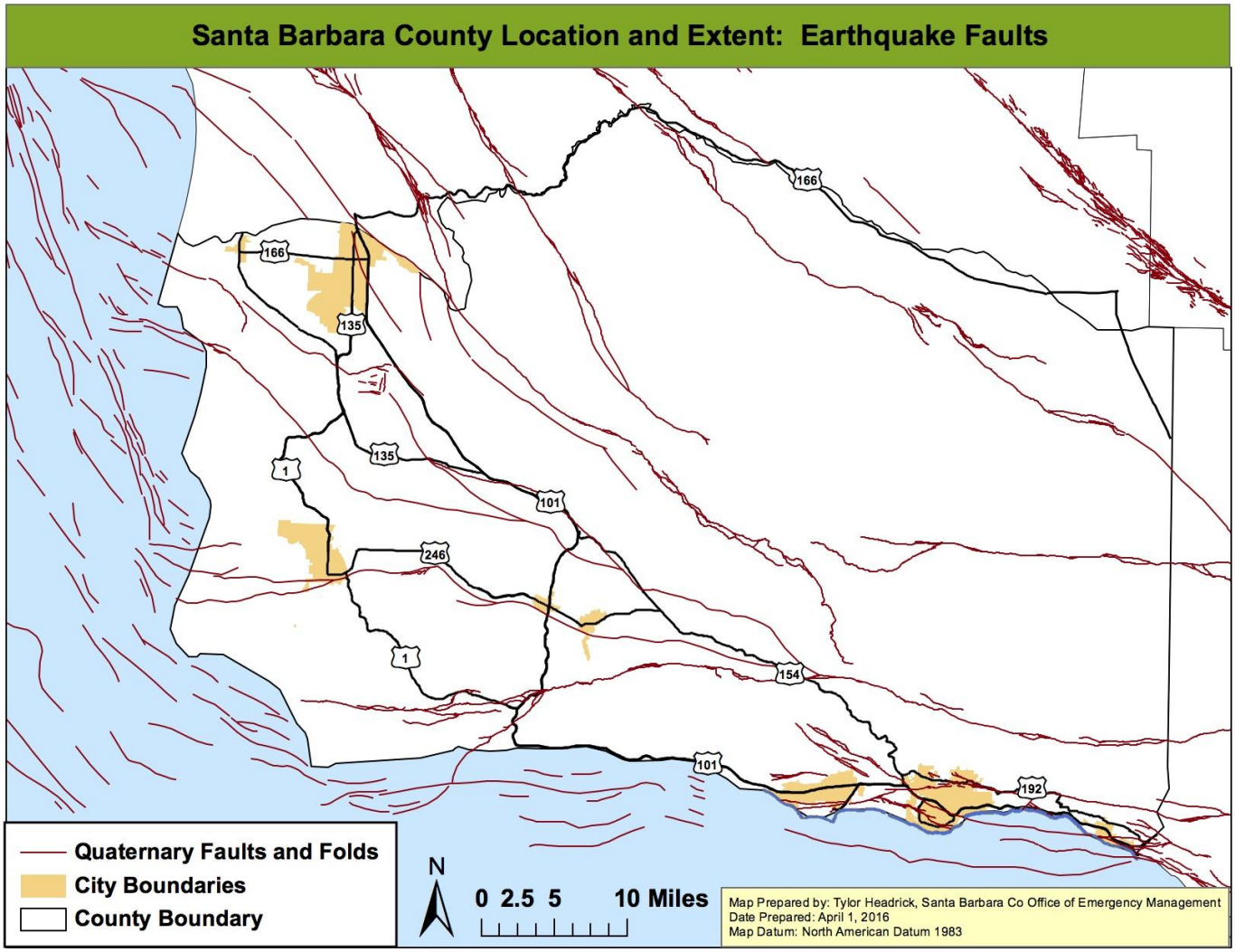
Peak ground acceleration (PGA) is a measure of the strength of ground shaking. Larger peak ground accelerations result in greater damage to structures. PGA is used to depict the risk of damage from future earthquakes by showing earthquake ground motions that have a specified probability (10%, 5%, or 2%) of being exceeded in 50 years return period. These values are often used for reference in construction design, and in assessing relative hazards when making economic and safety decisions.

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

5.3.2 Location and Extent of Hazard in Lompoc

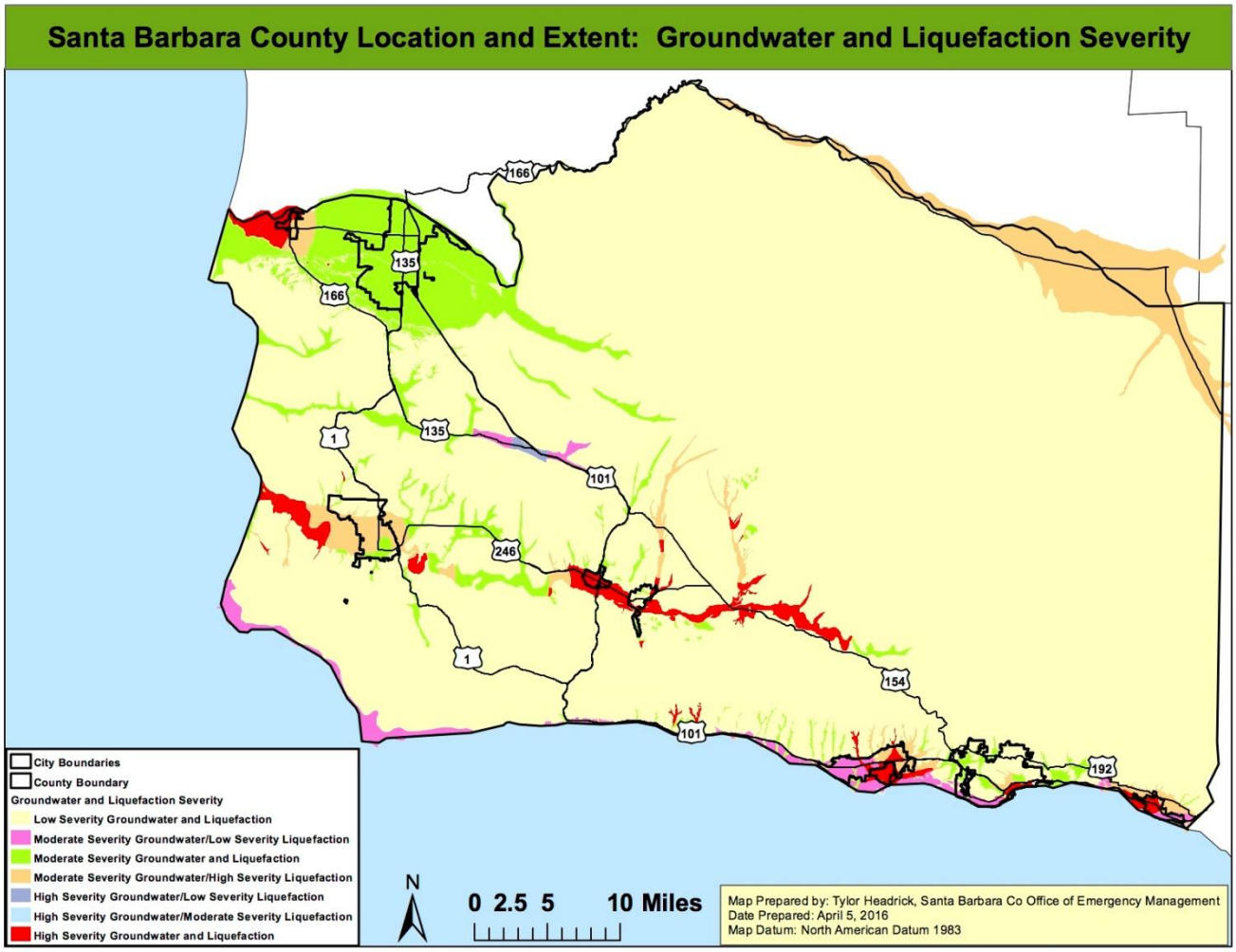
The City ranked the earthquake hazard as being a high impact, medium probability to the City. Lompoc is located in a high seismic activity zone. The City is located in the Transverse Range geologic province. Movement of continental plates manifest primarily along the San Andreas Fault system. The San Andreas fault is situated 7 miles northeast of Lompoc; active faults in the San Andreas Fault system that fall within Lompoc include the Nacimiento, Ozena, Suey, and Little Pine faults. Other active faults in the region include the Big Pine, Mesa, Santa Ynez, Graveyard-Turkey Trap, More Ranch, Pacifico, Santa Ynez, and Santa Rose Island faults. A map of faults in the Lompoc region is located in (**Figure 5.4**).

Figure 5.4 Earthquake Faults in Lompoc



After earthquakes, some regions may be prone to liquefaction. On level ground, liquefaction results in water rising to the ground surface. On sloping ground, liquefaction will usually result in slope failure. Liquefaction risk is considered high if there were soft soils (Types D or E) present. The National Earthquake Hazards Reduction Program (NEHRP) rates soils from hard to soft, and gives the soils ratings from Type A through Type E, with the hardest soils being Type A, and the softest soils rated at Type E. The majority of the soils in Lompoc are types A-C, with some areas having type D. There have been no Type E soils identified. Liquefaction risk is also determined by depth to groundwater. A map was generated indicating groundwater and liquefaction severity (**Figure 5.5**).

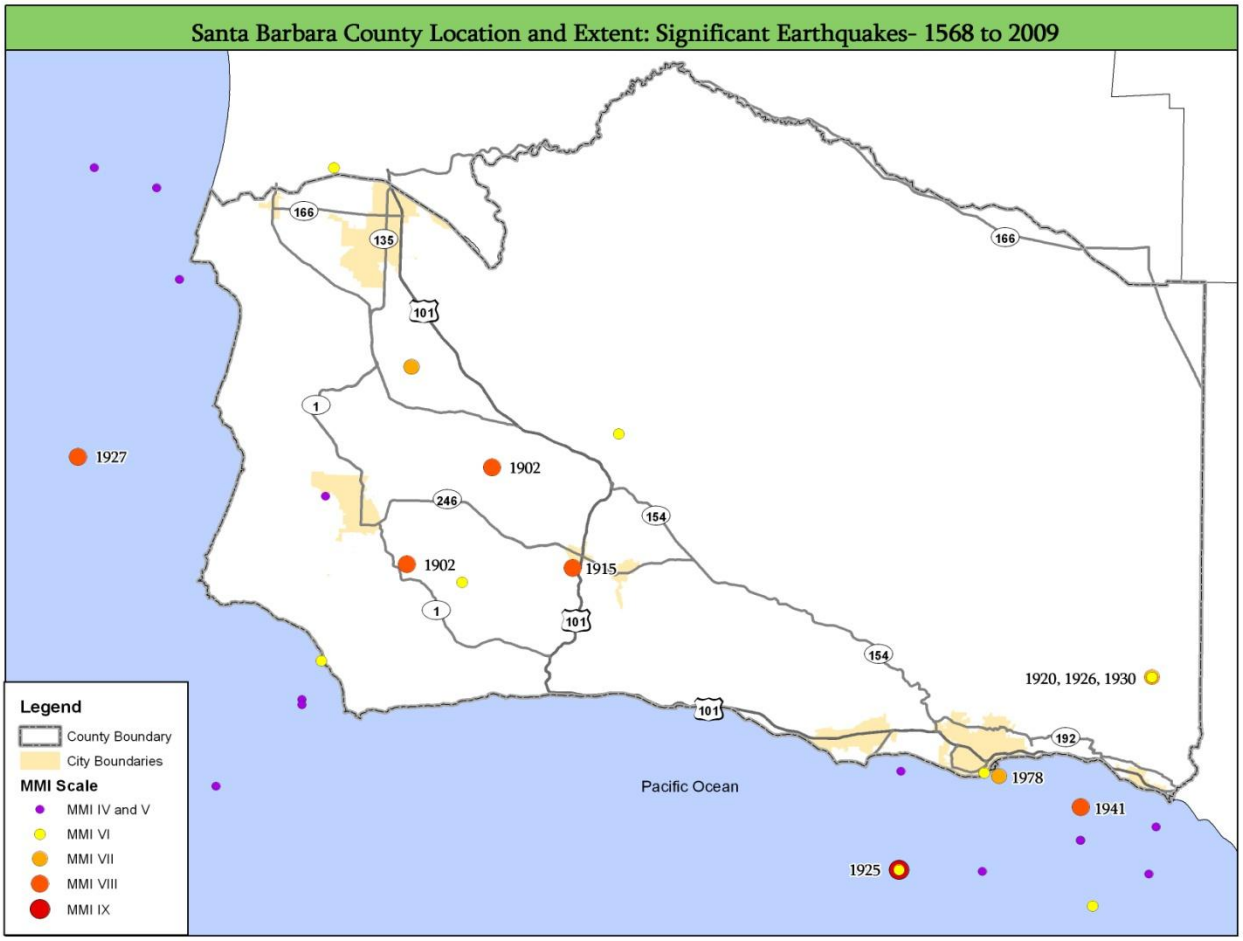
Figure 5.5 Groundwater and Liquefaction Severity



5.3.3 History of Hazard in Lompoc

Lompoc is located in a high seismic activity zone and as such has a long history of earthquakes. Although most seismic activity in California occurs along the San Andreas Fault system, most historic seismic events in the Lompoc region have been centered offshore on an east-west trending fault. The below map (**Figure 5.6**) displays historical epicenters of earthquakes located in the Lompoc area. The dates of the more significant earthquake events are provided adjacent to the epicenters.

Figure 5.6 Significant Earthquakes

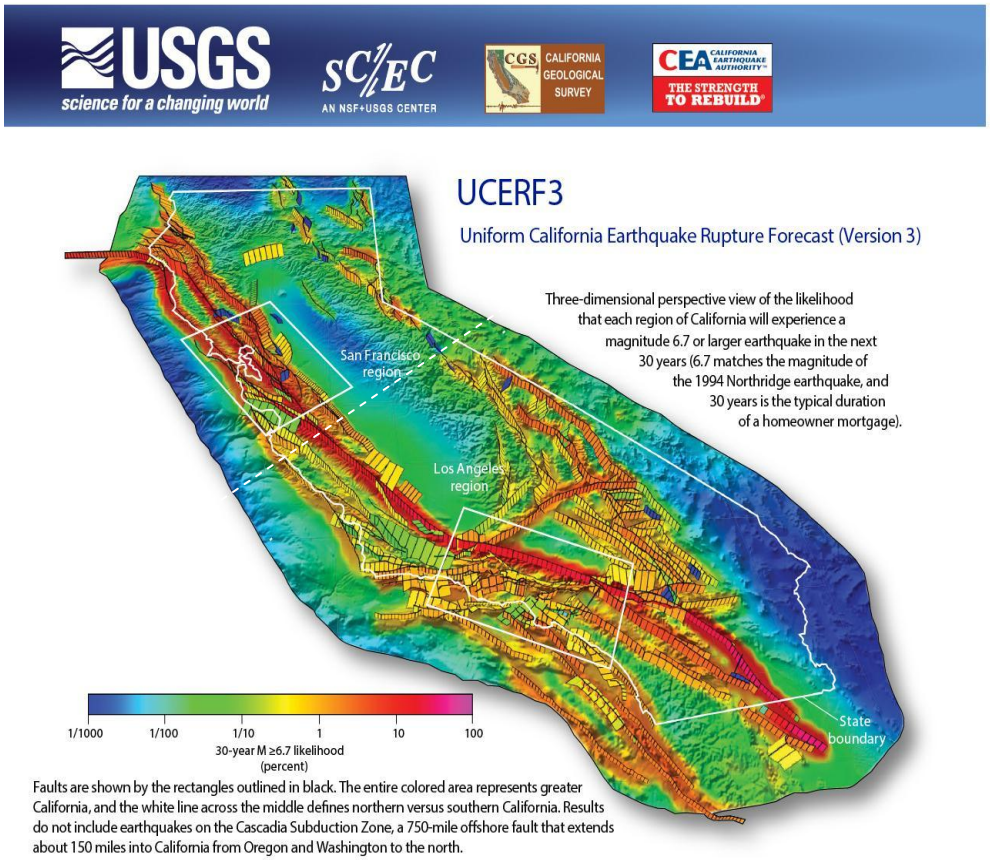


On December 22, 2003 at 11:15 in the morning a magnitude 6.5 earthquake struck the central California coast. The event, known as the San Simeon Earthquake, was located 11 kilometers northeast of San Simeon, and 39 kilometers west/northwest of Paso Robles. Although the San Simeon Earthquake had a more significant impact on San Luis Obispo County, the event was reportedly felt as a MMI VI in Guadalupe and Santa Maria and as a MMI V in Lompoc, Santa Ynez and Solvang. According to reports on the San Simeon earthquake by the U.S. Geological Survey and U.C. Berkeley Seismological Laboratory, two (2) people were killed, 40 people were injured, over 40 buildings collapsed or were severely damaged and more than 10,000 homes and businesses were without power. The most severe damage was to un-reinforced masonry (URM) structures that had not yet been retrofitted to better withstand earthquakes. In Lompoc, there was minor damage to more than 30 URM buildings.

5.3.4 Probability of Occurrence

The United States Geological Survey (USGS) and their partners, as part of the latest Uniform California Earthquake Rupture Forecast Version 3 (UCERF3; 2015), have estimated the chances of having large earthquakes throughout California over the next 30 years (**Figure 5.7**).

Figure 5.7 Rates for Earthquake of Magnitude 6.7 or Larger in the Next 30 years (USGS, 2015)



Statewide, the rate of earthquakes around Magnitude 6.7 (the size of the 1994 Northridge earthquake) has been estimated to be one per 6.3 years (more than 99% likelihood in the next 30 years); in southern California, the rate is one per 12 years (93% likelihood in the next 30 years). Southern California's rates are given in **Table 5.8**.

Table 5.8 Southern California Region Earthquake Likelihoods (UCERF3, 2015)

Magnitude (greater than or equal to)	Average Repeat Time (years)	30-year likelihood of one or more events
5	0.24	100%
6	2.3	100%
6.7	12	93%
7	25	75%
7.5	87	36%
8	522	7%

5.3.5 Climate Change Considerations

To date, no credible evidence has been provided that links climate to earthquakes; however, climate and weather does play a significant role in the response and recovery from earthquakes. Effects from climate change could create cascading complications and impacts.

5.4 Wildfire

5.4.1Description of Hazard

Wildfires can be classified as either a wildland fire or a wildland-urban interface (WUI) fire. The former involves situations where wildfire occurs in an area that is relatively undeveloped except for the possible existence of basic infrastructure such as roads and power lines. A WUI fire includes situations in which a wildfire enters an area that is developed with structures and other human developments. In WUI fires, the fire is fueled by both naturally occurring vegetation and the urban structural elements themselves. According to the National Fire Plan issued by the U.S. Departments of Agriculture and Interior, the wildland-urban interface is defined as "…the line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels."

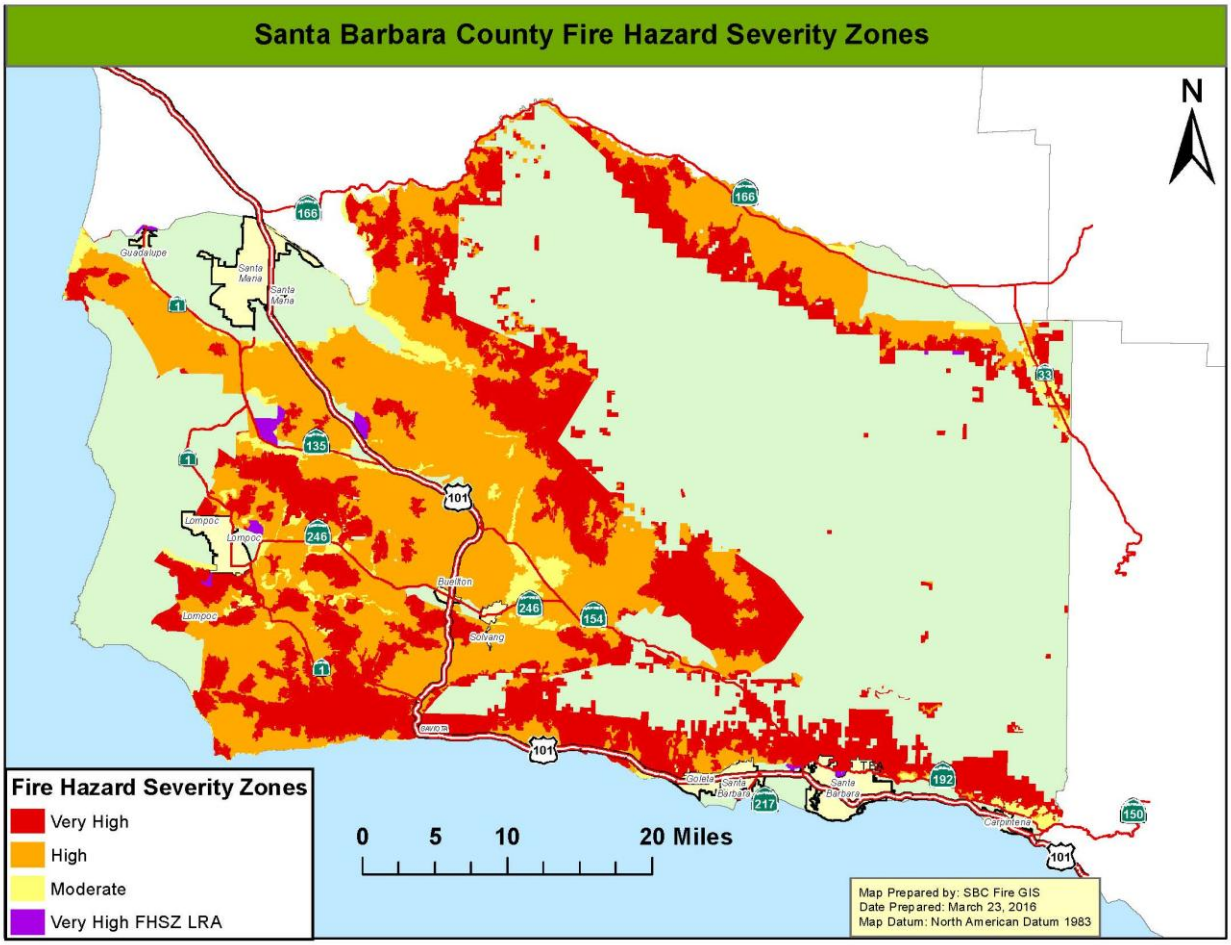
The WUI fire can be subdivided into three categories (NWUIFPP, 1998): The classic wildland-urban interface exists where well-defined urban and suburban development presses up against open expanses of wildland areas. The mixed wildland-urban interface is characterized by isolated homes, subdivisions, and small communities situated predominantly in wildland settings. The occluded wildland-urban interface exists where islands of wildland vegetation occur inside a largely urbanized area. Generally, many of the areas at risk within the Lompoc fall into the classic wildland-urban interface category.

Certain conditions must be present for a wildfire hazard to occur; a large source of fuel must be present, the weather must be conducive (generally hot, dry, and windy), and fire suppression sources must not be able to easily suppress and control the fire. The cause of a majority of wildfires is human-induced or lightning; however, once burning, wildfire behavior is based on three primary factors: fuel, topography, and weather. Fuel will affect the potential size and behavior of a wildfire depending on the amount present, its burning qualities (e.g. level of moisture), and its horizontal and vertical continuity. Topography affects the movement of air, and thus the fire, over the ground surface. The terrain can also change the speed at which the fire travels, and the ability of firefighters to reach and extinguish the fire. Weather as manifested in temperature, humidity and wind (both short and long term) affect the probability, severity, and duration of wildfires.

5.4.2 Location and Extent of Hazard in Lompoc

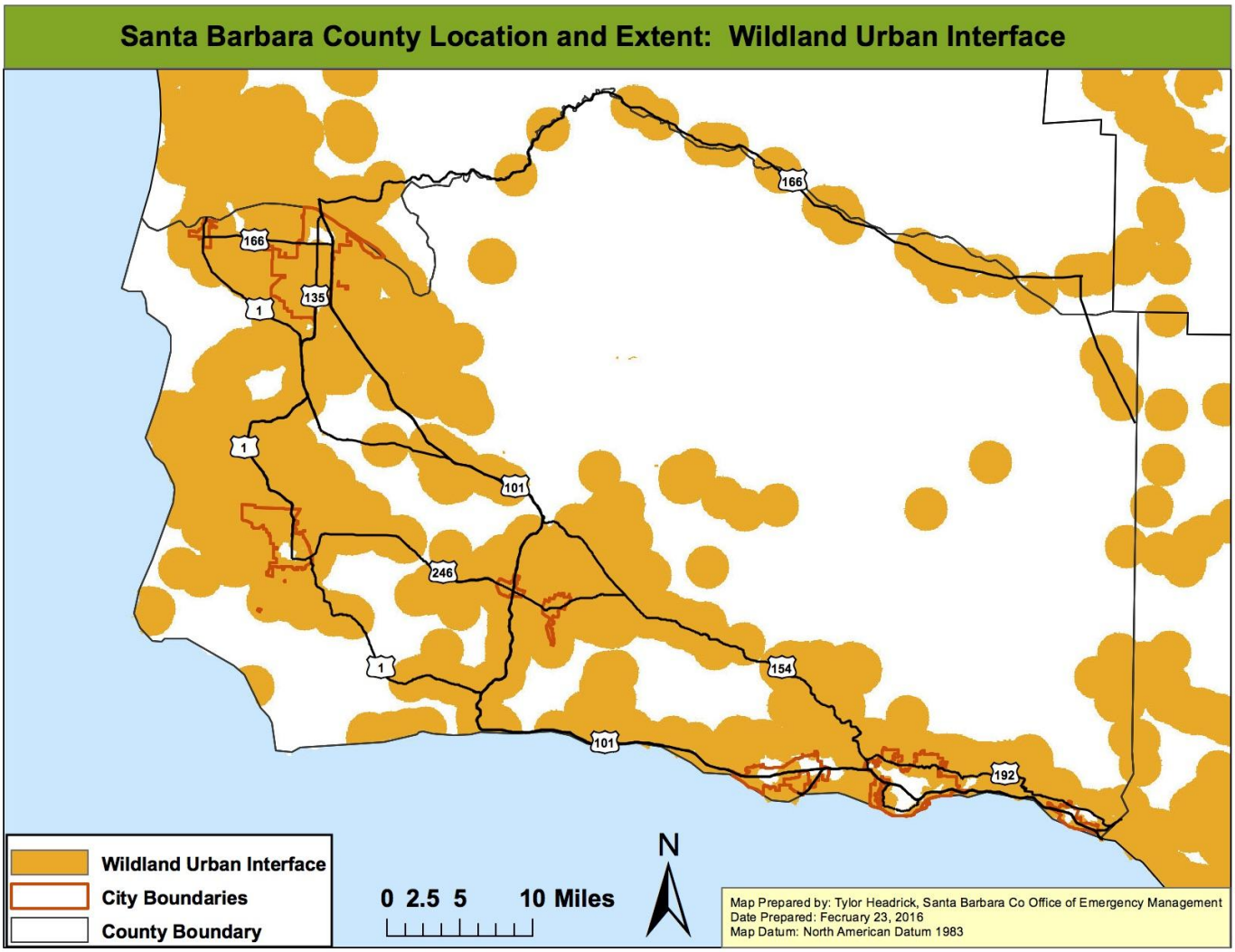
The City ranked the wildfire hazard as being a limited planning concern for the City. City officials continually ensure that future development is sited, designed, and constructed in a manner that will reduce future damages associated with natural hazards. The map **(Figure 5.9)** shows only the Fire Hazard Severity Zone in the Lompoc area.

Figure 5.9 Fire Hazard Severity Zones



CDF-FRAP developed data that displays the relative risk to areas of significant population density from wildfire. This data is created by intersecting residential housing unit density with proximate fire threat, to give a relative measure of potential loss of structures and threats to public safety from wildfire. The map (**Figure 5.10**) was generated using this data but shows only the WUI in Lompoc. The WUI map depicts areas where potential fuels treatments will be prioritized to reduce wildland fire threats.

Figure 5.10 Wildland-Urban Interface (WUI)



Fire representatives on the Local Planning Team acknowledge that the WUI data shown in Figure 5.10 was developed on a statewide basis and does not consider the placement of local neighborhoods within the geography. Lompoc Fire has synthesized the data at a more local level to convey communities at risk. To help protect people and their property from potential catastrophic wildfire, the National Fire Plan directs funding to be provided for projects designed to reduce the fire risks to communities. A fundamental step in achieving this goal was the identification of communities that are at high risk of damage from wildfire. These high risk communities identified within the WUI, were published in the Federal Register in 2001. At the request of Congress, the Federal Register notice only listed those communities neighboring federal lands. The list represents the collaborative work of the 50 states and five federal agencies using a standardized process, whereby states were asked to submit all communities within their borders that met the criteria of a structure at high risk from wildfire. The following list contains the federally regulated (communities which adjoin federal lands) communities at risk within Lompoc:

- Vandenberg Air Force Case
- Vandenberg Village
- Mission Hills

There are currently 2 communities on the Communities at Risk List in the Lompoc area. The California State Forester (CAL FIRE Director) has assigned the role of managing the list to the California Fire Alliance (Alliance). Communities that were not captured in any state or federally recognized list, but have been identified to be at risk include:

- Cebada Canyon
- Jalama

The figure (**Figure 5.11**) below provides an overview of the location of the Communities at Risk.

Figure 5.11 Communities at Risk

5.4.3 History of Hazard in Lompoc

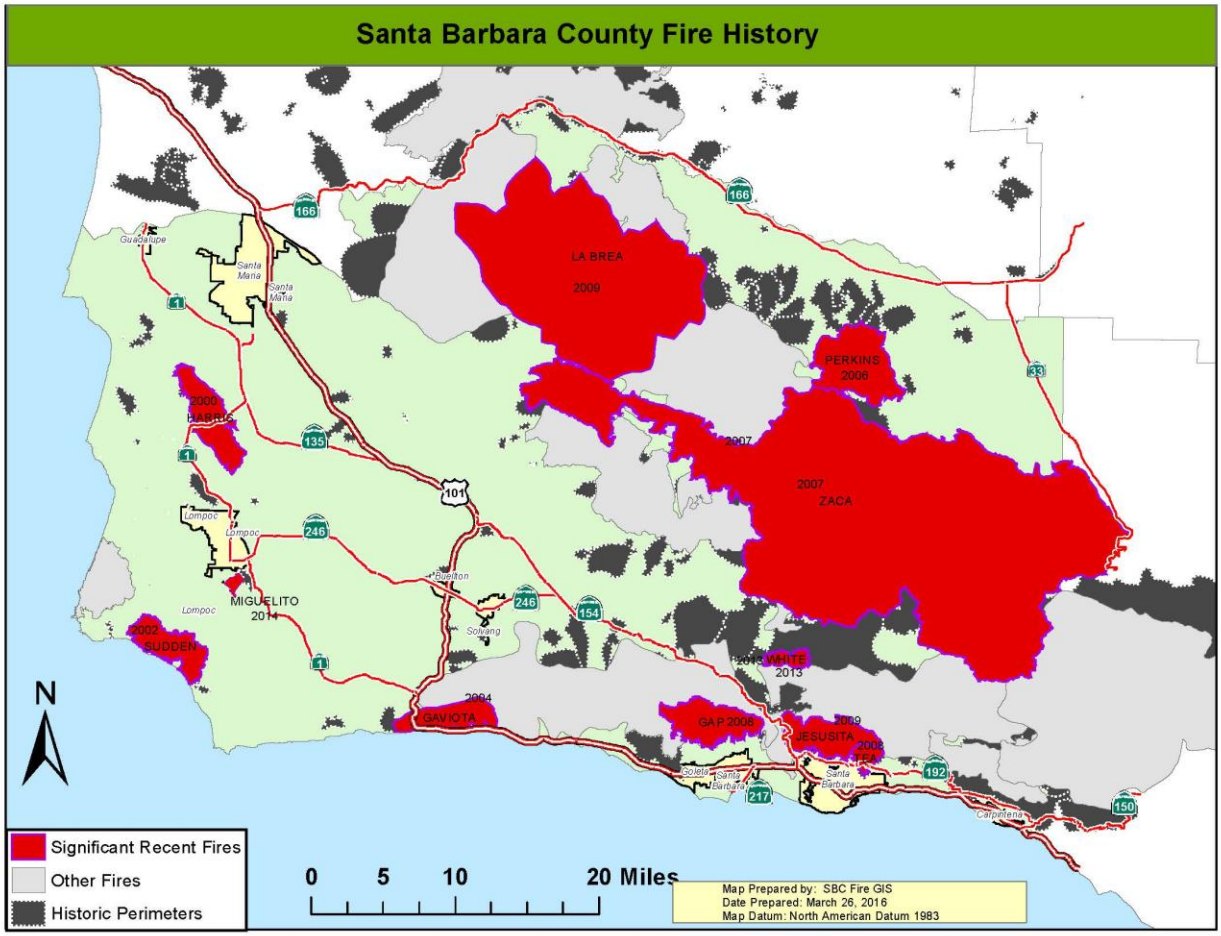
There have been only 3 recent wildfires adjacent to Lompoc. There have been no significant wildfires within the City. **Table 5.** lists the major wildfires impacted Lompoc from 2000-2015. There have been several wildland events occurring adjacent to Lompoc prior to 2000, but specific documentation is unavailable**.**

Table 5.5 Major Adjacent Wildfires in Lompoc

Year	Fire Name	Acres Burned
2000	Harris	8,684
2002	Sudden	7,500
2015	Miguelito	632

The CDF-FRAP compiles fire perimeters of wildfires and has established an on-going fire perimeter data capture process. The map below (**Figure 5.13**) shows historic, significant wildfire perimeters in Lompoc. Fire perimeters provide a reasonable view of the spatial distribution of past large fires.

Figure 5.13 Lompoc Area Fire History



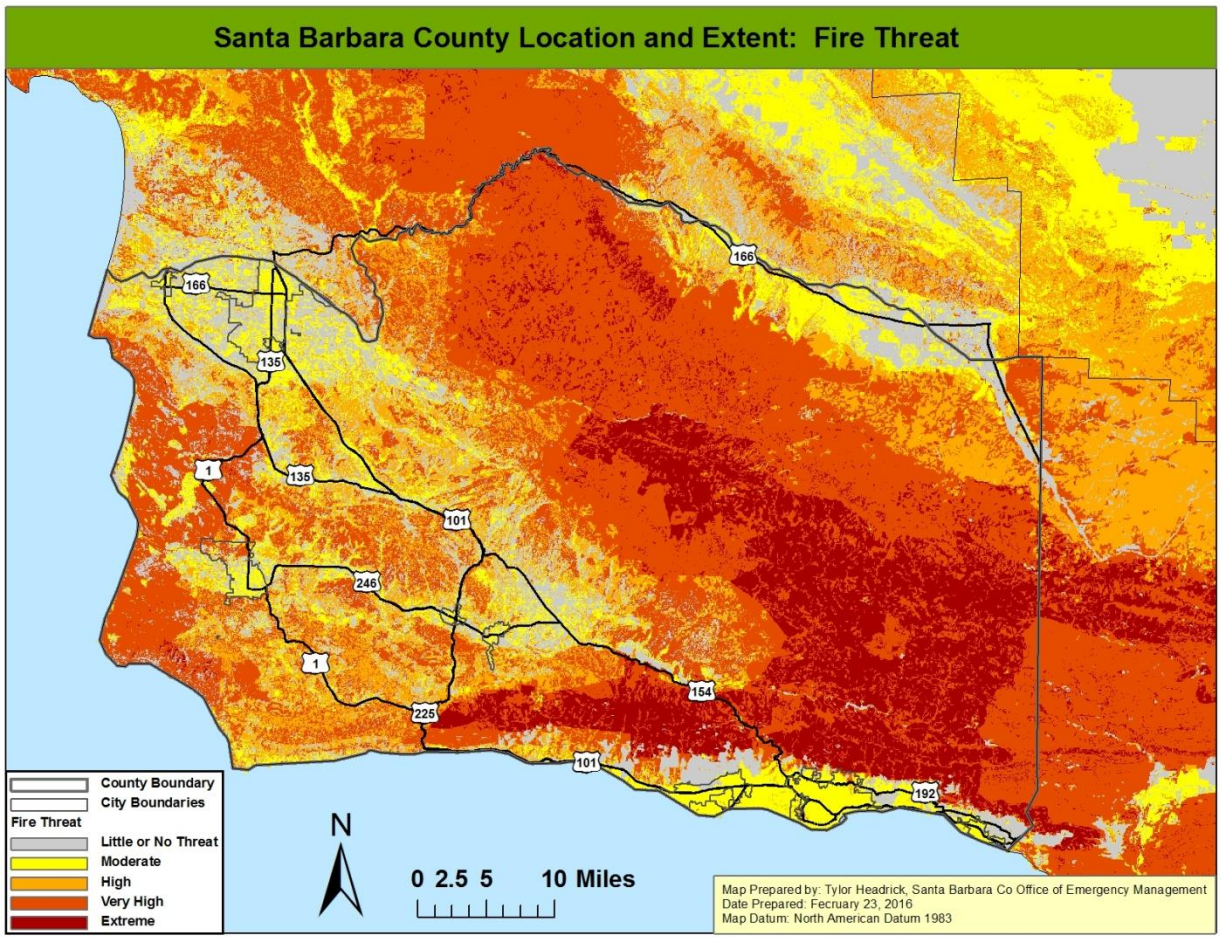
Over the last fifteen, Lompoc has been threatened by (3) major fires. The fires are the Harris, Sudden and Miguelito Fires. The fires did not directly threaten Lompoc, the smoke and ash produced created air quality issues for hundreds of miles. Recently the following wildfires threatened the Lompoc area.

- The Harris Wildfire burned 8,684 acres.
- The Sudden Wildfire charred 9,443 acres.
- The Miguelito Fire burned over 632 acres in the hills above the City of Lompoc.

5.4.4 Probability of Occurrence

Vegetation and topography were the significant elements in the identification of the fire threat zones. A substantial amount of the vegetation in Lompoc is commonly called chaparral; it is a dense and scrubby bush that has evolved to persist in a fire-prone habitat. Chaparral plants will eventually age and die; however, they will not be replaced by new growth until a fire rejuvenates the area. Chamise, Manzanita and ceanothus are all examples of chaparral which are quite common in Lompoc.

Figure 5.14 Fire Threat



5.4.5 Climate Change Considerations

Climate change plays a significant role in wildfire hazards. The changing conditions from wet to dry can create more fuel; the increased possibility of high winds increase risk and present a challenge, and drought conditions

could hinder ability to contain fires. Large wildfires also have several indirect effects beyond those of a smaller, local fire. These may include air quality and health issues, road closures, business closures, and other forms of losses. Furthermore, large wildfires increase the threat of other disasters such as landslide and flooding.

5.5 Flood

5.5.1 Description of Hazard

The City ranked the flooding hazard as being a medium impact, high probability event. A flood is a general and temporary condition of partial or complete inundation on land that is normally dry. Several factors determine the severity of floods, including rainfall intensity and duration, antecedent moisture conditions, surface permeability, and geographic characteristics of the watershed such as shape and slope. Other causes can include a ruptured dam or levee, rapid ice or snow melting in the mountains, under-engineered infrastructure, or even a poorly placed beaver dam can overwhelm a river or channel and send water spreading over adjacent land or floodplains.

A large amount of rainfall in a short time can result in flash flood conditions, as can a dam failure or other sudden spill. The National Weather Service's definition of a flash flood is a flood occurring in a watershed where the time of travel of the peak of flow from one end of the watershed to the other is less than six hours. Another form of flooding occurs when coastal storms produce large ocean waves that sweep across coastlines making landfall. Storm surges inundate coastal areas, destroy dunes, and cause flooding. If a storm surge occurs at the same time as high tide, the water height will be even greater. The City historically has been vulnerable to storm surge inundation associated with tropical storms and El Nino.

The City's Floodplain Ordinance requires all new construction be built at least 200 feet from the top of bank of the Santa Ynez River and all new buildings are constructed 2 feet above the flood zone. When new projects go through the City's approval process, the Planning Commission, City Council, and City Engineer ensure the wastewater treatment plant is protected from flooding inundation.

Erosion of the banks of the Santa Ynez River has become a significant concern within the City. The continual progression of bank erosion poses potential threats to adjacent residences, properties, and public streets. Additionally, continued bank erosion is anticipated to damage the Riverbend Park bikeway within the next one to two large (10-year recurrence interval) storms.

To address the concern of this progressing bank erosion, the City has engaged a consulting team specializing in riverbank stabilization, to evaluate the feasibility, cost, and other considerations for stabilizing this reach of riverbank. The City's consulting team led by Penfield & Smith has prepared concept-level designs, construction cost estimates, and Feasibility Studies that discuss project alternatives, environmental concerns, and design considerations. The City is currently seeking funding opportunities to complete design and construction of this project.

5.5.2 Location and Extent of Hazard in Lompoc

The geographical location, climate, and topography of Lompoc make the City prone to flooding. In regions such as Lompoc, without extended periods of below-freezing temperatures, floods usually occur during the season of highest precipitations or during heavy rainfalls after long dry spells. Additionally, due to the Mediterranean climate and the variability of rainfall, stream flow throughout the City is highly variable and directly impacted from rainfall. Watercourses can experience a high amount of sedimentation during wet years and high amounts of vegetative growth during dry and moderate years.

The drainages in the northern part of the City are characterized by high intensity, short duration runoff events.

Runoff from high intensity, short duration storm events can cause inundation of over bank areas, debris including sediment, rock, downed trees in the water that can plug culverts and bridges, erosion and sloughing of banks, and loss of channel capacity due to sedimentation.

5.5.3 History of Hazard in Lompoc

Flooding has been a major problem throughout Lompoc's history. Lompoc has several hydrologic basins that have different types of flooding problems, including over bank riverine flooding, flash floods, tidal flooding/tsunamis, and dam failure. The most common flooding in Lompoc is due to riverine flooding and flash flood events.

Between 1995 and 2014, Lompoc experienced 5 significant floods. Two of these floods received Presidential Disaster Declarations. **Table 5.6** lists these floods, as well as information concerning the nature of the flooding and the extent of the damages. It should be noted there may have been significant flooding prior to 1995. It should be noted that documentation of flooding prior to 1995 is not available.

Table 5.6 Historical Records of Recent Large Floods in Lompoc

Date	Damages	Source of Estimate	Comments
1995	Structure and Infrastructure damage Public and private damages were around $100 Million. Presidential Disaster Declaration	FEMA	Structures were reported flooded and/or damaged. Transportation in and out of Lompoc was cut off for several hours; some modes of transportation were not restored for several days.
2005	$2 million	NCDC	In Lompoc, flash flooding and mudslides closed down Highway 101 at Bates Road
January 26, 2011	Total Individual Assistance: $1,909,557 Total Public Assistance: $75,414,223 Countywide per capita impact: Lompoc- $9.43, Presidential Disaster Declaration	FEMA	Severe winter storms, flooding, and debris and mudflows occurred from December 17, 2010 to January 4, 2011. The counties affected include: Inyo, Kern, Kings, Orange, Riverside, San Bernardino, San Diego, San Luis Obispo, Santa Barbara and Tulare
March 2011	$1.7 Million	City Insurance Claims	A severe winter storm occurred in March 2011 that included flooding, debris and mudflows flows throughout Lompoc
March 1, 2014	$500k	Television Reports	A strong winter storm caused significant damage to coastal properties on the south coast of Lompoc. Coastal Damage; Goleta Pier partially closed.

While there is extensive detailed documentation of historical flood events in Lompoc, the following section provides a summary of the more recent significant flood events:

1995 Flood- The floods of 1995 brought widespread flooding to Lompoc. The most severe flooding occurred on the South Coast while the rest of the City was largely spared from serious damages. Estimated public and private damages were around $100 million and the area was declared a federal disaster area. (1995 Floods)

2005 Flood– A powerful Pacific storm tapped into a subtropical moisture source to produce heavy rain and flash flooding across Southwestern California. Overall, rainfall totals ranged from 4 to 8 inches over coastal areas to between 10 and 20 inches in the mountains. In Ventura County, State Route 150 was closed at the Dennison Grade due to flash flooding and mudslides. In Los Angeles County, numerous roadways were closed due to mudslide and flash flooding including Interstates 5 and 10, Highway 101 in Hollywood, North Topanga Canyon Road in the San Fernando Valley, Malibu Canyon Road near Malibu and East Colima Road in Walnut. In Lompoc, flash flooding and mudslides closed down Highway 101 at Bates Road. With such heavy rainfall, both the Santa Clara River and the Santa Ynez River exceeded their respective flood stages. In the mountains of Ventura and Los Angeles counties, resort areas received between 3 and 4 feet of new snowfall. Preliminary damage estimates from this storm range between $8-10 million with agricultural interests in Ventura accounting for most of the monetary damage.

2011 Flood- Severe winter storms, flooding, and debris and mudflows occurred from December 17, 2010 to January 4, 2011. The counties affected include: Inyo, Kern, Kings, Orange, Riverside, San Bernardino, San Diego, San Luis Obispo, Lompoc, and Tulare.

March 2011 Flood- A severe winter storm occurred in March 2011 that included flooding, debris and mudflows throughout Lompoc.

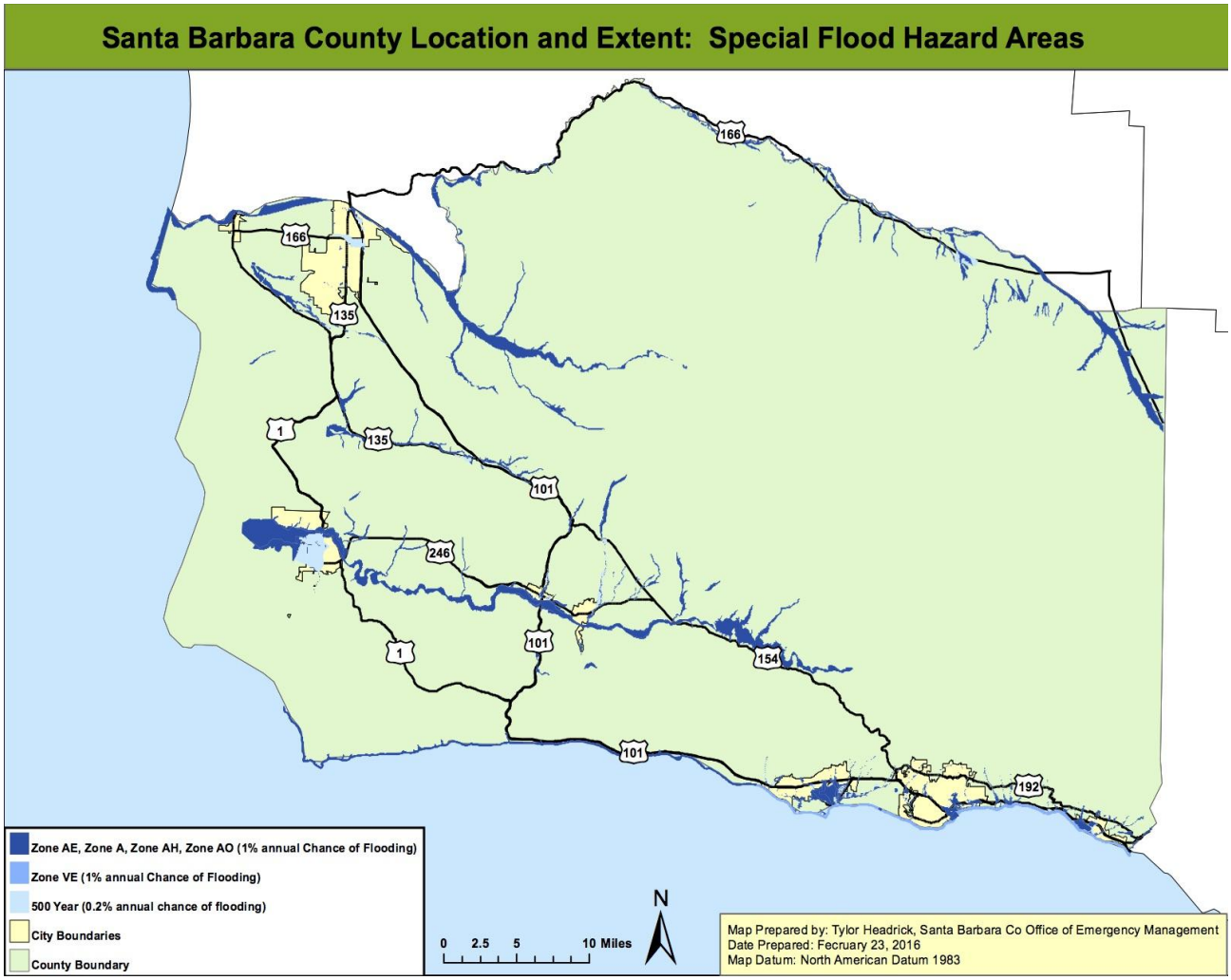
March 2014 Flood- A strong winter storm caused significant damage to coastal properties on the south coast of Lompoc

December 2014 Flood– A brief but intense rainfall, portions of which covered a limited area that exceeded a 200-year return period, caused damages county-wide, mostly in the form of downed trees, bank erosion and sediment and debris deposition.

5.5.4 Probability of Occurrence

The probability of flooding in Lompoc is shown in **Figure 5.15**. The map shows the location of the special flood hazard zones in Lompoc. The flood hazard zones depicted on the map are derived from FEMA's Flood Insurance Rate Maps (FIRM) and indicate the probability of flooding happening over a given period of time. Flood zones are geographic areas that defined varying levels of flood risk. Each zone reflects the severity or type of flooding in the area. The FIRM boundaries are developed by FEMA to convey flood risk.

Figure 5.15 Special Flood Hazard Area



Within the coastal special flood hazard area, there are two primary flood zones: Zone VE and Zone AE. Zone VE, also known as the Coastal High Hazard Area, has a wave component that is greater than three feet in height. Coastal Zone AE has a wave component of 0-3 feet in height.

The Federal Emergency Management Agency is conducting a coastal flood study for Lompoc as part of the California Coastal Analysis and Mapping Project. Results from this Open Pacific Coast Study will produce flood and wave data for the National Flood Insurance Program, Flood Insurance Study reports, and regulatory Flood Insurance Rate Map panels. 1

This coastal study will result in floodplain mapping that is anticipated to become effective in 2018. Current indications are that the resulting base flood elevations will be several feet higher than the current flood mapping.

5.5.5 Climate Change Consideration

Climate change is both a present threat and a slow-onset disaster. It acts as an amplifier of existing hazards. Extreme weather events have become more frequent over the past 40 to 50 years and this trend is projected

[1] Source: FEMA; Lompoc, California Open Pacific Coast Study, California Coastal Analysis and Mapping Project, April 2016

to continue. Rising sea levels, changes in rainfall distribution and intensity are expected to have a significant impact on coastal communities, including portions of Lompoc. This section presents a discussion of how climate change might impact the frequency, intensity and distribution of flood hazards.

5.5.6 Climate-related Hazards

This section assesses hazards that are related to climate and weather. NASA defines weather as the way the atmosphere is behaving, mainly with respect to its effects upon life and human activities. The difference between weather and climate is that weather consists of the short-term (minutes to months) changes in the atmosphere. Most people think of weather in terms of temperature, humidity, precipitation, cloudiness, brightness, visibility, wind, and atmospheric pressure, as in high and low pressure. In most places, weather can change from minute-to-minute, hour-to-hour, day-to-day, and season-to season. Climate, however, is the average of weather over time and space. Fifty-eight long-term changes in the climate, especially those driven by the accumulation of anthropogenic greenhouse gases in the atmosphere, are expected to change short-term weather patterns and thus change weather-related impacts, both short- and long-term. Most prominently, climate change is warming the average global temperatures, which will result in more frequent and intense extreme events related to changes in temperature and precipitation, such as heat waves, flooding. In the State Hazard Mitigation Plan, climate change is treated as a condition that will change and potentially exacerbate the impact of other hazards rather than being treated as a distinct hazard with unique impacts. For example, extreme heat and heat waves is an existing hazard that will be exacerbated by climate change. Impacts of climate change on the frequency, timing, and magnitude of flooding varies with the geography throughout the state. Areas that experience early run off from snow melt coupled with intensified rain or coastal areas experiencing sea level rise may be more greatly impacted by flooding. Hazards that have the potential to be affected by climate change are grouped in this subsection.

5.6 Drought and Water Shortages

5.6.1 Description of Hazard

Drought and water shortages are a gradual phenomenon and generally are not signified by one or two dry years. California's and Lompoc's extensive system of water supply infrastructure (reservoirs, groundwater basins, and interregional conveyance facilities) generally mitigates the effects of short-term dry periods for most water users. However, drought conditions are present when a region receives below-average precipitation, resulting in prolonged shortages in its water supply, whether atmospheric, surface, or ground water. A drought can last for months or years, or may be declared after as few as 15 days.

It should be noted that during fiscal year 2015/2016 $144,269, of general funds, was spent on water conservation efforts.

5.6.2 Location and Extent of Hazard in Lompoc

The entire City is subject to drought conditions and water shortages.

5.6.3 History of Hazard in Lompoc

Lompoc has had three (3) State and/or federally declared drought disasters since 1950; in 1990, 1991, and 2001. The state of California and Lompoc are currently in a drought. The average rainfall in Lompoc is 17.6 inches; however, since 2016, Lompoc has experienced significantly less than normal rainfall.

5.6.4 Probability of Occurrence

2016 is the fifth year of below average rainfall. Earlier droughts would cycle on an approximate 10 year basis. However, that historic cycle has been altered due to the impacts of climate change. It is difficult to accurately

predict probability of drought occurrence with any accuracy.

5.6.5 Climate Change Considerations
This entire section is dedicated to climate change hazards, and as such, is focused on climate change's effects on the community. However, it is important to highlight climate change's potential direct impact.

Climate change has the potential to make drought events more common in the West, including California. Extreme heat creates conditions more conducive for evaporation of moisture from the ground, thereby increasing the possibility of drought. A warming planet could lead to earlier melting of winter snow packs, leaving lower stream flows and drier conditions in the late spring and summer. Snow packs are important in terms of providing water storage and ensuring adequate supply in the summer, when water is most needed. Changing precipitation distribution and intensity have the potential to cause more of the precipitation that does fall to run-off rather than be stored. The result of these processes is an increased potential for more frequent and more severe periods of drought.

5.7 Dam Failure

5.7.1 Description of Hazard
Dams fail due to old age, poor design, structural damage, improper siting, landslides flowing into a reservoir, or terrorist actions. Structural damage is often a result of a flood, erosion, or earthquake. A catastrophic dam failure could inundate the area downstream. The force of the water is large enough to carry boulders, trees, automobiles, and even houses along a destructive path downstream. The potential for casualties, environmental damage, and economic loss is great. Damage to electric generating facilities and transmission lines could impact life support systems in communities outside the immediate hazard area.

5.7.2 History of Hazard in Lompoc
The City ranked the dam failure hazard as being a limited risk to the City. The State of California and the federal government have a rigorous Dam Safety Program. This is a proactive program that ensures proper planning in the event of failure but also sets standards for dam design and maintenance. Because of this, many potential issues have been addressed and/or resolved.

5. 7.3 Location and Extent of Hazard in Lompoc
The City of Lompoc lies approximately 33 miles west of the Bradbury Dam and the City sits along the Santa Ynez River. If the dam were to fail, the City of Lompoc could sustain substantial flooding via the Santa Ynez River. It has been established that the Bradbury Dam has been mapped for inundation.

5. 7.4 Probability of Occurrence
Dam failure events are infrequent and usually coincide with the events that cause them, such as earthquakes, landslides and excessive rainfall and snowmelt. There is a "residual risk" associated with dams; residual risk is the risk that remains after safeguards have been implemented. For dams, the residual risk is associated with events beyond those that the facility was designed to withstand. However, the probability of occurrence of any type of dam failure event is considered to be low in today's regulatory and dam safety oversight environment.

5.7.5 Climate Change Considerations
Increased rainfall from changing climate conditions could present a risk to dams in Lompoc if volume of runoff is greater than the dam's capacity. This could cause the county to release stored water into the downstream water courses in order to ensure the integrity of the dam.

SECTION 6 CITY OF LOMPOC VULNERABILITY ASSESSMENT

6. 0 Overview

The purpose of this section is to estimate the potential vulnerability (impacts) of hazards within the city on the built environment (residential, non-residential, critical facilities, etc.) and population. To accomplish this, three (3) different approaches will be used: 1) application of scientific loss estimation models; 2) analysis of exposure of critical facilities to hazards; and 3) a qualitative estimate of the impacts to hazards. It is important to note that the first two approaches can only be applied to hazards that have an exposure area (footprint). For those hazards where an exposure layer does not exist, a brief qualitative assessment of the potential vulnerability will be presented. This will be done for hazards that can occur anywhere within the city.

6.1 Scientific Loss Estimation Models

The scientific loss estimation modeling efforts will include the utilization of the Federal Emergency Management Agency (FEMA) Hazus-MH 3.0 model. Hazus-MH is a nationally applicable standardized methodology that estimates potential losses from earthquakes, hurricane winds and floods. Hazus-MH uses state-of-the-art Geographic Information Systems (GIS) software to map and display hazard data and the results of damage and economic loss estimates for buildings and infrastructure. It also allows users to estimate the impacts of earthquakes, hurricane winds and floods on populations. Estimating losses is essential to decision-making at all levels of government, providing a basis for developing mitigation plans and policies, emergency preparedness and response and recovery planning. This modeling is limited to Earthquake and Flood hazards only.

Hazus standard configuration allows for “out-of-the-box” regional or community-wide loss assessment using default (“Level 1) building inventory databases, aggregated to the census tract (earthquake) or census block (flood) level. A summary of Hazus default building inventory data for City of Lompoc are given in **Table 6-1** (by general occupancy) and **Table 6-2** (by general building type). The distribution of buildings across the various construction classes given in Table 2 is estimated using Hazus default relationships (e.g., x percent of offices may be built of concrete frame, y percent of offices may be built of reinforced masonry, etc.). The actual distribution of building across these construction types may be different. For example, the California Seismic Safety Commission (CSSC) published results of unreinforced masonry building surveys (CSSC, 2006), which indicate that the 23 URM buildings in the City of Lompoc have been retrofitted (vs. 185 URM buildings predicted by the default database).

Table 6-1: Hazus-MH 3.0 City of Lompoc

Building Inventory Information by General Occupancy	Building Replacement Value ($1,000)	Contents Replacement Value ($1,000)	Building Square Footage(1,000 Sq. Ft.)	Estimated Building Count
Residential	$2,529,435	$1,265,024	18,277	9,451
Commercial	$394,873	$441,400	2,291	566
Industrial	$50,229	$68,698	358	98
Other	$120,434	$122,735	715	160
TOTAL	**$3,094,971**	**$1,897,857**	**21,641**	**10,275**

Table 6-2: Hazus-MH 3.0 Default Building Inventory Data for Lompoc 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	$184,687	6.0%	221	2%
Manufactured Housing	$47,746	1.5%	919	9%
Precast Concrete	$84,329	2.7%	139	1%
Reinforced Masonry	$213,351	6.9%	322	3%
Steel	$164,170	5.3%	213	2%
Unreinforced Masonry	$44,411	1.4%	68	1%
Wood Frame (Other)	$103,984	3.4%	146	1%
Wood Frame (Single-family)	$2,252,290	72.8%	8,250	80%
TOTAL	**$3,094,968**		**10,278**	

Table 6-3 provides a summary of the Hazus-MH essential facilities default data (police stations and public schools) for Lompoc. The Hazus-MH essential facilities default data for fire station was augmented to account for a significant number of missing facilities for City of Lompoc. Table **6-3** also indicates the construction type and design level assumed by Hazus-MH for these facilities; all are assumed to be wood frame of either High or Moderate code design level. A more accurate risk assessment could be conducted if additional facility information was collected, such as structural system, number of stories, year of construction/seismic code used for design, building square footage, building replacement value, and content replacement value. It should be noted that the Hazus-MH default database represents each school campus with a single building record of an assumed construction type. In reality, most public schools are multi-building campuses, built over a period of years (i.e., buildings may be designed to different seismic codes). To improve the risk assessment for public schools, information on each individual building would need to be collected.

Table6-3: Hazus-MH 3.0 Default Essential Facilities Data for City of Lompoc

Essential Facility Type	HAZUS-MH Default Structural Class and Design Level	Lompoc
Fire Stations	W1 (Wood Frame ≤ 5,000Sq.Ft.), Moderate Code Design Level	2
Police Stations	W1 (Wood Frame ≤ 5,000Sq.Ft.), Moderate Code Design Level	1

The lifeline inventory within HAZUS-MH is divided between transportation and utility lifeline systems. There are seven transportation systems that include highways, railways, light rail, buses, ports, ferries and airports; and six utility systems that include potable water, wastewater, natural gas, crude & refined oil, electric power, and communications. The lifeline inventory data are provided in **Tables 6-4** and **Table 6-5**.

Table 6-4: Transportation System Lifeline Inventory

System	Component	# Locations/ # Segments	Replacement value (millions of dollars)
Roads	*Bridges*	**4**	***40.000,000***
	Roads Roads, Storm Drain, curb & gutter, sidewalk, pedestrian bridges, Class I Bike Paths, curb ramps, traffic signals and traffic signs.	City Limits	***165,800,000***
		Subtotal	**205,800,000**
Bus	*Facilities*	2	***811,600***
		Subtotal	***811,600***
Airport	*Facilities*	9	***2,801,034***
	Runways		
		Subtotal	***2,801,034***
		Subtotal	
TOTAL			**$209,412,634**

Table 6-5: Utility System Lifeline Inventory

System	Component	# Locations / Segments	Replacement value (millions of dollars)
Potable Water	*Facilities*	*23*	***$29,930,095***
		Subtotal	***$29,930,095***
Waste Water	*Facilities*	*30*	***70,135,200***
		Subtotal	***70,135,200***
Electrical Power	*Facilities*	*4*	***4,625,897***
		Subtotal	***4,625,897***
			5.00
		TOTAL	**$104,691,192**

6.2 Analysis of Exposure of Critical Facilities to Hazards

The Local Planning Team reviewed and updated its list critical facilities and a generated a summary of the facilities by major categories: Law, Fire, Public Works, Utility City Hall, and Other (**Table 6-6**). This list of critical facilities presents the buildings and structures that are the Cities' primary concern for ensuring resiliency; they include both City owned or operated facilities as well as some privately owned and operated facilities. Information for City owned or operated facilities (building replacement cost and building content costs) were reviewed and updated as needed; where available the same information was reviewed and updated for the privately owned or operated facilities.

Using Geographic Information Systems (GIS) software, each critical facility was geolocated on maps to illustrate the geographic location of each facility. Based on each facility's geolocatation, GIS software was then used to identify facilities within the hazard exposure area (footprint). The results were a map and a table summarizing the total number of exposed critical facilities by the major categories; and a total of the building replacement cost and building content costs for city owned or operated facilities. This approach was done for Wildfire, Sea Level Rise, Dam Failure, Tsunami, Landslides/Earth Movements, Climate-related (some), and Levee Failure.

Table 6-6 Critical Facilities in City of Lompoc

Category of Facility	Total Structures	Total Worth	Contents Total
City Hall	1	9,389,488	3,503,388
Police Station	1	6,922,073	2,433,673
Fire	2	2,733,700	383,900
Water Treatment	19	20,623700	5,963,400
Water Reservoirs	4	8,706,395	268,795
Waste Water Treatment	30	70,136,200	24,948,800
Electrical Power	4	4,625,897	3,074,574
Library	1	7,567,600	2,461,400
Airport	9	2,801,034	192,500
Public Works	9	11,981,100	3,804,000
Bus	2	811,600	240,000
Other	37	33,044,495	2,979,795
Total Value	**117**	**$178,531,682**	**$50,014,225**

6.3 Qualitative Estimate of Impacts

The approach used to complete this effort involves utilizing readily available data (i.e., Census) to extrapolate and estimate potential vulnerability. In some cases, the estimation will build upon historic events but it may also include projecting worst case potentials. The Local Planning Team summarized the remaining hazards which the City is vulnerable and assessed the amount and type of damage that could be expected. This approach was done for Droughts/Water Shortage, Flooding, Earthquake, and Wildfire.

6.4 Scientific Loss Estimation Analysis

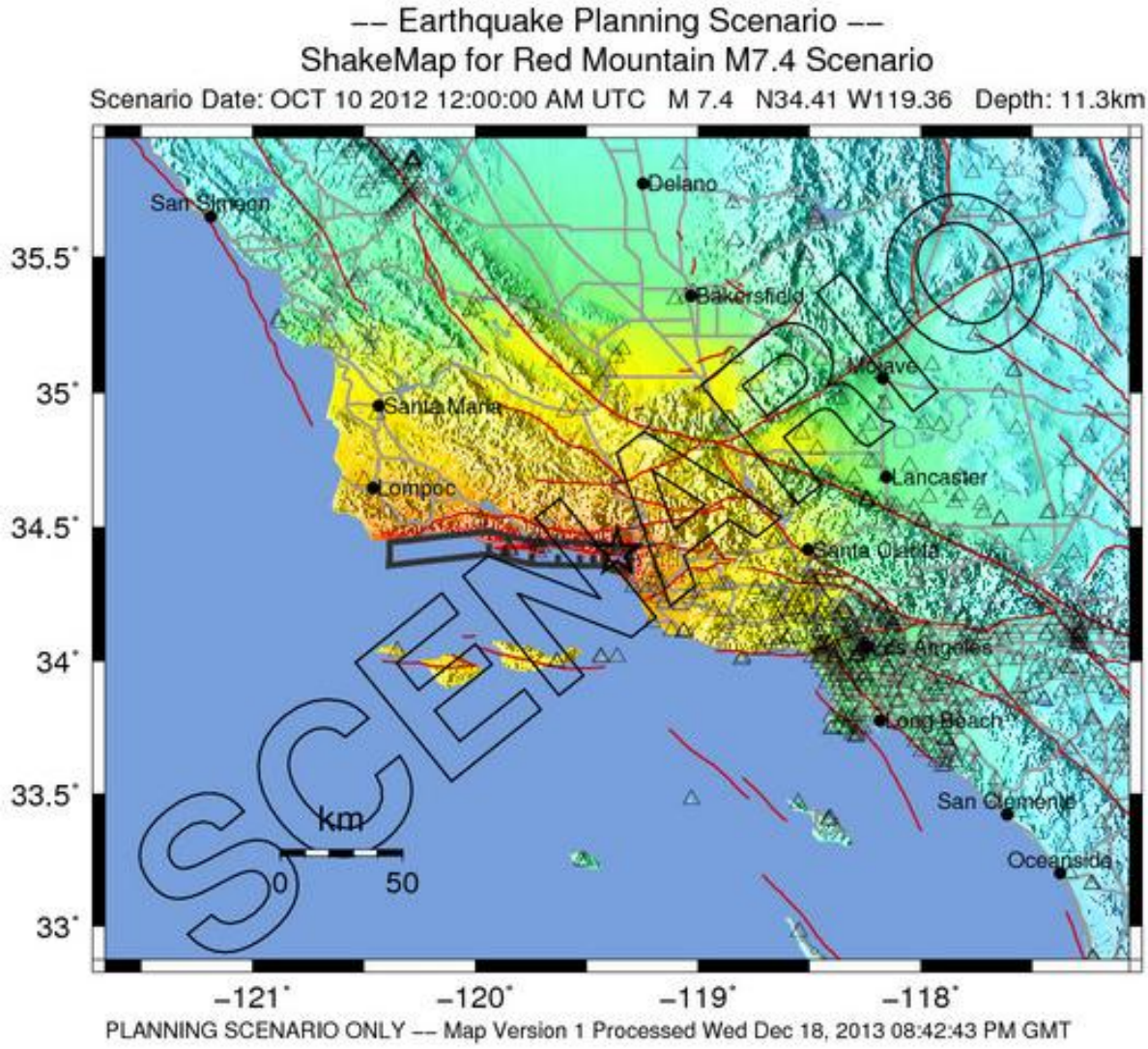
6.4.1 Earthquake and Liquefaction (High Impact/Medium Probability)

The entire geography of Lompoc is exposed to some risk of shaking from an earthquake. The many fault lines, soil types, and construction types lead to a complicated assessment of vulnerability to earthquake. However, most of the land-based faults are either inactive or potentially active.

6.4.1.1 HAZUS-MH Earthquake Risk Assessment

Two earthquake scenarios developed by the United States Geological Survey (USGS), as shown in **Figure 6.1** and **Figure 6.2**, were selected to assess the range of impacts. County-level maps of ground shaking for the same scenarios are shown in **Figure 6.3** and **Figure 6.4**.

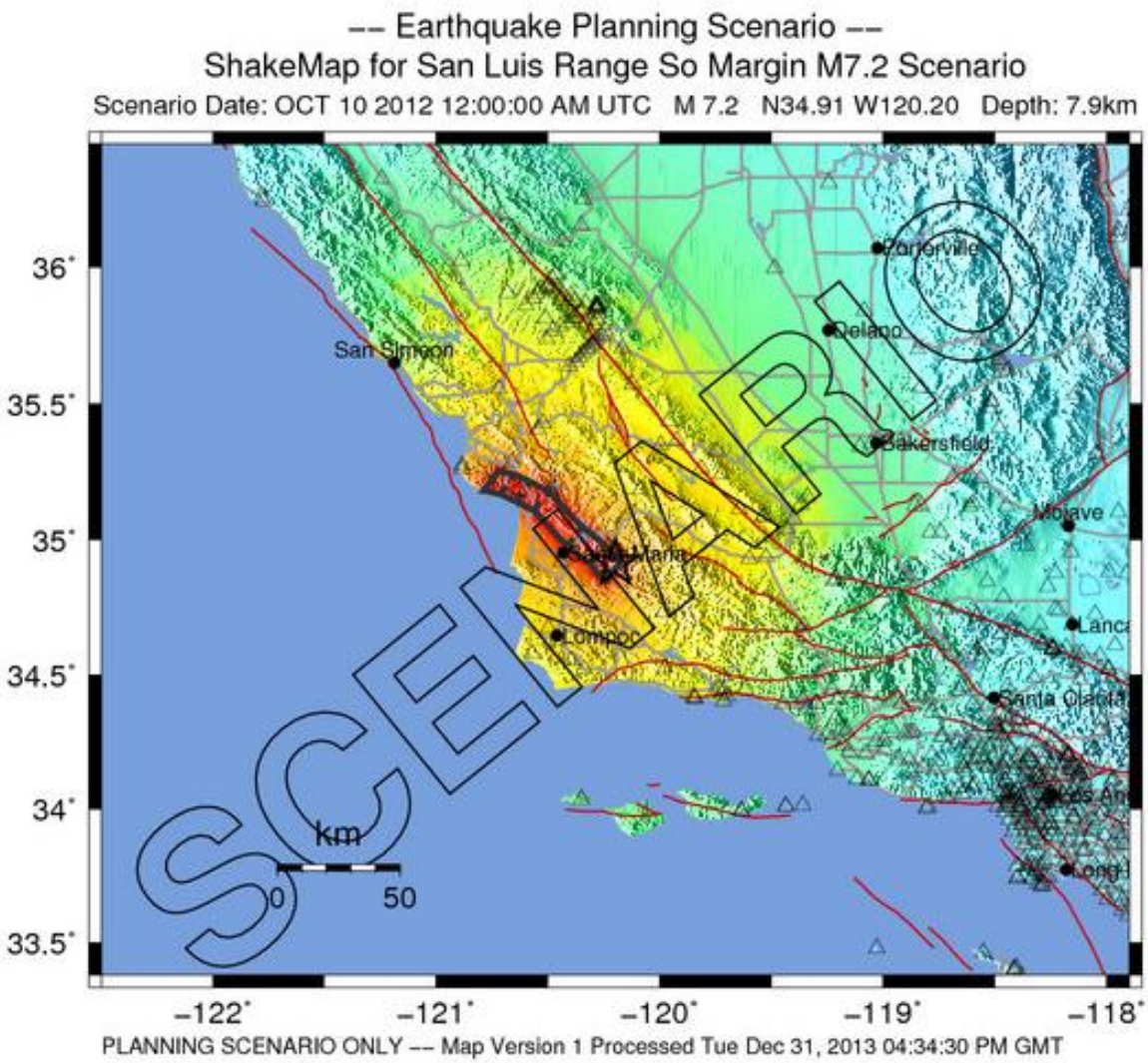
Figure 6.1: Scenario 1 – M7.4 Earthquake on the Red Mountain Fault



PERCEIVED SHAKING	Not felt	Weak	Light	Moderate	Strong	Very strong	Severe	Violent	Extreme
POTENTIAL DAMAGE	none	none	none	Very light	Light	Moderate	Mod./Heavy	Heavy	Very Heavy
PEAK ACC.(%g)	<0.1	0.5	2.4	6.7	13	24	44	83	>156
PEAK VEL.(cm/s)	<0.07	0.4	1.9	5.8	11	22	43	83	>160
INSTRUMENTAL INTENSITY	I	II–III	IV	V	VI	VII	VIII	IX	X+

Scale based upon Wald, et al.; 1999

Figure 6-2 Scenario 2 M7.2 Earthquake on the San Luis Range Fault, South Margin



PERCEIVED SHAKING	Not felt	Weak	Light	Moderate	Strong	Very strong	Severe	Violent	Extreme
POTENTIAL DAMAGE	none	none	none	Very light	Light	Moderate	Mod./Heavy	Heavy	Very Heavy
PEAK ACC.(%g)	*<0.1*	*0.5*	*2.4*	*6.7*	*13*	24	44	83	>156
PEAK VEL.(cm/s)	<0.07	0.4	1.9	5.8	*11*	*22*	*43*	*83*	*>160*
INSTRUMENTAL INTENSITY	I	II–III	IV	V	VI	VII	VIII	IX	X+

Scale based upon Wald, et al.; 1999

Figure 6.3: USGS Shake Map Ground Motions for Lompoc for a M7.4 Earthquake on the Red Mountain Fault (Scenario 1)

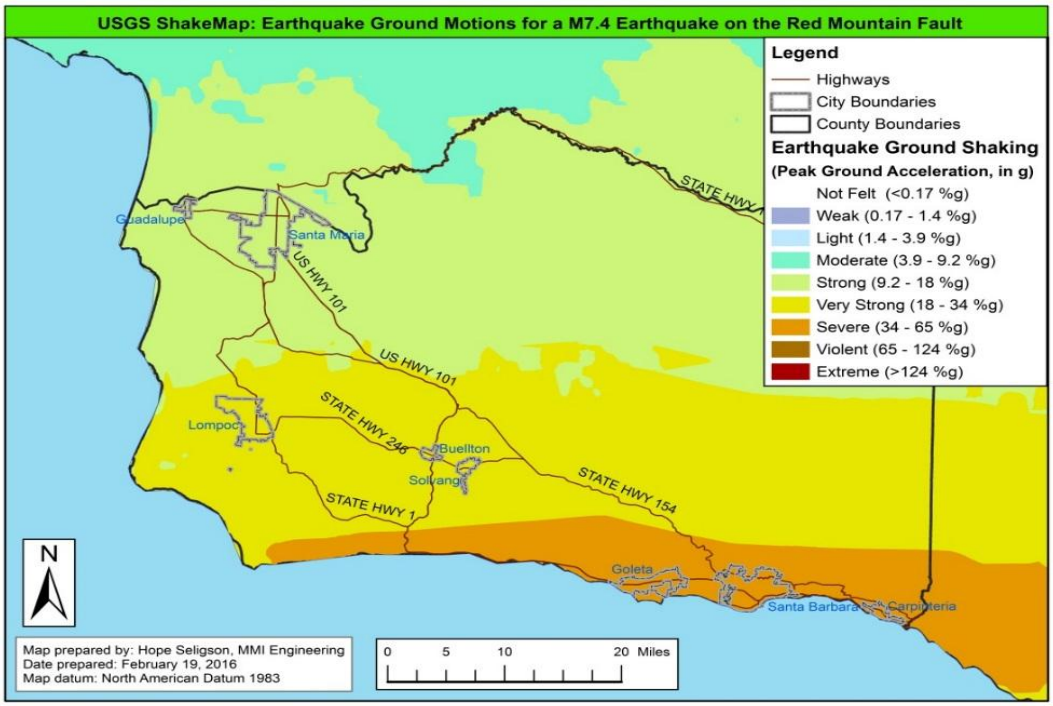
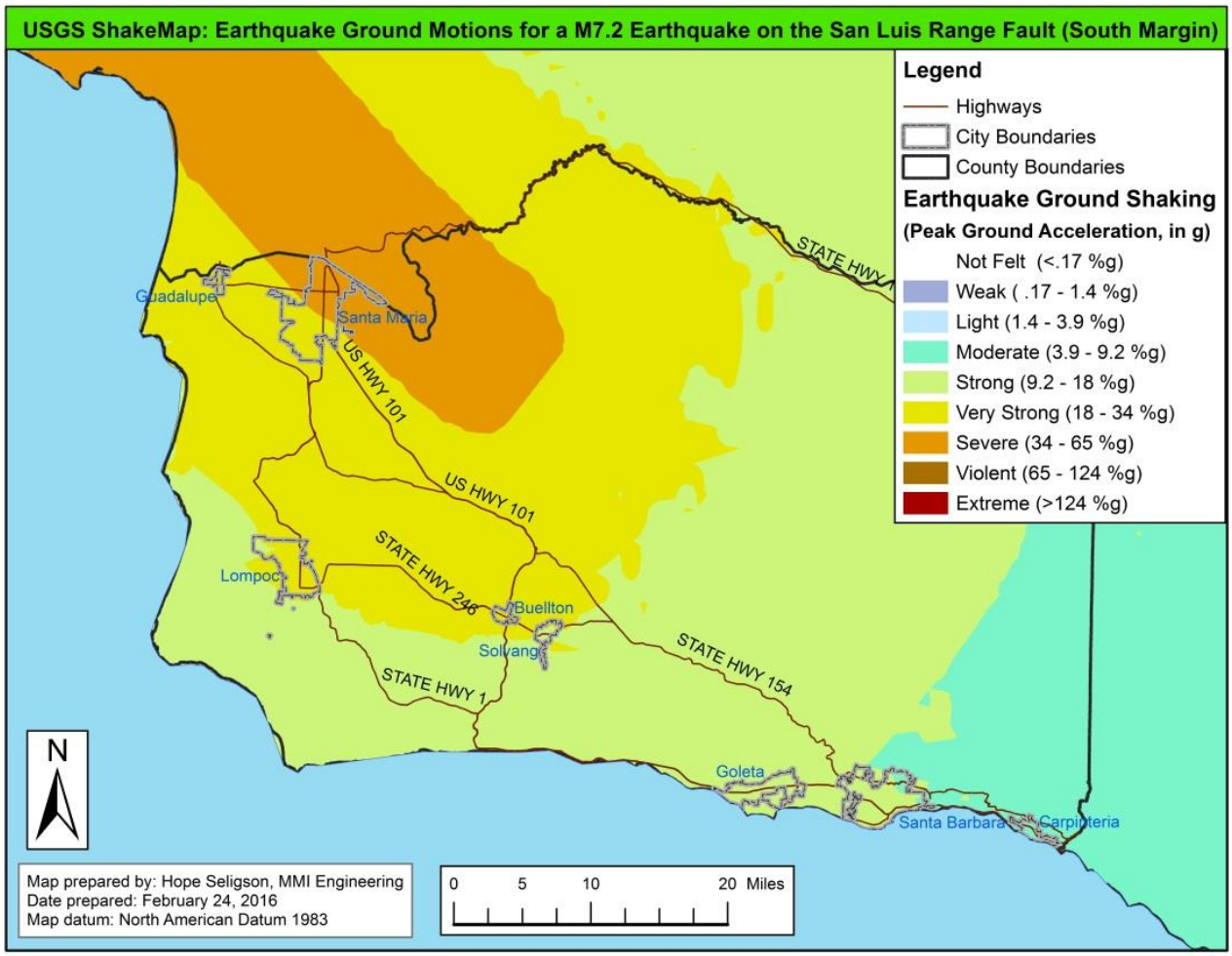


Figure 6.4: USGS Shake Map Ground Motions for Lompoc for a M7.2 Earthquake on the San Luis Range Fault, South Margin (Scenario 2)



As noted above, the latest version of Hazus (Hazus 3.0, released in November, 2015) was used to conduct a city-wide earthquake risk assessments. The Hazus results, computed at the census tract level, were aggregated to produce city-level impact summaries. An overview of the county-wide results for both scenarios is provided in **Table 6.7**, along with the sub-set of results that represent the unincorporated city areas. As shown, the M7.4 Red Mountain Fault earthquake scenario generates more building damage and loss in the City, than the M7.2 San Luis Range Fault earthquake scenario.

Table 6.8 provides a breakdown of estimated building damage (building count by Hazus damage state) by general building type, allowing for an understanding of the distribution of predicted damage in the modeled scenarios.

Functionality of essential facilities included in the Hazus default database (with additional fire station facilities added) in the two scenario earthquakes is summarized in **Table 6.9** for the City of Lompoc.

Table 6-7: Estimated Impacts for Two Earthquake Scenario Events Affecting Lompoc

		Earthquake Scenario	
		M7.4 Red Mountain Scenario	M7.2 San Luis Range South Margin Scenario
Direct Economic Losses for Buildings ($1,000)			
	Total Building Exposure Value	**3,094,971**	
Capital Stock Losses	Cost of Structural Damage	3,162	1,886
	Cost of Non-Structural Damage	24,876	16,003
	Total Building Damage (Str. + Non-Str.)	**28,039**	**17,889**
	Building Loss Ratio %	0.9%	0.6%
	Cost of Contents Damage	11,529	7,389
	Inventory Loss	150	101
Income Losses	Relocation Loss	1,063	529
	Capital-Related Loss	644	324
	Rental Income Loss	699	388
	Wage Losses	864	409
	Total Direct Economic Loss	**42,989**	**27,028**
	% Of Countywide Loss	**1.2%**	**3.3%**
Casualties			
Day Casualties	**Casualties - 2 pm**		
	Level 1 - minor injuries, basic first aid	5	3
	Level 2 - hospital treat & release	0	0
	Level 3 - injuries requiring hospitalization	0	0
	Level 4 - fatalities	**0**	**0**
	Total Casualties	**5**	**3**
Night Casualties	**Casualties - 2 am**		
	Level 1 - minor injuries, basic first aid	5	3
	Level 2 - hospital treat & release	0	0
	Level 3 - injuries requiring hospitalization	0	0
	Level 4 - fatalities	**0**	**0**
	Total Casualties	**5**	**3**
Shelter			
Shelter	Number of Displaced Households	1	0
	Number of People Requiring Short-term Shelter	1	0
Debris (thousands of tons)			
Debris	Brick, Wood & Other (Light) Debris	2.3	1.4
	Concrete & Steel (Heavy) Debris	1.8	0.9
	Total Debris	**4.1**	**2.3**

Table 6-8: Estimated Building Damage Count by General Building Type for Two Earthquake Scenario Events Affecting City of Lompoc

		Earthquake Scenario	
		M7.4 Red Mountain Scenario	M7.2 San Luis Range South Margin Scenario
Building Damage Count by General Building Type (Based on Hazus Default Building Data)			
Concrete	None	166	189
	Slight	41	26
	Moderate	12	5
	Extensive	1	0
	Complete	0	0
	TOTAL	**220**	**220**
Manuf. Housing	None	419	524
	Slight	325	272
	Moderate	158	115
	Extensive	18	9
	Complete	0	0
	TOTAL	**920**	**920**
Precast Concrete	None	100	114
	Slight	29	20
	Moderate	10	5
	Extensive	0	0
	Complete	0	0
	TOTAL	**139**	**139**
Reinforced Masonry	None	280	298
	Slight	32	19
	Moderate	8	3
	Extensive	0	0
	Complete	0	0
	TOTAL	**320**	**320**
Steel	None	146	169
	Slight	44	31
	Moderate	19	10
	Extensive	2	1
	Complete	0	0
	TOTAL	**211**	**211**
Unreinforced Masonry	None	45	53
	Slight	18	13
	Moderate	4	2
	Extensive	0	0
	Complete	0	0
	TOTAL	**67**	**68**

		Earthquake Scenario	
		M7.4 Red Mountain Scenario	**M7.2 San Luis Range South Margin Scenario**
Building Damage Count by General Building Type (Based on Hazus Default Building Data, Continued)			
Wood Frame (Other)	None	112	127
	Slight	29	18
	Moderate	4	1
	Extensive	0	0
	Complete	0	0
	TOTAL	**145**	**146**
Wood Frame (Single-family)	None	7119	7546
	Slight	1112	697
	Moderate	20	9
	Extensive	0	0
	Complete	0	0
	TOTAL	**8,251**	**8,252**
ALL BUILDING TYPES	None	8,387	9,020
	Slight	1,630	1,096
	Moderate	235	150
	Extensive	21	10
	Complete	0	0
	TOTAL	**10,273**	**10,276**

Table 6-9: Predicted Essential Facility Functionality in Two Earthquake Scenario Events Affecting City of Lompoc

	Earthquake Scenario	
FACILITY TYPE	**M7.4 Red Mountain Scenario**	**M7.2 San Luis Range South Margin**
Lompoc Fire Department		
Total Number of Buildings in Hazus Default Database*	**2 (Stations 1 and 2)**	
Default Structural Class and Design Level	**W1 (Wood Frame ≤ 5,000 SqFt), Moderate Code Design Level**	
Damage:		
# Buildings with >50% Probability of Moderate or Greater Damage	0	0
# Buildings with >50% Probability of Complete Damage	0	0
Functionality:		
Functionality < 50 % on Day 1	0	0
Functionality 50 - 75% on Day 1	0	0
Functionality >75% Day 1	2	2
Lompoc Police Department		
Total Number of Buildings in Hazus Default Database	**1**	
Default Structural Class and Design Level	**W1 (Wood Frame ≤ 5,000 SqFt), Moderate Code Design Level**	
Damage:		
# Buildings with >50% Probability of Moderate or Greater Damage	0	0
# Buildings with >50% Probability of Complete Damage	0	0
Functionality:		
Functionality < 50 % on Day 1	0	0
Functionality 50 - 75% on Day 1	0	0
Functionality >75% Day 1	1	1
Lompoc Elementary School District		
Total Number of Buildings in Hazus Default Database	**17 Schools****	
Default Structural Class and Design Level	**W1 (Wood Frame ≤ 5,000 SqFt), High Code Design Level**	
Damage:		
# Buildings with >50% Probability of Moderate or Greater Damage	0	0
# Buildings with >50% Probability of Complete Damage	0	0
Functionality:		
Functionality < 50 % on Day 1	0	0
Functionality 50 - 75% on Day 1	0	0
Functionality >75% Day 1	17	17

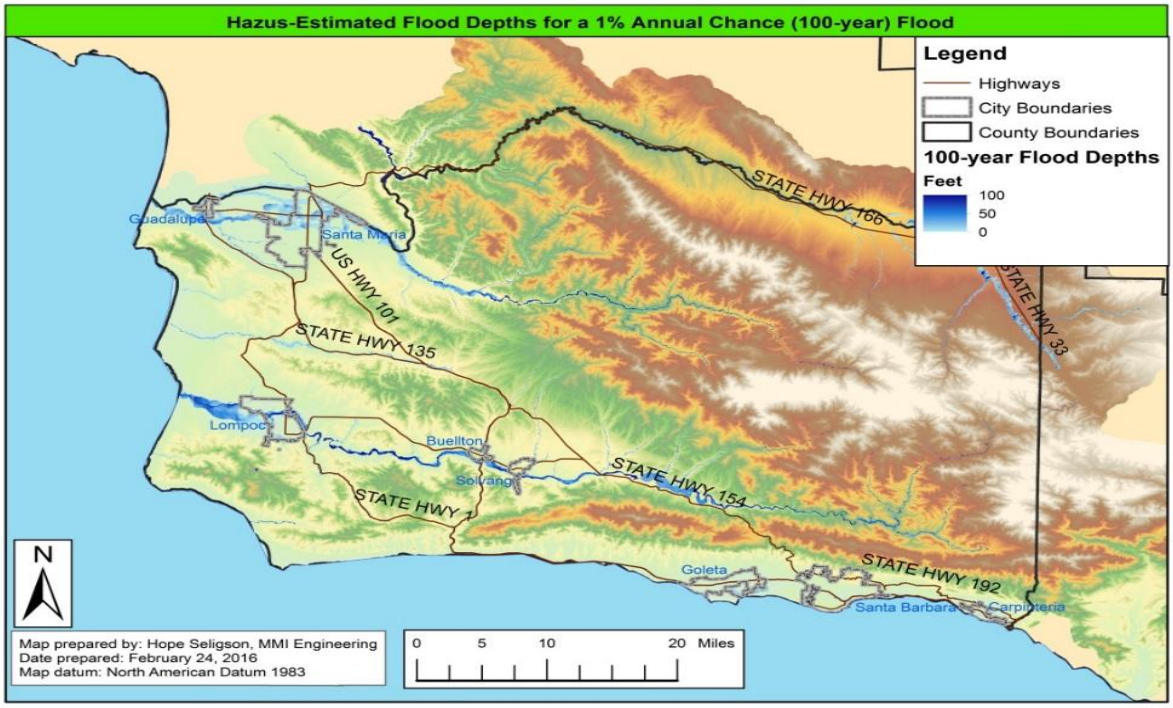
6.5.1 Flood (Medium Impact/High Probability)

Hazus 3.0 was used to develop a flood depth grid for the 1-percent annual chance (100-year) flood, using Hazus 3.0 built-in, basic (i.e., Level 1) flood depth estimation methodology. The Hazus 3.0 flood hazard assessment methodology uses available information and local river and floodplain characteristics, such as frequency, discharge and ground elevation to estimate flood elevation, and ultimately flood depth. Digital elevation model (DEM) data with 30-meter resolution, available from the USGS' National Elevation Dataset (see: http://nationalmap.gov/elevation.html) has been utilized in the current assessment.

It should be noted that the flood depth grid generated by Hazus 3.0 ***is not*** equivalent to regulatory floodplain data contained in FEMA's Digital Flood Insurance Rate Maps (DFIRMs), which are the result of extensive, detailed engineering study. The Hazus-generated flood depth grid is a hypothetical representation of a potential flooding scenario, intended for non-regulatory uses. Further, it should also be noted that the DEM data used in the default analysis do not reflect the presence of channels and levees. A more detailed assessment would utilize higher resolution DEM data, such as LIDAR-based DEM data, and/or would require GIS-based revisions to the DEM to better reflect local flood control structures. Hazus-estimated flood depths across Lompoc are provided in **Figure 6.5**.

An overview of the city-wide Hazus results for the 100-year flood scenario is provided in **Table 6.10**. **Table 6.11** provides a breakdown of estimated building damage (building count by percent damage range) by general occupancy. As shown, most of the flood-damaged buildings are single family homes. Functionality of essential facilities included in the Hazus default database (with additional fire station facilities added) in the flood scenario is summarized in **Table 6.12** for City of Lompoc.

Figure 6.5: Hazus-Estimated Flood Depths for a 1-percent Annual Chance (100-year) Flood



6.5.1.1 HAZUS-MH Flood Risk Assessment

Table 6-10: Hazus -Estimated Impacts for the 1-Percent Annual Chance (100-Year) Flood Scenario Affecting City of Lompoc

		Flood Scenario
		1-percent chance annual flood (100-year flood)
Direct Economic Losses for Buildings ($1,000)		
	Total Building Exposure Value	**3,094,971**
Capital Stock Losses	Total Building Damage	76,315
	Building Loss Ratio %	2.5%
	Cost of Contents Damage	61,001
	Inventory Loss	940
Income Losses	Relocation Loss	156
	Capital-Related Loss	71
	Rental Income Loss	33
	Wage Losses	130
	Total Direct Economic Loss	**138,646**
	% Of City Loss	12.2%
Shelter		

Shelter	Number of Displaced Households	4,207
	Number of People Requiring Short-term Shelter	3,358
Debris (thousands of tons)		
Debris	Finishes	3.7
	Structures	1.5
	Foundations	1.4
	Total Debris	**6.6**

Table 6-11 Estimated Building Damage (Building Count by General Occupancy, by Percent Damage Range) for a 1-percent Annual Chance (100-year) Flood Scenario Affecting City of Lompoc

		Flood Scenario
		1-percent chance annual flood (100-year flood)
Direct Economic Losses for Buildings ($1,000)		
	Total Building Exposure Value	**3,094,971**
Capital Stock	Total Building Damage	76,315
	Building Loss Ratio %	2.5%
	Cost of Contents Damage	61,001
	Inventory Loss	940
Income	Relocation Loss	156
	Capital-Related Loss	71
	Rental Income Loss	33
	Wage Losses	130
	Total Direct Economic Loss	**138,646**
	% Of City Loss	12.2%
Shelter		
Shelter	Number of Displaced Households	4,207
	Number of People Requiring Short-term Shelter	3,358
Debris (thousands of tons)		
Debris	Finishes	3.7
	Structures	1.5
	Foundations	1.4
	Total Debris	**6.6**
Building Damage Count in Flooded Census Blocks by Occupancy		
Single	None	202
	1 - 10%	165

	11 - 20%	184
	21 - 30%	66
	31 - 40%	53
	41 - 50%	43
	Substantial Damage	74
	TOTAL	**787**
Manufactured Housing	None	23
	1 - 10%	1
	11 - 20%	0
	21 - 30%	2
	31 - 40%	0
	41 - 50%	0
	Substantial Damage	12
	TOTAL	**38**

		Flood Scenario
		1-percent chance annual flood (100-year flood)
Building Damage Count in Flooded Census Blocks by Occupancy (Continued)		
Other Residential	None	0
	1 - 10%	0
	11 - 20%	2
	21 - 30%	0
	31 - 40%	0
	41 - 50%	0
	Substantial Damage	0
	TOTAL	**2**
Commercial	None	0
	1 - 10%	0
	11 - 20%	0
	21 - 30%	0
	31 - 40%	0
	41 - 50%	0
	Substantial Damage	0
	TOTAL	**0**
Industrial	None	0
	1 - 10%	0
	11 - 20%	0
	21 - 30%	0
	31 - 40%	0
	41 - 50%	0
	Substantial Damage	0
	TOTAL	**0**
Other Occupancies	None	0
	1 - 10%	0
	11 - 20%	0
	21 - 30%	0
	31 - 40%	0
	41 - 50%	0
	Substantial Damage	0
	TOTAL	**0**
ALL OCCUPANC	None	225
	1 - 10%	166
	11 - 20%	186
	21 - 30%	68
	31 - 40%	53

	41 - 50%	43
	Substantial Damage	86
	TOTAL	**827**

Table 6-12 Predicted Essential Facility Functionality for a 1-percent Annual Chance (100-year) Flood Scenario Affecting City of Lompoc

		Flood Scenario
	FACILITY TYPE	**1-percent chance annual flood (100-year flood)**
Fire Stations	**Lompoc Fire Department**	
	Total Number of Buildings in Hazus Default Database*	**2 (Stations 1 and 2)**
	Flood Exposure	
	# facilities located within flooded areas	0
	Damage:	
	# Buildings with Moderate or Greater Damage	0
	# Buildings with Substantial Damage	0
	Functionality:	
	# facilities expected to be non-functional on Day 1	0
Police Stations	**Lompoc Police Department**	
	Total Number of Buildings in Hazus Default Database	**1**
	Flood Exposure	
	# facilities located within flooded areas	0
	Damage:	
	# Buildings with Moderate or Greater Damage	0
	# Buildings with Substantial Damage	0
	Functionality:	
	# facilities expected to be non-functional on Day 1	0
S	**Lompoc Elementary School District**	
	Total Number of Buildings in Hazus Default Database	**17 Schools****
	Flood Exposure	
	# facilities located within flooded areas	2 (Clarence Ruth Elem., Lompoc Valley Middle)
	Damage:	
	# Buildings with Moderate or Greater Damage	0
	# Buildings with Substantial Damage	0
	Functionality:	

	# facilities expected to be non-functional on Day 1	2 (Clarence Ruth Elem., Lompoc Valley Middle)

6.5.2 Critical Facilities Analysis

Table 6-13 Critical Facilities by Category in Flood Zones

Critical Facility Category	100-Year	500-Year
City Hall	N/A	N/A
Police Station	**N/A**	**N/A**
Fire Stations 1 & 2	**N/A**	**X**
Water Treatment	**N/A**	**X**
Water Reservoirs	**N/A**	**N/A**
Waste Water Treatment	**N/A**	**X**
Electrical Power	**N/A**	**X**
Library	**N/A**	**N/A**
Airport	**N/A**	**X**
Public Works	**N/A**	**X**
Bus	**N/A**	**X**

6.5.3 Flood and Coastal Storm Surge (Medium Impact/High Probability)

Although Flood damage was well delineated in the previous section (Scientific Loss Estimation modeling), the Local Planning Team wanted to include additional vulnerability e data for the Critical Facilities. The exposure of the critical facilities to flood zones is summarized in **Table 6.13** and depicted on **Figure 6.6**.

Figure 6.5.4 Critical Facilities in 100 and 500 Year Flood Zone

There are no Critical Facilities in the 100 Year Flood Zone. However, there are 7 Critical Facilities in the 500 Year Flood Zone.

6.6.1 Wildfire *(Medium Impact/High Probability)*

In looking at critical facilities' vulnerability to wildfire, there were three measures that were evaluated. The first is whether a critical facility is within the Fire Severity Zone (FSZ). The FSZ is mapped by the CA Department of Forestry and Fire Protection. It shows the geographic extents for areas of significant fire hazards based on fuels, terrain, weather, and other relevant factors. The second measure for vulnerability is the Wildland Urban Interface which is the potential treatment zone where projects could be conducted to reduce wildland fire threats to people. For the purposes of this analysis, "within the WUI" represents those critical facilities that are in the geographical area where the three factors of "threat to people", "communities at risk", and "distance to developed areas" intersect. The final measure is that of "Fire Threat". Fire Threat is a combination of the factors of fire frequency and potential fire behavior. The two factors are combined to create five (5) threat classes ranging from "Little or No Threat" to "Extreme". The exposure of the critical

facilities to these three measures is indicated in the tables (**Table 6.14**, **Table 6.15**, and **Table 6.16**) and figures (**Figure 6.7**. **Figure 6.8**, and **Figure 6.9**) below. It is worth noting that all critical facilities have at least some threat from one or more of the three measures. Because of this, the exposure has been color coded low too high in a yellow, orange, red scheme to make it easier for the reader to discern the different designations.

Table 6-14 Critical Facilities by Category in Fire Hazard Severity Zone

Critical Facility Category		Outside	Moderate	High	Very High
City Hall		X	N/A	N/A	N/A
Police Station		X	N/A	N/A	N/A
Fire		X	N/A	N/A	N/A
Water Treatment		X	N/A	N/A	N/A
Water Reservoirs		X	N/A	N/A	N/A
Waste Water Treatment		X	N/A	N/A	N/A
Electrical Power		X	N/A	N/A	N/A
Library		X	N/A	N/A	N/A
Airport		X	N/A	N/A	N/A
Public Works		X	N/A	N/A	N/A
Bus		X	N/A	N/A	N/A

Figure 6.7 Critical Facilities in Fire Hazard Severity Zone

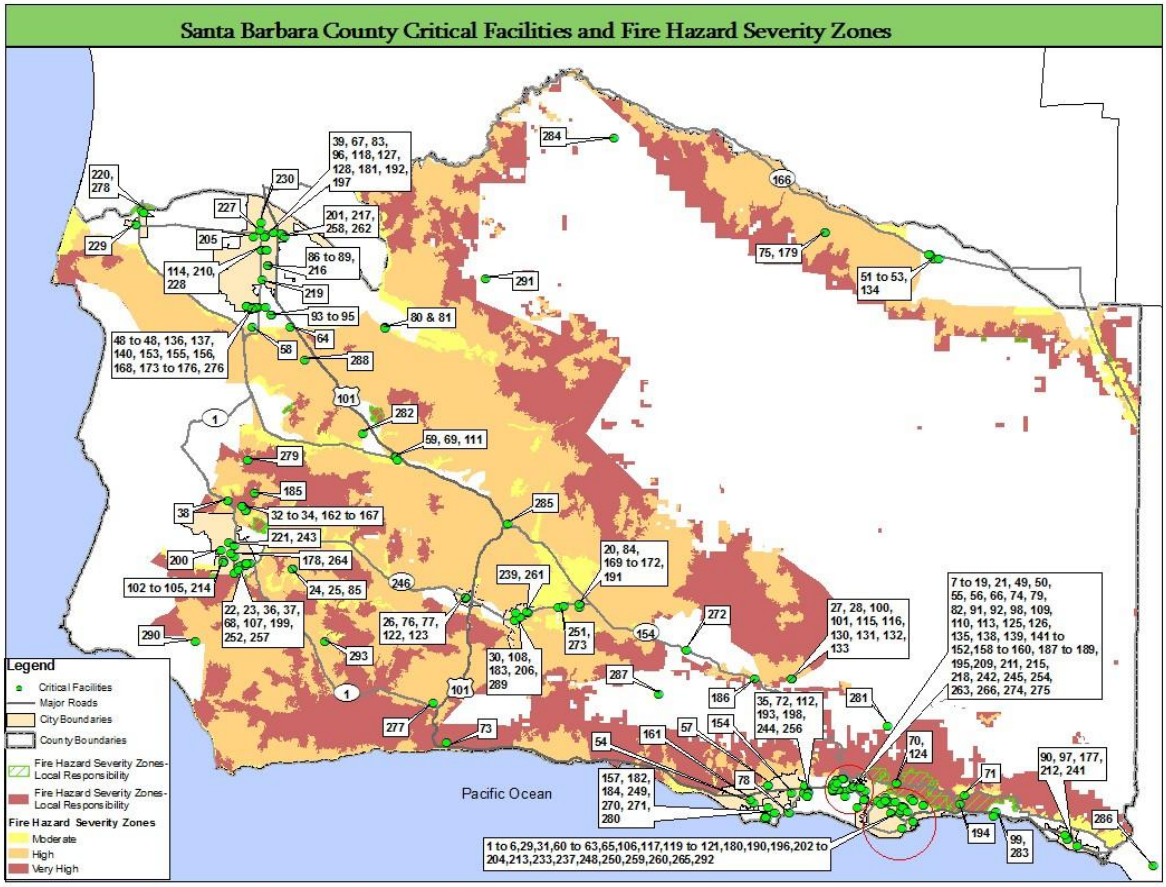


Table 6-15 Critical Facilities by Category in Wildland Urban Interface (WUI) Zone

Critical Facility Category	Outside Zone	Within Zone
City Hall	X	
Police Station	X	
Fire Stations 1 & 2		X
Water Treatment		X
Water Reservoirs		X
Waste Water Treatment		X
Electrical Power		X
Library	X	
Airport	X	
Public Works		X
Bus		X

Figure 6.8 Critical Facilities in Wildland Urban Interface (WUI)

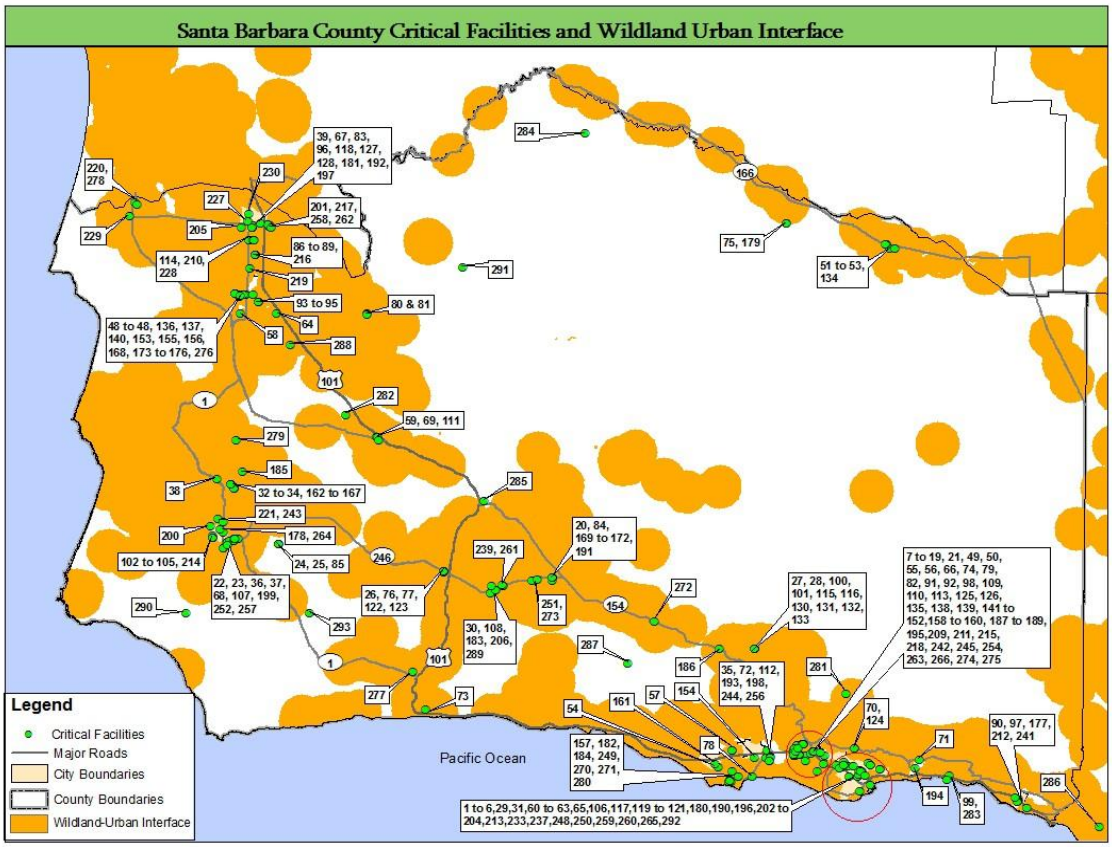
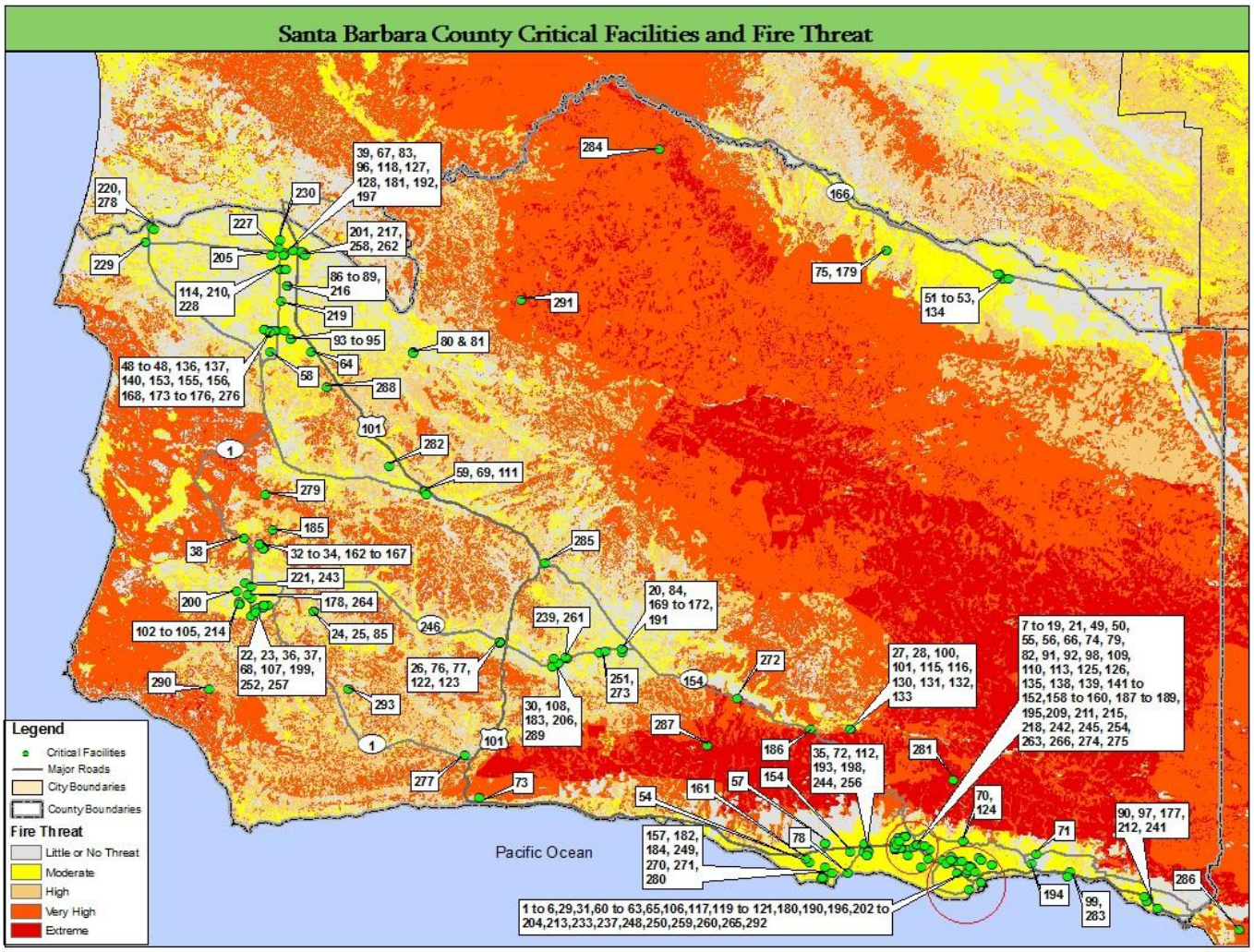


Table 6-16 Critical Facilities by Category in Fire Threat Zones

Critical Facility Category	Little or No Threat	Moderate	High	Very High
City Hall		X	N/A	N/A
Police Station		X	N/A	N/A
Fire Station #1	X		N/A	N/A
Fire Station #2		X	N/A	N/A
Water Treatment		X	N/A	N/A
Water Reservoirs	X		N/A	N/A
Waste Water Treatment	X		N/A	N/A
Electrical Power		X	N/A	N/A
Library		X	N/A	N/A
Airport		X	N/A	N/A
Public Works	X		N/A	N/A
Bus	X		N/A	N/A

Figure 6.9 Critical Facilities in Fire Threat Zones



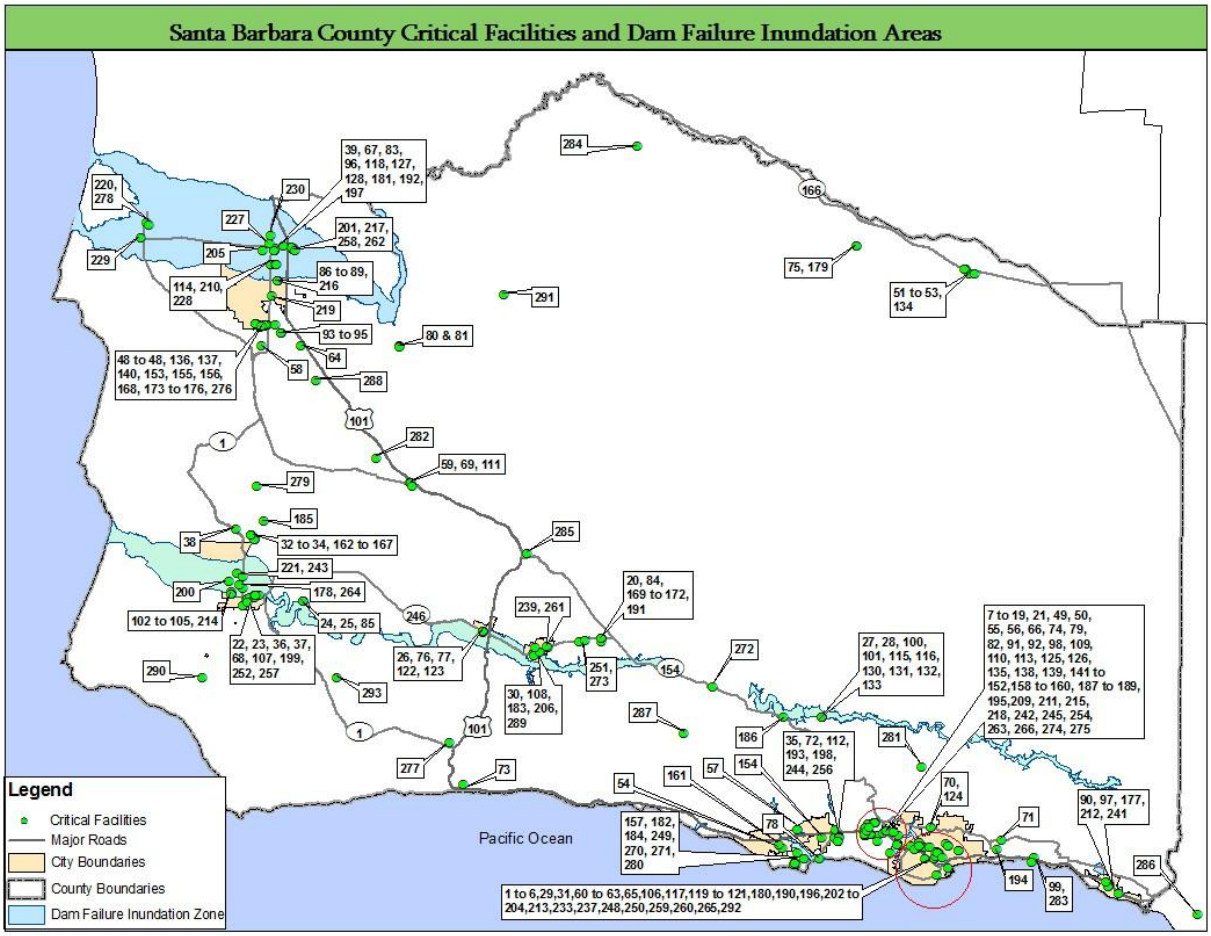
6.6.1 Dam Failure *(High Impact/Low Probability)*

The Bradbury dam is the largest concern of failure because floodwaters from this dam would affect the City of Lompoc, Lompoc Valley, and south VAFB, agricultural lands, roads, and highways. The dam failure vulnerability is simply a look at those critical facilities exposed to risk as indicated by whether they fall into a geographic region that represents a dam inundation zone. There are 42 City critical facilities within the dam inundation zones. The critical facilities represent approximately $83,405,900 million in building value and almost $29,232,800 million in contents exposed to the risk (**Table 6-16 figure 6-12** depicts the location of the critical facilities in relation to the dam failure inundation zones.

Table 6-16 Critical Facilities by Category in Bradbury Dam Inundation Zone

Critical Facility Category	Outside Zone	Building Value	Content
City Hall	X		
Police Station	X		
Fire Station 1	X		
Fire Station 2		447,500	46,700
Water Treatment		20,623,700	5,963,400
Water Reservoirs	X		
Waste Water Treatment		70,136,200	24,948,800
Electrical Power		4,625,897	3,074,574
Library		7,567,600	2,461,400
Airport		2,801,034	195,500
Public Works	X		
Bus	X		

Figure 6-12 Critical Facilities and Dam Failure Inundation Areas



6.7.1 Drought and Water Shortage *(Medium Impact/High Probability)*

A drought is present when a region receives below-average precipitation, resulting in prolonged shortages in its water supply, whether atmospheric, surface, or ground water. A drought can last for months or years, or may be declared after as few as 15 days. The effects of the drought are most visible in the Lompoc when looking at the current capacity and maximum storage of the two main water reservoirs in the county, Lake Cachuma and Twitchell. On February 16, 2016, Cachuma was reported to be at 14.9% capacity, and Twitchell was at 0.2% capacity.

Climate change has the potential to make drought events more common in California, including Lompoc. Extreme heat creates conditions more conducive for evaporation of moisture from the ground, increasing the possibility of drought. A warming planet could lead to earlier melting of winter snow packs, leaving lower stream flows and drier conditions in the late spring and summer. Snow packs in northern California are important for water storage and ensuring adequate supply in the summer months when water is most needed. Changing precipitation distribution and intensity have the potential to cause more of the fallen precipitation run-off rather than be stored. The result is an increased potential for more frequent and more severe periods of drought.

Past experience with Lompoc droughts tells us that drought impacts are felt first by those most dependent on or affected by annual rainfall – fire departments, farmers engaged in agriculture, residents relying on wells, or other small water systems lacking a reliable water source. Drought and water shortage can happen; and have significant impacts on the populations and the economy. Significant economic impacts on Lompoc's agriculture industry can occur as a result of short- and long-term drought conditions; these include hardships to farmers, farm workers, packers, and shippers of agricultural products. In some cases, droughts can also cause significant increases in food prices to the consumer due to shortages. Drought can also result in lack of water and subsequent feed available to grazing livestock, potentially leading to risk of livestock death and resulting in losses to the Santa Barbara's agricultural economy.

Drought can have secondary impacts. For example, drought is a major determinant of wildfire hazard, in that it creates greater propensity for fire starts and larger, more prolonged conflagrations fueled by excessively dry vegetation, along with reduced water supply for firefighting purposes.

SECTION 7 LOMPOC MITIGATION STRATEGY

7.1 Mitigation Goals and Objectives

The Local Planning Team identified common goals and objectives. Using the 2011 LHMP, the Team reviewed and revised the goals and objectives to reflect the current capabilities, exposure to hazards, and vulnerability assessment findings. As part of the planning process, the Local Planning Team reviewed and validated these goals and objectives.

Table 7.1 Goals and Objectives

Goal 1: Promote disaster-resiliency for future development to help them become less vulnerable to hazards
Objective 1.A Facilitate the development (or updating) of the City's Comprehensive Plan, City General Plans, and zoning ordinances to limit (or ensure safe) development in hazard areas
Objective 1.B: Facilitate the incorporation and adoption of building codes and development regulations that encourage disaster resistant design
Objective 1.C: Facilitate consistent implementation of plans, zoning ordinances, and building and fire codes
Goal 2: Promote disaster resiliency for existing assets (critical facilities/infrastructure and public facilities) and people to help them become less vulnerable to hazards
Objective 2.A: Mitigate vulnerability structures and public infrastructure including facilities, roadways, and utilities
Objective 2.B: Mitigate vulnerability populations
Objective 2.C: Support a coordinated permitting processes and consistent enforcement
Goal 3: Enhance hazard mitigation coordination and communication
Objective 3.A: Address data limitations identified in Hazard Profiling and Risk Assessment
Objective 3.B: Increase awareness and knowledge of hazard mitigation principles and practice among local government officials
Objective 3.C: Provide technical assistance to implement private sector mitigation plans
Objective 3.D: Educate the public to increase awareness of hazards, potential impact, and opportunities for mitigation actions
Objective 3.E: Monitor and publicize the effectiveness of mitigation actions implemented Citywide
Objective 3.F: Educate the professional community on design and construction techniques that will minimize damage from the identified hazards
Objective 3.G: Participate in initiatives that have mutual hazard mitigation benefits for the City.
Objective 3.H: Encourage other organizations, within the public, private, and non-profit sectors, to incorporate hazard mitigation activities into their existing programs and plans
Objective 3.I: Continue to identify, prioritize, and implement mitigation actions
Objective 3.J: Continuously improve the City's capability and efficiency at administering pre- and post-disaster mitigation programs.

7.2 MITIGATION ACTION/PROGRESS

The Local Planning Team reviewed the mitigation actions identified in the 2011 HMP to determine the status of each mitigation action. **Table 7.2** provides an overview and the status of each mitigation actions. All incomplete projects will be reassessed by the Local Planning Team and if deemed necessary will be included in the new mitigation actions section (Section 7.4).

Table 7.2 Completed Mitigation Actions

#	Description	Status	Completion Date	Comments
2011 -1	Develop and maintain disaster cache supplies	Complete	2013	Tested effectiveness during Table Functional Exercise. Successful outcome.
2011-2	Disaster Early Warning and Evacuation Plan Earthquake/Dam Failure	Complete	2015	City of Lompoc Radio station is operational.
2011-3	Disaster Early Warning and Evacuation Plan Earthquake/Dam Failure	Complete	2015	Reinforced Vegetative Bank Protection (RVPB) completed

7.3 Prioritizing Mitigation Actions

The Local Planning Team used the STAPLE/E Criteria (Social, Technical, Administrative, Political, Legal, Economic, and Environmental) to evaluate and prioritize the mitigation actions. Based on the evaluation score of each of STAPLE/E Criteria (**Table 7.3**), mitigation actions received a cumulative score. The cumulative score was then used to prioritize the mitigation actions. The following scale was used to evaluate each STAPLE/E Criteria:

0 = Poor (negative impacts)
1 = Fair (neutral or no impacts)
2 = Good (positive impacts)
3 = Excellent (very favorable impacts)

The intent of prioritizing mitigation actions is to help the City focus and concentrate their efforts; however, it should be noted that when and if specialized grants and/or funds are made available that could finance a mitigation action the City may adjust the ranking to enable them to implement the mitigation action.

Table 7.3 STAPLE/E Criteria

SOCIAL	• Is the proposed action socially acceptable to the community? • Are there equity issues involved that would mean that one segment of the community are treated unfairly? • Will the action cause social disruption?
TECHNICAL	• Will the proposed action work? • Will it create more problems than it solves? • Does it solve a problem or only a symptom? • Is it the most useful action in light of other community goals?
ADMINISTRATIVE	• Can the community implement the action? • Is there someone to coordinate and lead the effort? • Is there sufficient funding, staff, and technical support available? • Are there ongoing administrative requirements that need to be met?
POLITICAL	• Is the action politically acceptable? • Is there public support both to implement and to maintain the project?
LEGAL	• Is the community authorized to implement the proposed action? Is there a clear legal basis or precedent for this activity? • Are there legal side effects? Could the activity be construed as a taking? • Is the proposed action allowed by the general plan, or must the general plan be amended to allow the proposed action? • Will the community be liable for action or lack of action? • Will the activity be challenged?
ECONOMIC	• What are the costs and benefits of this action? • Do the benefits exceed the costs? • Are initial, maintenance, and administrative costs taken into account? • Has funding been secured for the proposed action? If not, what are the potential sources (public, non-profit, and private)? • How will this action affect the fiscal capability of the community? • What burden will this action place on the tax base or local economy? • What are the budget and revenue effects of this activity? • Does the action contribute to other community goals, such as capital improvements or economic development? • What benefits will the action provide?
ENVIRONMENTAL	• How will the action affect the environment? • Will the action need environmental regulatory approvals? • Will it meet local and state regulatory requirements? • Are endangered or threatened species likely to be affected?

7.4 Mitigation Actions

The following table (**Table 7.4**) presents the prioritized list of mitigation actions which will be considered and implemented during the life of this plan update.

Table 7.4 Prioritized and Recommended Mitigation Actions

Number	Title	Status	Priority Score							
			S	T	A	P	L	E	E	TOTAL
2016.1	Earthquake Retrofit Fire Station	Short Term	3	3	3	3	3	3	3	21
2016.2	Continuation to identify the , most at-risk critical facilities in Lompoc and create a mitigation action plan for those facilities	Short Term	3	3	3	3	3	2	3	20
2016.3	Inform public about proper evacuation procedures.	Medium Term	3	3	3	3	2	2	3	19
2016.4	Advise public about the local flood hazard, flood insurance and flood protection measures.	Medium Term	3	3	3	3	3	2	1	18
2016.5	Create a wildfire scenario to estimate potential loss of life and injuries, the types of potential damage, and existing vulnerabilities within a community to develop Wildfire mitigation priorities.	Medium Term	3	2	2	3	2	2	3	17
2016.6	Schedule an annual “what’s new in mitigation” briefing for the City Council.	Medium Term	2	2	2	2	2	2	2	14
2016.7	Continue City of Lompoc Water Wise outreach program	Long Term	3	2	2	2	1	3	3	17
2016.8	Santa Ynez River Bank Stabilization-Riverside Location-Part 1	Short Term	3	3	2	3	2	3	2	18
2016.9	Santa Ynez River Bank Stabilization-Riverside Location-Part 2	Long Term	3	3	2	3	2	3	2	18

7.5 IMPLEMENTATION PLAN

Number: 2016.1
Action Title: Earthquake Retrofit Fire Station
Action Description: See Attached Seismic Evaluation
Relevant Objective: Objective 2.A: Mitigate vulnerability structures and public infrastructure including facilities
Applicable Hazards: Earthquake
Estimated Timeline to complete: 18 Months
Cost: $3,266,514, PDM Grant already submitted and in review process.
Responsible Department: Fire

Number: 2016.2
Action Title: Identify the most at-risk critical facilities and evaluate potential mitigation techniques
Action Description: Using GIS mapping of all Critical Facilities to facilitate analysis to identify vulnerable facilities.
Relevant Objective: Objective 2.A: Mitigate vulnerability structures and public infrastructure including facilities
Applicable Hazards: Earthquake, Wildfire, Flood
Estimated Timeline to complete: 24 Months
Cost: $3,000. This will be included in the 2017/19 budget.
Responsible Department: Fire

Number: 2016.3
Action Title: Inform public about proper evacuation procedures.
Action Description: Create an Education Campaign to Inform public about proper evacuation procedures. The Campaign would use the city Web page, Social Media, Print, Audio and Video Media. The Fire Department would include proper evacuation procedures in their CERT curriculum.
Relevant Objective: Objective 3.D: Educate the public to increase awareness of hazards, potential impact, and opportunities for mitigation actions
Applicable Hazards: Earthquake, Wildfire, Flood
Estimated Timeline to complete: Ongoing with quarterly new programs introduced.
Cost: $50000. This will be included in the 2017/19 budget.
Responsible Department: Fire

Number: 2016.4
Action Title: Advise public about the local flood hazard, flood insurance and flood protection measures.
Action Description: Inform the public at regularly scheduled Public Events as to local flood hazard, flood insurance and flood protection measures. The events will be held at Home Depot CERT training, LISTOS training and Aware and Prepare training. City WEB page and Social Media will also be utilized.
Relevant Objective: Objective 3.D: Educate the public to increase awareness of hazards, potential impact, and opportunities for mitigation actions
Applicable Hazards: Flood
Estimated Timeline to complete: Ongoing.
Cost: $2000.00 This will be included in the 2017/19 budget
Responsible Department: Fire
Number: 2016.5
Action Title: Create a wildfire scenario to estimate potential loss of life and injuries, the types of potential damage, and existing vulnerabilities within a community to develop wildfire mitigation priorities
Action Description Using GIS mapping of wildfire hazard areas to facilitate analysis and planning decisions through comparison with zoning, development, infrastructure, etc. Developing and maintaining a database to track community vulnerability to wildfire.
Relevant Objective: Objective 2.A: Mitigate vulnerability structures and public infrastructure including facilities, roadways, and utilities. Objective 3.A: Address data limitations identified in Hazard Profiling and Risk Assessment.
Applicable Hazards: Wildfire
Estimated Timeline to complete: Ongoing.
Cost: $5000 This will be included in the 2017/19 budget.

Number: 2016.6
Action Title Schedule an annual "what's new in mitigation" briefing for the City Council.
Action Description Present to the City Council and Public the status of Mitigation Measures in progress, and completed. Advise the City Council and Public of the effectiveness of the Mitigation and their cost effectiveness.
Relevant Objective: Objective 3.B: Increase awareness and knowledge of hazard mitigation principles and practice among local government officials. Objective 3.E: Monitor and publicize the effectiveness of mitigation actions implemented Citywide.
Applicable Hazards: Wildfire, Earthquake, Flood
Estimated Timeline to complete: Ongoing.
Cost: No cost other then staff time
Responsible Department: Fire

Number: 2016.7
Action Title City of Lompoc Water Wise Outreach program
Action Description Inform and educate residents about water conservation programs and rebates.
Relevant Objective: Reduce water usage, and increase water efficiency.
Applicable Hazards: Drought Mitigation
Estimated Timeline to complete: Ongoing.
Cost: TBD
Responsible Department: TBD

Number: 2016.8
Action Title: Santa Ynez River Bank Stabilization-Riverside Location Part 1
Action Description: Construct a bank stabilization project to mitigate these threats.
Relevant Objective: Mitigate bank erosion poses potential threats to adjacent residences, properties, and public streets.
Applicable Hazards: Flood
Estimated Timeline to complete: 2018
Cost: $1.1 Million
Responsible Department: Public Works

Number: 2016.9
Action Title: Santa Ynez River Bank Stabilization-Riverside Location Part 2
Action Description: Design and construct a bank stabilization project .
Relevant Objective: The continual progression of Santa Ynez River bank erosion poses potential threats to adjacent properties, city park facilities and public street. Additionally, continued bank erosion is anticipated to damage the Riverbend Park bikeway within the next one to two large (10-year recurrence interval) storms.
Applicable Hazards: Flood
Estimated Timeline to complete: No Projected completion date
Cost: $2.4 Million
Responsible Department: Public Works

SECTION 8 PLAN MAINTENANCE

The Lompoc Fire Department will be responsible for ensuring that this plan is monitored on an on-going basis. The Fire Department will call the Local Planning team together on a quarterly basis to review the mitigation actions set forth in this plan and discuss progress. During this meeting the Local Planning Team, while continuing to collaborate with the county MAC team, will develop a list of Hazards to be updated, added, or removed in future revisions of this plan.

The Plan will be a discussion/work item on the City of Lompoc Staff Meeting Agenda. Department heads and other emergency preparedness staff who serve in the County's EOC will focus on evaluating the Plan in light of technological, budgetary, political changes, or other significant events that may occur during the year.

Major disasters affecting the City, legal changes, and/or other events may trigger a meeting of the MAC. This group will be responsible for determining if the Plan needs be updated before the five year mark.

The City is committed to reviewing and updating this plan at least once every five years, as required by the DMA 2000.

The public will continue to be involved whenever the plan is updated and as appropriate during the monitoring and evaluation process utilizing the robust Lompoc Fire Department Outreach program. (Section 3.4.2) Prior to adoption of updates, the City will provide multiple opportunities for the public to comment on the revisions. Lompoc citizens will be made aware of public meetings via, City Web page, print, audio, visual, and social media.

POINT OF CONTACT

Comments or suggestions regarding this plan may be submitted at any time to Kurt Latipow, City of Lompoc Fire Chief.

Kurt Latipow
Fire Chief
City of Lompoc Fire Department
115 South G Street
Lompoc, CA. 93436
K_Latipow@ci.lompoc.ca.us
805.736.4513

Annex A City Council Resolution

RESOLUTION NO. 6133(17)

A Resolution of the Council of the City Of Lompoc, County of Santa Barbara, State of California, Adopting the City of Lompoc Annex to the 2016 Santa Barbara County Multi Jurisdiction HazardMitigation Plan

WHEREAS, the Federal Disaster Mitigation Act of 2000 (Act), as described in 44 Code of Federal Regulations Section 201.6 mandates local governments to submit and maintain a Federal Emergency Management Agency (FEMA) approved local hazard mitigation plan; and,

WHEREAS, the City of Lompoc (City) has agreed to participate in a county-wide multi- jurisdictional plan with Santa Barbara County as the lead agency; and

WHEREAS, the Multi-Jurisdiction Hazard Mitigation Plan (Plan) identifies each jurisdiction's risk assessment and mitigation strategies to reduce the impacts of natural disasters on the public and local government; and

WHEREAS, identification of hazards in the City assists with response planning, exercise development, public education, and awareness, and other emergency management functions; and,

WHEREAS, the Act requires the Plan to be formally adopted by the City Council and provided to FEMA for formal approval,and

WHEREAS, in 2011 the City of Lompoc formally adopted the Plan by the adoption of Resolution No. 5753(11).

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

SECTION 1. The City Council hereby approves the City's Annex to Santa Barbara County Multi Jurisdiction Hazard Mitigation Plan (attached hereto), in accordance with the Disaster Mitigation Act of 2000.

SECTION 2. This Resolution is effective upon its adoption.

The above and foregoing Resolution was proposed by Council Member Osborne, seconded by Council Member Starbuck, and was duly passed and adopted by the Council of the City of Lompoc at its regular meeting on September 5, 2017, by the following vote:

AYES: Council Member(s): Jenelle Osborne, Dirk Starbuck, James Mosby, Victor Vega, and Mayor Bob Lingl.

NOES Council Member(s): None ABSENT: Council Member(s): None

Bob Lingl, Mayor
City of Lompoc

ATTEST:

Stacey Haddon, City Clerk
City of Lompoc

Annex B Public Involvement

PRESS RELEASE JULY 25, 2016
Contact: Kurt Latipow, City of Lompoc Fire Department Chief

805-875-8054

k_latipow@ci.lompoc.ca.us

http://www.cityoflompoc.com/fire/

Lompoc Fire Department To Host Town Hall On City's Hazard Mitigation Plan Update

Forum on Aug. 3 will provide information on mitigation plan, allow residents opportunity to give input and ask questions

LOMPOC, CA, July 25, 2016 – The City of Lompoc Fire Department is hosting a community town hall on **Wed. Aug. 3** to inform residents about an update to the City of Lompoc's annex to Santa Barbara County Hazard Mitigation Plan, to seek input, and to answer any questions the public has.

This City of Lompoc Hazard Mitigation Plan Town Hall is scheduled from **6:30 p.m. to 7:30 p.m.** in **Lompoc City Council Chambers, 100 Civic Center Plaza**.

Citizen input is crucial to creating a more resilient community, so all residents are encouraged to participate in this town hall.

The event will consist of an overview of the City of Lompoc's annex to the County Multi-Jurisdictional Hazard Mitigation Plan, as well as a presentation on the update process , as required every five years. In addition, the town hall will include information on hazards the City is vulnerable to, and a question and answer session.

The Santa Barbara County Multi-Jurisdictional Hazard Mitigation Plan is a countywide plan that identifies risks and suggests ways to minimize vulnerabilities and damage from natural and man-made disasters. The plan includes annexes from each city. The plan is a comprehensive resource that serves to enhance public awareness, acts as a decision tool for policy makers, enhances local policies for risk-reduction capabilities, provides coordination between the cities and the county, and promotes compliance with state and federal program requirements.

The Federal Disaster Mitigation Act of 2000 required all local governments to create a disaster Hazard Mitigation Plan in order to qualify for federal mitigation funding in the future.

The Hazard Mitigation Plan must be updated and revised every five years.

(more)

The Santa Barbara County Office of Emergency Management (OEM) is coordinating the plan update through collaboration with the City's Local Planning Team and the County Planning Team.

These groups participated in a review of the risks and vulnerabilities of each hazard that could impact the region, and updated strategies to improve the Santa Barbara County Operational Area's knowledge and understanding of how to mitigate against the consequences of potential disasters in at-risk communities.

Public comments will be reviewed by the Santa Barbara County OEM and the Local Planning Team, and incorporated into the final plan as appropriate.

For more information and to participate in the public review process, go to: http://www.cityoflompoc.com/AwareAndPrepare/

###

July 25, 2016 City of Lompoc WEB Page LHMP Public Notification

City of Lompoc

Local Hazard Mitigation Plan

City of Lompoc Local Hazard Mitigation Plan Update

The City of Lompoc is in the process of updating our annex to the Santa Barbara County Hazard Mitigation Plan as required every five years, and we want your input.

The Santa Barbara County Multi-Jurisdictional Hazard Mitigation Plan is a countywide plan that identifies risks and suggests ways to minimize vulnerabilities and damage from natural and man-made disasters. The plan includes annexes from each city. The plan is a comprehensive resource that serves to enhance public awareness, acts as a decision tool for policy makers, enhances local policies for risk-reduction capabilities, provides coordination between the cities and the county, and promotes compliance with state and federal program requirements.

Please review our draft of the plan here: DRAFT Local Hazard Mitigation Plan

Feedback or questions on the Lompoc Local Hazard Mitigation Plan may be directed to Lompoc Fire Department Chief Kurt Latipow at: k_latipow@ci.lompoc.ca.us or 805-875-8054.

*Feedback will be accepted through our community town hall meeting for the plan on **Wed. Aug. 3**.*
Please **click here** for more information on this town hall.

Lompoc Fire Department - 115 South G Street - Lompoc, California 93436 - (805) 736-4513

City of Lompoc - 100 Civic Center Plaza - Lompoc, CA 93436 - (805) 736-1261 - ©

July 29, 2016 Lompoc Record

Lompoc Fire to focus on hazard mitigation plan at town hall event

- Contributed, Lompoc Fire Department

The Lompoc Fire Department will host a town hall Aug. 3 to discuss the city's hazard mitigation plan.

The Lompoc Fire Department will host a community town hall event Aug. 3 to inform, seek input and answer any questions that members of the public may have about an update to the city's hazard mitigation plan.

The event is scheduled for 6:30 to 7:30 p.m. in the Lompoc City Council Chambers at 100 Civic Center Plaza.

"Citizen input is crucial to creating a more resilient community, so all residents are encouraged to participate in this town hall," read a release from the city.

The event will consist of an overview of Lompoc's annex to the Santa Barbara County Multi-Jurisdictional Hazard Mitigation Plan, as well as a presentation on the update process, as

required every five years. In addition, the town hall will include information on hazards to which the city is vulnerable and a question-and-answer session.

The hazard mitigation plan is a countywide plan that identifies risks and suggests ways to minimize vulnerabilities and damage from natural and man-made disasters. The plan includes annexes from each city.

It is a comprehensive resource that serves to enhance public awareness, acts as a decision tool for policymakers, enhances local policies for risk-reduction capabilities, provides coordination between the cities and the county, and promotes compliance with state and federal program requirements.

The Federal Disaster Mitigation Act of 2000 required all local governments to create a disaster hazard mitigation plan in order to qualify for federal mitigation funding.

The Santa Barbara County Office of Emergency Management is coordinating the plan update through collaboration with the city's local planning team and the county planning team.

These groups participated in a review of the risks and vulnerabilities of each hazard that could impact the region, and updated strategies to improve the Santa Barbara County Operational Area's knowledge and understanding of how to mitigate against the consequences of potential disasters in at-risk communities.

Public comments will be reviewed by the Office of Emergency Management and the local planning team, and incorporated into the final plan as appropriate.

To review the plan update draft and/or participate in the public review process, go to www.cityoflompoc.com/AwareAndPrepare/HazPlan.htm.

This report was prepared by Willis Jacobson. He can be reached at wjacobson@leecentralcoastnews.com.

Annex C Local Mitigation Review Tool

LOCAL MITIGATION PLAN REVIEW TOOL

The *Local Mitigation Plan Review Tool* demonstrates how the Local Mitigation Plan meets the regulation in 44 CFR §201.6 and offers States and FEMA Mitigation Planners an opportunity to provide feedback to the community.

- The Regulation Checklist provides a summary of FEMA's evaluation of whether the Plan has addressed all requirements.
- The Plan Assessment identifies the plan's strengths as well as documents areas for future improvement.
- The Multi-jurisdiction Summary Sheet is an optional worksheet that can be used to document how each jurisdiction met the requirements of the each Element of the Plan (Planning Process; Hazard Identification and Risk Assessment; Mitigation Strategy; Plan Review, Evaluation, and Implementation; and Plan Adoption).

The FEMA Mitigation Planner must reference this *Local Mitigation Plan Review Guide* when completing the *Local Mitigation Plan Review Tool*.

Jurisdiction **City of Lompoc, CA**	**Title of Plan:** **Local Hazard Mitigation Plan**	**Date of Plan:** **August 16, 2016**
Local Point of Contact: **Kurt Latipow**	**Address:** **115 South G. Street** **Lompoc CA. 93436**	
Title: **Fire Chief**		
Agency: **Fire Department**		
Phone Number: **805.736.4513**	**E-Mail:** **K_latipow@ci.lompoc.ca.us**	

State Reviewer:	**Title:**	**Date:**

FEMA Reviewer:	**Title:**	**Date:**
Date Received in FEMA Region ***(insert #)***		
Plan Not Approved		

Plan Approvable Pending Adoption	
Plan Approved	

SECTION 1:
REGULATION CHECKLIST

INSTRUCTIONS: The Regulation Checklist must be completed by FEMA. The purpose of the Checklist is to identify the location of relevant or applicable content in the Plan by Element/sub-element and to determine if each requirement has been 'Met' or 'Not Met.' The 'Required Revisions' summary at the bottom of each Element must be completed by FEMA to provide a clear explanation of the revisions that are required for plan approval. Required revisions must be explained for each plan sub-element that is 'Not Met.' Sub-elements should be referenced in each summary by using the appropriate numbers (A1, B3, etc.), where applicable. Requirements for each Element and sub-element are described in detail in this *Plan Review Guide* in Section 4, Regulation Checklist.

1. REGULATION CHECKLIST **Regulation** (44 CFR 201.6 Local Mitigation Plans)	**Location in Plan** (section and/or page number)	**Met**	**Not Met**
ELEMENT A. PLANNING PROCESS			
A1. Does the Plan document the planning process, including how it was prepared and who was involved in the process for each jurisdiction? (Requirement §201.6(c)(1))	Section 3 p. 8-14		
A2. Does the Plan document an opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, agencies that have the authority to regulate development as well as other interests to be involved in the planning process? (Requirement §201.6(b)(2))	Section 3 p.8-14		
A3. Does the Plan document how the public was involved in the planning process during the drafting stage? (Requirement §201.6(b)(1))	Section 3 p. 8-14		
A4. Does the Plan describe the review and incorporation of existing plans, studies, reports, and technical information? (Requirement §201.6(b)(3))	Section 3 p.8-14		
A5. Is there discussion of how the community(ies) will continue public participation in the plan maintenance process? (Requirement §201.6(c)(4)(iii))	Section 8 p. 88		
A6. Is there a description of the method and schedule for keeping the plan current (monitoring, evaluating and updating the mitigation plan within a 5-year cycle)? (Requirement §201.6(c)(4)(i))	Section 8 p. 88		

1. REGULATION CHECKLIST **Regulation** (44 CFR 201.6 Local Mitigation Plans)	**Location in Plan** (section and/or page number)	**Met**	**Not Met**
ELEMENT A: REQUIRED REVISIONS			
ELEMENT B. HAZARD IDENTIFICATION AND RISK ASSESSMENT			
B1. Does the Plan include a description of the type, location, and extent of all natural hazards that can affect each jurisdiction(s)? (Requirement §201.6(c)(2)(i))	Section 5 p. 35-54		
B2. Does the Plan include information on previous occurrences of hazard events and on the probability of future hazard events for each jurisdiction? (Requirement §201.6(c)(2)(i))	Section 5 p. 35-54		
B3. Is there a description of each identified hazard's impact on the community as well as an overall summary of the community's vulnerability for each jurisdiction? (Requirement §201.6(c)(2)(ii))	Section 5 p. 35-54		
B4. Does the Plan address NFIP insured structures within the jurisdiction that have been repetitively damaged by floods? (Requirement §201.6(c)(2)(ii))	Section 4.10 p. 34		
ELEMENT B: REQUIRED REVISIONS			
ELEMENT C. MITIGATION STRATEGY			
C1. Does the plan document each jurisdiction's existing authorities, policies, programs and resources and its ability to expand on and improve these existing policies and programs? (Requirement §201.6(c)(3))	Section 2 p. 7		
C2. Does the Plan address each jurisdiction's participation in the NFIP and continued compliance with NFIP requirements, as appropriate? (Requirement §201.6(c)(3)(ii))	Section 4.10 p.34		
C3. Does the Plan include goals to reduce/avoid long-term vulnerabilities to the identified hazards? (Requirement §201.6(c)(3)(i))	Section 6 p. 54-80		
C4. Does the Plan identify and analyze a comprehensive range of specific mitigation actions and projects for each jurisdiction being considered to reduce the effects of hazards, with emphasis on new and existing buildings and infrastructure? (Requirement §201.6(c)(3)(ii))	Section 7 p. 80-85		

1. REGULATION CHECKLIST **Regulation** (44 CFR 201.6 Local Mitigation Plans)	Location in Plan (section and/or page number)	Met	Not Met
C5. Does the Plan contain an action plan that describes how the actions identified will be prioritized (including cost benefit review), implemented, and administered by each jurisdiction? (Requirement §201.6(c)(3)(iv)); (Requirement §201.6(c)(3)(iii))	Section 7.3 p.82		
C6. Does the Plan describe a process by which local governments will integrate the requirements of the mitigation plan into other planning mechanisms, such as comprehensive or capital improvement plans, when appropriate? (Requirement §201.6(c)(4)(ii))	Section 7.5 p.85		
ELEMENT C: REQUIRED REVISIONS			
ELEMENT D. PLAN REVIEW, EVALUATION, AND IMPLEMENTATION (applicable to plan updates only)			
D1. Was the plan revised to reflect changes in development? (Requirement §201.6(d)(3))	Section 4.9 p. 29-34		
D2. Was the plan revised to reflect progress in local mitigation efforts? (Requirement §201.6(d)(3))	Section 4.9 p. 29-34		
D3. Was the plan revised to reflect changes in priorities? (Requirement §201.6(d)(3))	Section 4.9 p. 29-34		
ELEMENT D: REQUIRED REVISIONS			
ELEMENT E. PLAN ADOPTION			
E1. Does the Plan include documentation that the plan has been formally adopted by the governing body of the jurisdiction requesting approval? (Requirement §201.6(c)(5))	Appendix A p.89		
E2. For multi-jurisdictional plans, has each jurisdiction requesting approval of the plan documented formal plan adoption? (Requirement §201.6(c)(5))	N/A		
ELEMENT E: REQUIRED REVISIONS			
ELEMENT F. ADDITIONAL STATE REQUIREMENTS (OPTIONAL FOR STATE REVIEWERS ONLY; NOT TO BE COMPLETED BY FEMA)			
F1.			
F2.			
ELEMENT F: REQUIRED REVISIONS			

City of Santa Barbara

Local Hazard Mitigation Plan Annex to Santa Barbara County Multi-Jurisdictional Hazard Mitigation Plan – July 2017

City of Santa Barbara
Annex to Santa Barbara County
2017 Multi-Hazard Mitigation Plan

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SECTION 1 INTRODUCTION

The plan was prepared in 2015-2016 as part of an update to the Santa Barbara City 2011 Hazard Mitigation Plan. The City of Santa Barbara participated in the County wide Mitigation Advisory Committee (MAC), reviewed all portions of the previous hazard mitigation plan pertaining to the City, and incorporated relevant components into this plan. This plan serves as a complete hazard mitigation planning tool for the City of Santa Barbara. It contains updated capability assessment information, a new vulnerability assessment, and an updated/revised mitigation strategy. The methodology and process for developing this annex is explained throughout the following sections.

Across the United States, natural and manmade disasters have led to increasing levels of death, injury, property damage, and interruption of business and government services. The impact on families and individuals can be immense and damages to businesses can result in regional economic consequences. The time, money and effort to respond to and recover from these disasters divert public resources and attention from other important programs and problems. Santa Barbara City, California recognizes the consequences of disasters and the need to reduce the impacts of natural hazards. The elected and appointed officials of the City also know that with careful selection, mitigation actions in the form of projects and programs can become a long-term, cost effective means for reducing the impact of natural hazards.

The Santa Barbara City Hazard Mitigation Plan (the Plan), was prepared and formulated with input and coordination from the Mitigation Advisory Committee (MAC), with support from Santa Barbara County, City Office of Emergency Services and City Departments. The process to develop the Plan included nearly a year of coordination with representatives from each City department. The Plan guides the City of Santa Barbara toward greater disaster preparedness and resistance in harmony with the character and needs of its community.

The City of Santa Barbara is located on the south coast of Santa Barbara County. Due to the Santa Ynez mountain range that blocks colder air from the north, Santa Barbara enjoys mild and pleasant weather. It sits at an elevation of roughly 50 feet above sea level and has a land area of 19 square miles. The city received its name when the California Mission Santa Barbara was founded there in 1786. The mission was known as the Queen of the Missions due to its beauty and the beauty of its surroundings. Attractions in Santa Barbara include the Waterfront, Downtown retail, entertainment and cultural districts, Santa Barbara Museums of Art and Natural History, the Santa Barbara Zoo, and special events such Old Spanish Days – Fiesta Santa Barbara. Santa Barbara is retail, tourism, government, education, and medical center of the County. It is home to the Santa Barbara Regional Airport, which provides commercial services for Ventura, Santa Barbara and San Luis Obispo Counties.

Mitigation is commonly defined as actions taken to reduce or eliminate risks to people and property from hazards and their effects. ***Hazard mitigation*** focuses attention and resources on actions that will reduce or eliminate long term risks to persons or property from natural hazards. The impact of expected yet often unpredictable natural and human-caused events can be reduced through planning. History has demonstrated that it is less expensive to mitigate against disaster damage than to repeatedly repair damage in the aftermath. A mitigation plan states the aspirations and specific courses of action jurisdictions intend to follow to reduce vulnerability and exposure to future hazard events.

It is the City's hope the Plan continues to be used as a tool for all stakeholders to increase public awareness of local hazards and risks, while at the same time providing information about options and resources available to reduce those risks. Informing and instructing the public about potential hazards will help the City protect themselves against the effects of the hazards, and will enable informed decision making on where to live, play and locate homes and businesses.

The emphasis of the Plan is on the assessment and avoidance of identified risks, implementing loss reduction measures for existing exposures and ensuring critical services and facilities survive a disaster. Hazard mitigation strategies and measures avoid losses by limiting new exposures in identified hazard areas, alter the hazard by eliminating or reducing the frequency of occurrence, divert the hazard by redirecting the impact by means of a structure or adapt to the hazard by modifying structures or standards.

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

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

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

- Preparing and submitting a local mitigation plan;
- Reviewing and updating the plan every five years; and
- Monitoring Projects.

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

The Plan has been prepared to meet FEMA and Cal OES requirements thus continuing the County's eligibility for funding and technical assistance from state and federal hazard mitigation programs, such as HMGP, Pre-Disaster Mitigation-Competitive, and Flood Mitigation Assistance programs.

SECTION 2 PLAN PURPOSE AND AUTHORITY

Authority to create this Plan is derived from the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Public Law 93-288), as amended by the Disaster Mitigation Act of 2000 (DMA

2000). The requirements and procedures for mitigation plans are found in the Code of Federal Regulations (CFR) at Title 44, Chapter 1, Part 201 and the associated Interim Final Rule changes of February 26, 2002; October 1, 2002; October 28, 2003; September 13, 2004; October 31, 2007; September 16, 2009; April 25, 2014; December 19, 2014; and October 2, 2015. This federal law and associated rule changes and regulations establishes planning and funding criteria for states and local communities.

- *Enhance Public Awareness and Understanding* – to help residents of the County better understand the natural hazards that threaten safety and welfare; economic vitality; and the operational capability of critical infrastructure;
- *Create a Decision Tool for Management* – to provide information that managers and leaders of local government, business and industry, community associations, and other key institutions and organizations need to take action to address vulnerabilities to future disasters;
- *Promote Compliance with State and Federal Program Requirements* – to ensure that Santa Barbara County and its incorporated cities can take full advantage of state and federal grant programs, policies, and regulations that encourage or mandate that local governments develop comprehensive hazard mitigation plans;
- *Enhance Local Policies for Hazard Mitigation Capability* – to provide the policy basis for mitigation actions that should be promulgated by participating jurisdictions to create a more disaster-resistant future; and
- Provide *Inter-Jurisdictional Coordination of Mitigation-Related Programming* – to ensure that proposals for mitigation initiatives are reviewed and coordinated among the participating jurisdictions within the County.
- Achieve *Regulatory Compliance* – To qualify for certain forms of federal aid for pre- and post-disaster funding, local jurisdictions must comply with the federal DMA 2000 and its implementing regulations (44 CFR Section 201.6). DMA 2000 intends for hazard mitigation plans to remain relevant and current. Therefore, Local plans (including Santa Barbara County's) are updated every five years. This means that the Hazard Mitigation Plan for Santa Barbara County uses a "five-year planning horizon". It is designed to carry the County through the next five years, after which its assumptions, goals, and objectives will be revisited and the Plan resubmitted for approval. Section 7 details specific goals and objectives with regard to implementing mitigation activities over the life of this Plan. In Section 8, Santa Barbara County has outlined a more aggressive approach to ensuring the Plan is implemented, evaluated, monitored and updated.

On the following pages are the resolutions that adopted the 2016 Plan.

RESOLUTION NO. 17-089

A RESOLUTION OF THE COUNCIL OF THE CITY OF SANTA BARBARA ADOPTING THE 2017 CITY OF SANTA BARBARA ANNEX OF THE SANTA BARBARA COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

WHEREAS, The Federal Disaster Mitigation Act of 2000 (Act), as described in 44 CFR Section 201.6 mandates local governments to submit and maintain a Federal Emergency Management Agency (FEMA) approved local hazard mitigation plan;

WHEREAS, The City of Santa Barbara has participated in a county-wide multi-jurisdictional Hazard Mitigation plan with Santa Barbara County Office of Emergency Management as the Operational Area and lead agency;

WHEREAS, The Multi-Jurisdictional Hazard Mitigation Plan identifies each jurisdiction's risk assessment and mitigation strategies to reduce the impacts of natural, technological, or intentional disasters on the public and local government;

WHEREAS, Identification of hazards in the City assists with response planning, exercise development, public education, and awareness, and other emergency management functions;

WHEREAS, the City's Local Hazard Mitigation Plan will be an Annex to the City's Emergency Operations Plan and a resource for the Safety Element of the City's General Plan in accordance with California Government Code Sections 8685.9 and 65302.6;

WHEREAS, FEMA approved the Santa Barbara County Multi-Jurisdictional Hazard Mitigation Plan, of which the City's Local Hazard Mitigation Plan is incorporated; and

WHEREAS, The Federal Disaster Mitigation Act of 2000 requires the Plan to be formally adopted by the City Council or governing agency.

NOW, THEREFORE, BE IT RESOLVED by the Council of the City of Santa Barbara, California, as follows:

1. The City Council approves and adopts the 2017 Local Hazard Mitigation Plan five (5) year update in accordance with the Disaster Mitigation Act of 2000.
2. The City Council adopts the Santa Barbara County Multi-Jurisdictional Hazard Mitigation Plan.
3. This Resolution is effective upon its adoption.

PASSED AND ADOPTED at a regular meeting of the City Council of the City of August 15, 2017.

_____
Mayor

ATTEST:

_____
City Clerk

RESOLUTION NO. 17-089

STATE OF CALIFORNIA	)	
	)	
COUNTY OF SANTA BARBARA	)	ss.
	)	
CITY OF SANTA BARBARA	)	

I HEREBY CERTIFY that the foregoing resolution was adopted by the Council of the City of Santa Barbara at a meeting held on August 15, 2017, by the following roll call vote:

AYES:	Councilmembers Jason Dominguez, Gregg Hart, Frank Hotchkiss, Cathy Murillo, Randy Rowse, Bendy White; Mayor Helene Schneider
NOES:	None
ABSENT:	None
ABSTENTIONS:	None

IN WITNESS WHEREOF, I have hereto set my hand and affixed the official seal of the City of Santa Barbara on August 16, 2017.

Sarah P. Gorman, CMC
City Clerk Services Manager

I HEREBY APPROVE the foregoing resolution on August 16, 2017.

Helene Schneider
Mayor

2

SECTION 3 PLANNING PROCESS

Overview

The planning process implemented for updating the Santa Barbara County *Multi-Jurisdictional Hazard Mitigation Plan* (HMP) utilized two (2) different planning teams. The first team is the Mitigation Advisory Committee (MAC) and the second is the Local Planning team. All eight (8) incorporated cities (City of Buellton, City of Carpinteria, City of Goleta, City of Guadalupe, City of Lompoc, City of Santa Barbara, City of Santa Maria, and City of Solvang) joined the County of Santa Barbara in the preparation of this *Multi-Jurisdictional Hazard Mitigation Plan*. Each of the participating jurisdictions had representation on the MAC and was responsible for the administration of their Local Planning Team.

The planning process followed the concepts and principles outlined in the Comprehensive Preparedness Guide (CPG) 101. Both the MAC and the Local Planning teams focused on these underling philosophies:

- *Focus on the mitigation strategy*
  The mitigation strategy is the plan's primary purpose. All other sections contribute to and inform the mitigation strategy and specific hazard mitigation actions.
- *Process is as important as the plan itself*
  In mitigation planning, as with most other planning efforts, the plan is only as good as the process and people involved in its development. The plan should also serve as the written record, or documentation, of the planning process.
- *This is the community's plan*
  To have value; the plan must represent the current needs and values of the community and be useful for local officials and stakeholders. Develop the mitigation plan in a way that best serves your community's purpose and people.
- *Intent is as important as Compliance*
  Plan reviews will focus on whether the mitigation plan meets the intent of the law and regulation; and ultimately that the plan will make the community safer from hazards.

The planning process for the Santa Barbara County *Multi-jurisdictional Hazard Mitigation Plan (*HMP) incorporated the following steps:

- *Plan Preparation*
  - Form/Validate planning team members
  - Establishing common project goals
  - Setting expectations and timelines
- *Plan Development*
  - Validate and revise the existing conditions/situation within planning area; the *Capabilities Assessment and Hazard Assessment Sections* in the HMP
  - Develop and review the risk to hazards (exposure and vulnerability) within the planning area; the *Vulnerability Assessment Section* in the HMP
  - Review and identify mitigation actions and projects within the planning area; the Mitigation Strategy in the HMP
- *Finalize the Plan*
  - Review and revise the plan
  - Approve the plan

- Adopt and disseminate the plan

Throughout this process, and though other standard practices, opportunities for public involvement was offered and encouraged.

The MAC team was guided through the planning process; and as material was shared and decisions were made, it was the MAC team's responsibility to bring these findings back to their Local Planning Team. Below is a summary of the collaborative planning process of the MAC and Local Planning team.

Mitigation Advisory Committee (MAC)

MAC Members

The Mitigation Advisory Committee (MAC), formed in 2004, is a standing committee that works together throughout the year to discuss and provide input on a variety of activities. The MAC is led by Santa Barbara County Public Works Department and Santa Barbara County Fire, Office of Emergency Services and has representation from all of the local jurisdictions.

The MAC was utilized for the updating of the Santa Barbara County *Multi-Jurisdictional Hazard Mitigation Plan.* To assist with this effort Santa Barbara County Fire, Office of Emergency Services hired a consultant to support and assist each jurisdiction to update their Local Hazard Mitigation Plan; contained as an annex in the Santa Barbara County *Multi-Jurisdictional Hazard Mitigation Plan*. The table below (**Table 0.1**) lists the members of the MAC.

Table 0.1 Members of the Mitigation Advisory Committee 2016

Names	Organization	MAC Member Status
Michael Dyer	Santa Barbara County – Emergency Manager	New Member
Shannon McCrone	Santa Barbara County – Emergency Services Planner	New Member
Robert Troy	Santa Barbara County – Deputy Director Emergency Management	New Member
Tylor Headrick	Santa Barbara County- GIS/Emergency Services Planner	New Member
Steve Oaks	Santa Barbara County Fire – Battalion Chief	New Member
Rob Hazard	Santa Barbara County Fire – Captain	New Member
Rudy Martel	Santa Barbara County Agricultural Commissioner	New Member
Joyce Tromp	Santa Barbara County Flood Control	New Member
Jon Frye	Santa Barbara County Flood	New Member
Tom Fayram	Santa Barbara County Public Works Deputy Director	Returning Member
Matthew Schneider	Santa Barbara County Planning and Development Deputy Director-Long Range Planning	New Member
Marc Bierdzinski	City of Buellton – City Manager/Planning Director	Returning Member
Mimi Audelo	City of Carpinteria – Program Manager	New Member
Claudia Dato	City of Goleta – Senior Project Manager (Public Safety)	Returning Member
Gary Hoving	City of Guadalupe – Public Safety Director	New Member
Kurt Latipow	City of Lompoc – Fire Chief	New Member
Yolanda McGlinchey	City of Santa Barbara – Emergency Services Manager	Returning Member
Roy Dugger	City of Santa Maria – Emergency Preparedness Coordinator	Returning Member
Bridget Elliott	City of Solvang – Associate Engineer	New Member

Names	Organization	MAC Member Status
Jim Caesar	UCSB – Emergency Manager	Returning Member
Lindsey Stanley	Cal OES – Emergency Services Coordinator	New Member
Andrew Petrow	Consultant	New Member

Overview of MAC Meetings

The MAC meetings were arranged and scheduled to follow the planning process steps outlined in Section 3.1. Each meeting was designed to walk the MAC members through sections of the Santa Barbara County *Multi-Jurisdictional Hazard Mitigation Plan* and annexes. In addition to reviewing and validating material, the intent was to also educate MAC members on the planning process and purpose of each section. By taking this step it will help ensure that each MAC member could bring this knowledge back to their Local Planning Teams. The table below (Table 3.2) provides a list and the main purpose of each of the MAC meetings.

Table 0.1 Mitigation Advisory Committee (MAC) Meetings Summary

Date	Purpose
April 2015	**Kick Off (in person)** • Reviewed and discussed the hazards in the Plan; including initial ranking. • Each jurisdiction was asked to review their previous goals and objectives with a local planning team.
December 2015	**MAC Meeting (in person)** • Recap of previous MAC meeting • Goal of the project • Understanding of HMP update requirements • Validation of team members • Proposed Planning Process • Review of Capabilities Assessment Section
January 2016	**MAC Meeting (conference call)** • Recap of previous MAC meeting • Review of Capabilities Assessment Section • Discussion of public outreach efforts • Preparation for next MAC meeting
February 2016	MAC Meeting (in person) • Recap of previous MAC meeting • Review of Hazard Assessment Section • Presentation of Vulnerability Assessment results • Discussion of public outreach efforts • Preparation for next MAC meeting
March 2016	MAC Meeting (conference call) • Recap of previous MAC meeting • Review of Capabilities Assessment and Vulnerability Assessment Sections • Preparation for next MAC meeting
April 2016	MAC Meeting (in person) • Recap of previous MAC meeting

Date	Purpose
	• Initial discussion of mitigation projects and actions
May 2016	MAC Meeting (conference call) • Recap of previous MAC meeting • Discussion of mitigation actions and projects • Discussion of update process • Preparation for next MAC meeting
June 2016	MAC Meeting (in person) • Recap of previous MAC meeting • Discussion of mitigation actions and projects • Discussion of update process

See Appendix 3A for sign-in sheets and presentations, where applicable.

City Local Hazard Mitigation Planning Team

Local Hazard Mitigation Planning Team Planning Process

Although plans are reviewed yearly by the Emergency Managers Task Team; the formally assembled it's Local Hazard Mitigation Planning Team (LHMP) in 2015 to begin the process of revising the City's portion of Local Hazard Mitigation Plan. The LHMP was developed utilizing key personnel from various departments within the City. The LHMP held meetings to review the all Sections of the Hazard Mitigation Plan and determine appropriate mitigation project and engage the public. The LHMP followed the same process as the County and MAC to keep consistency throughout the planning process.

The LHMP planning process was, 1) Plan Preparation by developing a team, establishing goals and setting priorities; 2) Plan Development by revising the existing *Capabilities Assessment and Hazard Assessment Sections* in the HMP, reviewed risks and hazards, reviewed and identified any additional mitigation actions and projects, and 3) Finalized the Plan in conjunction with the County's Multi-Jurisdictional Hazard Mitigation Plan.

As mentioned above, the City of Santa Barbara participated in the Mitigation Advisory Committee (MAC). Information and discussion topics raised at the MAC meetings were brought to the City's LHMP Team for discussion of relevance within the City limits and for this annex. Yolanda McGlinchey, Emergency Services Manager, served as the City's liaison on the MAC and coordinated the collaboration of the Local Hazard Mitigation Planning Team.

Local Hazard Planning Team Members

The following table lists the City of Santa Barbara Local Hazard Mitigation Planning Team members.

Table 0.1 City Planning Committee 2016

Name	Department	Title
Todd Stoney	Police	Captain
Adam Nares	Community Development	GIS Technician

Name	Department	Title
Ann Marx	Fire	Wildland Specialist
Rosemary Dyste	Community Development	Project Planner
Mick Kronman	Waterfront	Operations Manager
John Ewasiuk	Public Works – Engineering	Principal Engineer
Andrew Stuffler	Community Development	Chief Building Officer
Jeff Brent	Public Works – Streets	Maintenance Supervisor
Santos Escobar	Parks & Recreation	Parks Manager
Rick Fulmer	Public Works – Streets	Streets Manager
Tracy Lincoln	Airport	Operations Manager
Rob Badger	Administration –IS	Information Systems Manager
Joe Poire	Fire	Fire Marshal
Liliana Encinas	Fire	Public Education Specialist
Yolanda McGlinchey	Fire/OES	Emergency Services Manager

Overview of Local Planning Team Meeting

The City of Santa Barbara Local Hazard Mitigation Planning Team (LHMP) met regularly during the planning process. The City's Emergency Services Manager served as liaison to the County's Mitigation Advisory Committee (MAC) to discuss updates to this plan and provide comments on review drafts. The table below summarizes the meetings held by the City's LHMP Team.

Table 0.2 County Planning Committee Meetings Summary

Meeting Dates	Summary of Discussions
September 23, 2015	Initial meeting of Planning Team to review current plan and determine who needs to be part of the planning process.

October 20, 2015	Second Planning Team Meeting
	• Mitigation Strategies
	  o Review old projects
	  o Discuss new projects
	• Mapping – Which ones need updating
	• Next steps

December 8, 2015	Third Planning Meeting • Update on Mitigation Strategies • Update by GIS Team • Revisions to Schedule
December 10, 2015	Fourth Planning Meeting – Map Team Only • Progress on Maps • Mapping Questions • What is still needed from County

Meeting Dates	Summary of Discussions
March 1, 2016	Fifth Planning Team Meeting • Introductions • Review of MAC meeting • Discussion of Maps – Next Steps • Hazard Assessment
May 11, 2016	Sixth Planning Team Meeting • Review of 04-28-16 MAC meeting • Review Section Drafts • Maps • Critical Facilities • Vulnerability Assessments • Next Steps
July 26, 2016	Seventh Planning Team Meeting • Review information from July 15, 2015 Public Outreach • Review Sections 1,2,3,4 5, 6, 7 and 8 • Review Maps • Discuss Critical Facilities • Determine media for public outreach and comment

See Appendix 3B for sign-in sheets and presentations, where applicable.

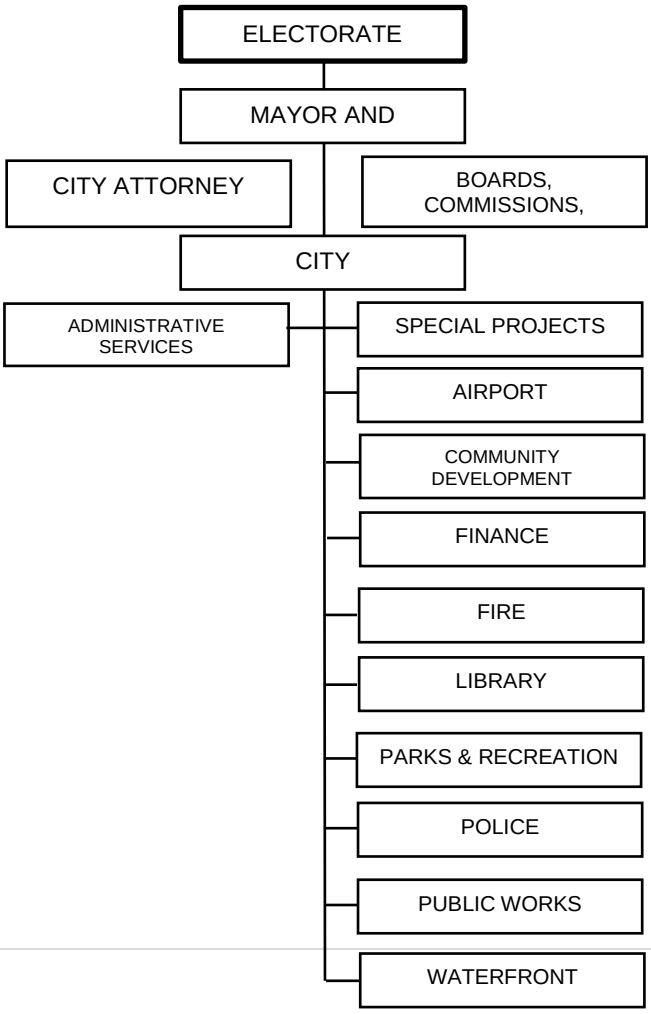
SECTION 4 CAPABILITY ASSESSMENT

The City of Santa Barbara Local Hazard Mitigation Planning Group identified current capabilities available for mitigation projects, activities and planning. This section outlines Santa Barbara's capabilities as it relates to governance; each city department's responsibility; the City of Santa Barbara Emergency Services Organization; an analysis of the City's capabilities and policies as they relate to hazard mitigation, Fiscal Resources, and the City's planning mechanisms.

Governance

The City of Santa Barbara employs a Manager-Council form of governance. Santa Barbara City Council is comprised of one Mayor and six Council Members, all of whom are elected officials each serving a four year term. The City of Santa Barbara's organization is comprised of thirteen departments. These departments are Administrative Services; Airport; City Administrator; City Attorney; Community Development; Finance; Fire; Library; Mayor and Council; Parks and Recreation; Police; Public Works; and Waterfront. In addition, Santa Barbara has 29 Advisory Boards, Commissions, and Committees whose job is to advise the City Council on a wide variety of subjects.

CITY OF SANTA BARBARA ORGANIZATION CHART



Departmental Responsibilities, Plans, and Capabilities

City Administrator's Office

The City Administrator's Office provides leadership, direction, and oversight to City departments to accomplish goals and objectives approved by the City Council, in accordance with the City Charter. The City Administrator manages all departments, provides training and development for all City employees, reviews the performance of all City departments, and assists the Council in prioritizing goals. The City Administrator's Office also provides oversight to City TV on Channel 18.

In response to natural disasters, the City Administrator's Office serves as the primary point of contact to coordinate the entire flow of public information. This is accomplished through the use of media releases, press conferences, website updates, the City TV scroll, public information kiosks and all other social media outlets. The Office works in conjunction with other emergency personnel to coordinate the public release of accurate, timely, and consistent information.

Administrative Services Department

The Administrative Services Department consists of three divisions: City Clerk, Human Resources, and Information Systems. Each division has multiple programs to best define, budget, and administer services. The Department provides important services to over 1,000 city employees and the community.

The City Clerk's Office provides agendas, staff reports, and minutes of City Council meetings; maintains and processes all City Council-approved ordinances, resolutions, deeds, agreements, and contracts; administers municipal elections; recruits and maintains membership records for advisory groups; and provides staff for the City Hall reception area and telephone system.

Human Resources provides a centralized program of personnel administration for over 1,039 regular positions. The division recruits and tests applicants for City positions; establishes job descriptions and compensation levels for over 365 classifications; conducts classification studies; provides staff support to the Civil Service Commission, coordinates disciplinary actions and assists managers on performance issues; administers benefit programs including health insurance, deferred compensation and retirement; in-processes new employees; provides new employee orientation; manages the computerized Financial Management System (FMS) in relationship to job titles, positions, compensation (COLAs, merit increases, status changes, etc.), and employee benefit selections.

Information Systems provides Infrastructure support, Financial and Enterprise Applications, and Centralized GIS. Infrastructure Support provides technical leadership, maintenance and user support for computing and networking services to City staff by operating and maintaining the City's 40+ Local Area Networks; providing maintenance and support to over 750 desktop computers; establishing and maintaining standards for hardware and software; coordinating the City's computer training program; establishing standards and providing oversight of the City's local Intranet and public Website; and performing systems analysis, system integration and system implementation. Financial and Enterprise Applications Support provides financial management systems and related services; maintains enterprise wide applications such as

maintenance management, SQL reporting services, and data exportation to support the analysis and inquiry needs of City staff; provides consulting services to all departments in areas of business problems, implementing solutions. Centralized GIS provides a standards and rules based central database of GIS data; provides tools to update and display GIS data; and provides detailed maps, drawings and other GIS services.

Santa Barbara Airport

The Santa Barbara Airport is one of the region's most important and visible assets. A recent University of California, Santa Barbara Economic Forecast Project study found that the Airport has a $500 million annual impact on the County. Since the 1930s it has been the region's primary air transportation facility. More than 755,000 passengers used the Airport in 2010; making it the busiest airport on the California coast between San Jose and Los Angeles. Consistent with national trends, air travel through the Santa Barbara Airport declined during the recent recession. However, upsizing of aircraft, and additional flights a have increased travel over the past year and airline forecast studies show the passenger volume will grow over the next 10 years.

The Airport is currently preparing a new master plan for development through 2025. The plan will identify Airport facility and capacity needs and prescribe improvements. It is vital that the Airport remain open during natural disaster situations to serve as a transportation point for the ingress and egress of personnel, equipment and supplies during the recovery phase of a disaster. The Airport completed a master drainage plan to address flooding issues, and several of the recommended projects from plan have been completed. The remaining flood control projects are listed in this document as potential projects for funding.

Approximately 400 of the 430 acres of the Goleta Slough Ecological Reserve are within Airport boundaries. As a steward of the slough, the Airport has made significant environmental improvements with plans for further restoration in the future.

In 2008 the Airport completed its airfield safety projects which brought the runway safety areas up to federal standard and reduced the commercial runway flood hazard.

As mitigation for the Airfield Safety Projects, the Airport has spent nearly $9 million to improve or restore 40 acres of wetland habitat in the Goleta Slough. Ten of those acres were completed in 2010 after a 3-year study of bird behavior in tidal wetlands. The results of this study show that the restoration of tidal circulation has improved habitat for wildlife while reducing the risk of wildlife strikes on or near the airfield. This study has national significance as other airports may follow in Santa Barbara's footsteps. Each restoration site is overseen in a 7-year maintenance and monitoring program to ensure success.

City Attorney Department

The City Attorney's Office is responsible for legal representation and advice to the City Council, Boards, Commissions and all City officers and staff. These responsibilities include advising the City Council and Planning Commission, as well as City staff, on thousands of matters each year. The office is also responsible for all City code enforcement and litigation services. The office is staffed by six attorneys and five support and paraprofessional staff.

Community Development Department

The Community Development Department is responsible for planning and zoning, building and safety, and housing and redevelopment for the City of Santa Barbara. The department has three divisions: Administration, Housing & Human Services; Building & Safety; and Planning.

The Housing & Human Service Division is responsible for a number of programs including: Successor Agency to the Redevelopment Agency, Affordable Housing Development, Housing Rehabilitation Loans, Community Development Block Grant (CDBG), Administration & Human Services Grants, Rental Housing Mediation, and Fair Housing Enforcement for the City of Santa Barbara. This division contributes to disaster mitigation through the funding of the housing rehabilitation and community improvement programs as well as capital improvement projects.

The Building & Safety Division is responsible for three programs: Building Inspection and Code Enforcement; Building Counter and Plan Review; and Records, Archives and Clerical Services. One of the primary functions of this division is to ensure all new and remodeled structures as well as additions to existing structures are constructed to current health and safety codes, thus lessening the potential impact of future disasters.

The Planning Division is responsible for four programs: Long Range Planning and Special Studies; Zoning Ordinance Information and Enforcement; Development / Environmental Review; and Design Review and Historical Preservation. This division mitigates natural and man-made hazards through the implementation of the General Plan, Zoning Ordinance, California Environmental Quality Act (CEQA), the Local Coastal Plan, the Subdivision Map Act, and a variety of other California planning statutes.

The primary responsibilities of this division in mitigating disasters is through: 1) the development of General Plan goals and policies, e.g. the Safety Element, 2) the permitting of proposed projects to ensure all development is consistent with hazard risk reduction and community resilience related goals and polices, and 3) the enforcement of existing development to ensure continued compliance with existing goals and policies through the Zoning Ordinance. In addition, all three divisions of the Community Development Department are regularly trained to respond to disasters and assist with the recovery efforts.

Fire Department

The mission of the Fire Department is to serve and protect the community from the perils of fires, medical emergencies, environmental emergencies, and natural disasters. This will be accomplished through education, code enforcement, planning, prevention, emergency response, and disaster recovery. The Fire Department is responsible for managing the following programs, Fire Administration; Fire Prevention; Wildland; Office of Emergency Services; and Fire Operations.

Fire Administration provides leadership, policy direction and administrative support to the entire department. Fire Prevention protects life, property and the environment from the perils of fire, hazardous materials, and other disasters through proactive code enforcement, modern fire prevention methods, fire and arson investigation and progressive public safety education, which provides fire and life safety education to the community to reduce the loss of life and property. Wildland ensures a safer community in the wildland-urban interface by assisting with and enforcing road clearance, defensible space and vegetation management, the Office of Emergency Services coordinates the City's response to disaster, educates residents to prepare

and operates the City Emergency Operations Center, located at Fire Station 1; Fire Operations saves and protects lives, property, and the environment of the Santa Barbara community by preventing the impact of future events through proactive planning, public education, and occupancy fire code inspections.
In 2004, the City adopted the Wildland Fire Plan, a comprehensive approach to mitigating the wildland fire hazard in the wildland- urban interface. The policies and actions developed for the Plan cover a wide range of areas. They include re-designation of the City's high fire hazard area, public education programs, evacuation preplanning, and changes to City codes, fire protection services, biomass utilization, and vegetation management programs on both private and public lands. The plan has recently been designated as the City's Community Wildfire Protection Plan. In an effort to implement elements of that plan the City adopted the Wildland Fire Suppression Assessment District (WFSAD) in 2006. In cooperation with residents of the district, the program has removed hundreds of tons of flammable vegetation, reducing the threat of wildfire and enhancing evacuation routes throughout the district.

The City of Santa Barbara's Manager of the Office of Emergency Services is a non-sworn management position within the Fire Department. The Emergency Services Manager is responsible for the development and maintenance of emergency plans, organization and coordination of emergency programs and training.

Public Library System

The Library System provides information services, reading materials and educational resources to residents of all ages from the Santa Ynez Valley through Carpinteria. The largest components of the department are areas of public service in the Central Library including circulation, reference, and youth services. The system includes seven branches, five of which are owned and funded by the County of Santa Barbara and administered under an agreement with the City. The Goleta Library is owned by the City of Goleta and administered under an agreement with the City. Additional activities include access to the Internet via public computers, an Adult Literacy program, interlibrary loan and borrowing, acquisition of materials, cataloging and processing of materials, and maintenance of the Library's catalog and users database.

Parks and Recreation Department

The City of Santa Barbara Parks and Recreation Department maintains 59 parks totaling nearly 1800 acres. The Parks Division is responsible for all aspects of park, open space, street tree and beach management and during emergencies provides logistical support such as personnel and supply transportation. The Recreation Division provides numerous recreational and cultural opportunities as well as community services. During emergencies the Department manages community buildings and recreation facilities as shelters and staging areas. The Golf Division manages the city's municipal golf course, which is a second staging area for emergency operations. The mission of the Creeks Restoration and Water Quality Improvement Division is to improve creek and ocean water quality and restore natural creek systems with the implementation of storm water and urban runoff pollution reduction, creek restoration and community education programs. The water quality program focuses on creek clean-up, street sweeping and storm water projects. Creek restoration programs improve creek health and water quality. Objectives include reducing erosion by bank stabilization and providing access where feasible. The Creeks Division has prepared Watershed Action Plans for Santa Barbara's three major watersheds and has held community forums for public input into these plans.

Police Department

The mission of the Santa Barbara Police Department, through the philosophy of community oriented policing, is to create a safe community where all people can live in peace without the fear of crime.

This commitment will ensure a professional quality of service and accountability to the citizens of the City of Santa Barbara.

While the primary mission of the Santa Barbara Police Department is law enforcement, the Police Department plays a pivotal role in general public safety as it relates to disaster preparedness. In addition, the Police Department has created some mitigation strategies that is included in their Unusual Occurrence Manual (UOM). The UOM is a guide for how officers will respond during a major incident or disaster.

The City's dispatch center was recently relocated to the Granada Garage facility at 1219 Anacapa Street. The move was due to the substandard condition of the current Police Department. In many emergency situations, police officers are among the first responders, assisting with traffic control, effecting evacuations and monitoring potentially life threatening situations.

Public Works Department

The City's largest department is Public Works. The department's total annual budget of over $93 million represents approximately 31% of the City's total budget and its 299 full time employees is approximately 14% of the City's permanent work force. The Department is responsible for operating the City's El Estero Wastewater Treatment Facility on Yanonali Street and the Cater Water Treatment Facility on San Roque Road. The Department's mission is to provide for the public's needs relative to the City's transportation system, water and wastewater services, refuse collection, construction and maintenance of all City facilities, automotive equipment communications equipment and repair and maintenance of all streets, sidewalks, and street lights throughout the City.

The Public Works Department is divided into five divisions: Administrative Services, Engineering, Facilities Maintenance, Transportation and Water Resource. The Engineering Division is responsible for contract engineering; construction; land development; real property; sewer design; surveying; and water design. The Facilities Maintenance Division is responsible for building maintenance; communications; custodial services; and motor pool. The Transportation Division is responsible for alternative transportation; parking; streets maintenance; transportation operations; and transportation planning. The Water Resources Division is responsible for water and wastewater administration; water supply management; water treatment; water distribution; wastewater collection; wastewater treatment; laboratory and environmental services.

The Department is responsible for the following emergency activities and areas:

- Recovery operations in all types of disasters.
    - Coordinating with Public Utilities companies in the repair of utilities essential to the life, health and welfare of the community.
    - Coordinating and furnishing of transportation to all emergency agencies of the City

and providing maintenance for disaster vehicles and equipment throughout the State of Emergency.

- Assuring of an adequate supply of water for emergency requirements and an adequate supply of potable water for human consumption.
- Assuring that sanitary facilities are operational or that alternate emergency facilities are provided.
- Assisting in and providing for traffic controls (signs, barricades, and signalization) and warning signs.
- Providing personnel to assist in EOC operations (office and field). Setting up and operating the Public Works Department Operating Center.

The Public Works Engineering Division is very involved in hazard mitigation activities. It manages the City's Capital Improvement Program and provides professional engineering services for planning, designing, surveying, inspecting and managing public works improvements. Long-range master planning to support the City's street, water, wastewater, transportation and parking infrastructures is also provided. The Division also provides the Airport, Waterfront, and all General Fund departments with engineering services. Services include in-house design, construction management and inspection of the annual water, sewer replacement and street capital improvement programs, plus contract administration of Airport, Waterfront, and Parks and Recreation capital projects.

Waterfront Department

The mission of the Waterfront Department is to provide the community with a quality Waterfront for recreation and commercial use, along with mooring and landside services for boating. The Waterfront Department manages approximately 252 acres of tidelands and submerged lands encompassing the Harbor and Stearns Wharf. These lands belong to the State and are held in trust by the City of Santa Barbara. The Waterfront Department consists of three Divisions: Business Services, Harbor Operations and Facilities Management.

Harbor Operations oversees the Santa Barbara Harbor Patrol. The mission of the Santa Barbara Harbor Patrol is to enforce laws, educate the public and provide emergency fire, medical and ocean response services to facilitate the safe and orderly use of the Waterfront area. In many instances, Harbor Patrol Officers are the first emergency personnel on scene to a critical incident. The Waterfront Department's Operations Division is also responsible for coordinating the Department's Tsunami response and is researching warning systems and evacuation plans.

The Waterfront Department's Facilities Division is responsible for maintenance of the breakwater, Stearns Wharf City Pier, and all of the marinas, providing clean and safe commercial and recreational facilities for tenants and visitors. They take the lead on the projects in the waterfront, including sediment management plans, structure remodels and marina reconfigurations.

The Business Division's Financial Management Section supports the Waterfront Department by staying within budget and processing revenue and expenditure accurately. The Property Management Section manages waterfront leases to ensure that the public receives quality services and that the Department collects market value rents. The Parking Services Section

provides competitively price parking that is convenient, clean and customer friendly to the community and the City's visitors.

In response to a natural disaster, the Waterfront Department, during a hazardous or disaster event, immediately transforms into an emergency response organization that includes the first responders, maintenance and finance sections. Preparation, mitigation and response plans are contained in the Waterfront's Department's Emergency Response Plan (2009).

A local base of operations called a Disaster Operating Center (DOC) located in the Waterfront Administration Building is established in order to effectively coordinate personnel and resources in order to immediately respond to hot spots as they are identified by the Incident Commander, local agencies and/or the public. The DOC becomes a base of operations and collection center for information, inspection/damage reports, and response strategies as they are developed. In addition, monitoring with the City's Emergency Operations Center (EOC) is coordinated with the Operations Section for public information, dispatch to the law enforcement, and dispatch to maintenance staff for any channel or road closures; as needed. Staff are deployed to mitigate hazards and inspect critical structures, as well as oversee any contracted clean-up or construction crews.

The Waterfront Department has a pre-planned routine for emergency response, to assure FEMA reimbursement by using the correct reporting techniques with pre-assigned teams responsible for inspecting critical facilities and to perform as flexible response units, all the disaster locations identified and numbered and called into the EOC (if opened).

City of Santa Barbara Emergency Services Organization

The City of Santa Barbara's Office of Emergency Services (OES) is a Division of the Fire Department. The purpose of OES is to develop and implement plans for the protection of persons and property within the City of Santa Barbara in the event of a disaster, and to coordinate Emergency Services functions of the City with all other public agencies and affected private persons, corporations and organizations.

The City of Santa Barbara's Emergency Services Organization is managed by the Emergency Services Council (ESC). The City Administrator serves as the Director of Emergency Services and acts as chair of the ESC. Other members of the ESC include: the Police Chief; Fire Chief; Public Works Director; and representatives of departments, service, or divisions designated by the City Administrator. The Emergency Services Manager is responsible for the development and maintenance of emergency plans, organization and coordination of emergency programs and training, and is also a member of the ESC.

The City of Santa Barbara's Emergency Services Organization is comprised of all officers and employees of the City, together with those volunteer forces enrolled to aid the City during a disaster, and all groups, organizations and persons who may by agreement or operation of law, including persons pressed into service under the provisions of Section 9.116.060(3) of the Santa Barbara Municipal Code be charged with duties incident to the protection of life and property in the City during such disaster. This includes, but is not limited to: School Districts; Santa Barbara Community College District; Santa Barbara Metropolitan Transit District; American Red Cross; and the Amateur Radio Emergency Services (ARES).

The City of Santa Barbara revised their Standardized Emergency Management System Emergency Management Plan (SEMS EMP) in January 2013 to ensure the most effective and

economical allocation of resources for the maximum benefit and protection of the civilian population in time of emergency. The EMP was developed in conjunction with the Santa Barbara County Operational Area, as part of the California Standardized Emergency Management System (SEMS) and the National Incident Management System (NIMS). The EMP addresses emergency responses associated with natural disasters, technological incidents, and national security. The objective of the plan is to establish an effective organization capable of responding to potential large-scale emergency situations using all appropriate facilities and personnel in the City. The SEMS EMP assigns tasks and specifies policies and procedures for coordination of emergency staff and service elements. The SEMS EMP identifies emergency response actions associated with the large-scale emergencies through standard operation procedures.

The plan states that hazard mitigation is a year round effort and encourages all entities to prepare hazard mitigation plans. The following activities are identified by the plan as potential mitigation activities: improving structures and facilities at risk; identifying hazard-prone areas and developing standards for prohibited or restricted use; recovery and relief from loss; and providing hazard warning.

Fiscal Resources

The fiscal year 2016 adopted budget includes a total operating budget of $293.4 million and a citywide capital program of $105.8 million. The General Fund, which includes traditional local government services, is composed of a $124.3 million operating budget and a $2.7 million capital program.

In addition to the General Fund, the City has a number of other funds used to account for various activities. Special revenue funds, totaling $33.7 million are used to account for revenues legally restricted for a specific purpose. Enterprise funds, totaling $117.6 million are used to account for the activities of the City operating in a manner similar to the private sector, including water, wastewater, airport, golf, downtown parking, and waterfront operations. Finally, internal service funds, totaling $27.2 million are used to account for services provided internally to City departments and programs, such as Information Systems and Risk Management Services.

In 1996, the City Council established minimum reserve levels for all operating funds, including the General Fund. Pursuant to the adopted resolution, the General Fund currently maintains two separate reserves:

- Emergency Reserve – Set at 15% of the adopted operating budget, established to respond to natural disasters, such as floods, earthquakes, etc.
- Economic Contingency Reserve – Set at 10% of the adopted operating budget, established to respond to provide for unique one-time costs and maintenance of City services, and to permit orderly adjustments during periods of reductions.

The following Table shows specific financial and budgetary tools available to the City of Santa Barbara such as community development block grants; capital improvements project funding; authority to levy taxes for specific purposes; fees for water, sewer, building impact fees for homebuyers or developers for new development; ability to incur debt through general obligations bonds; and the withholding spending in hazard-prone areas.

City of Santa Barbara: Fiscal Capability

Financial Resources	Accessible or Eligible to Use (Yes/No)
A. Community Development Block Grants (CDBG)	Yes
B. Capital improvements project funding	Yes
C. Limited authority to levy taxes for specific purposes	Yes
D. Fees for services	Yes
E. Impact fee for homebuyers or developers for new developments/homes	Yes
F. Incur debt through general obligation bonds	Yes
G. Incur debt through general obligation bonds	Yes
H. Incur debt through private activity bongs	Yes
I. Withhold spending in hazard-prone areas	Yes
J. Local, state and federal grant funds	Yes

Relevant Plans, Policies, and Ordinances

The City of Santa Barbara has a range of guidance documents and plans for each of its departments. These include a general plan, public works and public utilities plans, capital improvement plans, emergency management plans, Local Coastal Program (LCP), Master Environmental Assessment (MEA), Circulation Element, Mission Creek Project, Conejo Slide Area Program, Airport plans, flood response guidelines, Tsunami Response Guidelines, Watershed Response Guidelines and slough programs. The City uses building codes, fire codes, zoning ordinances, subdivision ordinances, and various planning strategies to address how and where development occurs. One of the essential ways the City guides its future is through policies laid out in the General Plan, Plan Santa Barbara.

It is important to note that during the Local Hazard Mitigation Plan update planning process these plans, programs, codes and policies were evaluated to determine their effectiveness in risk education and reduction efforts, as well as, its usefulness to implement mitigation measures. Any shortfalls or areas where the plans, programs, codes, and policies could be improved or expanded were identified and captured under annual review, the annual planning process and Mitigation Chapters of this plan. If no mitigation actions were identified, then it can be assumed that the Planning Team determined that no shortfalls or areas for improvement are needed.

The General Plan

The City of Santa Barbara General Plan was first adopted in the 1960's and was last updated in 2011. The 2011 General Plan is comprised of eight reorganized elements, including the seven

state mandated elements, as well as optional elements of Economy and Fiscal Health and Historic Resources.

Santa Barbara is a mature city, and not much vacant land remains for residential or nonresidential development. The remaining vacant land is generally found in areas of steep topography where development potential is constrained. Over 60 percent of the land is in residential use, excluding the residential portion of mixed-use development in the Downtown or other commercial areas. To encourage infill development and due to concern over resources limitations, the General Plan has a Growth Management program to limit nonresidential growth. Conversely, one of the top priorities of the General Plan is to encourage workforce and affordable housing in the City's multi-family and commercial zones. Institutional and public facilities are mainly found all over the City while most of the City's government facilities are found in the historical center of the community. There are approximately 1,086 acres of land dedicated open space and parks (not including beaches).

Zoning Ordinance

Local land use controls also include the Zoning Ordinance, which shapes the form and intensity of residential development. Consistent with the General Plan, the City's Zoning Ordinance allows a range of zones and dwelling unit densities from one unit per acre (single-family) to 27 units per acre (studio units with variable density). These zones also allow mobile home and emergency shelter units.

Zoning ordinance regulations related to hazard mitigation include Development Along Creeks, which provides controls on development adjacent to Mission Creek to prevent undue damage or destruction of development from flood water; a prohibition of residential second units and mobile homes in designated high fire hazard areas; and a slope density regulation that increases the minimum lot area where the average slope from 10 to over 30 percent.

The Environmental Policy and Construction section of the Municipal Code includes regulations and general requirements for hazardous waste generators, seismic safety, flood plain management, erosion and sedimentation control for construction, and construction prohibited in the vicinity of the Conejo Road landslide due to special geologic hazard conditions.

Starting in 2015, the City is updating its Zoning Ordinance to bring it up to date to reflect current uses and practices. The City's goal is that this project will result in a new Zoning Ordinance that is:

- Restructured, simple and user friendly
- Modern and current
- Clear in decision making processes
- More flexible in administering the code
- Aligned with historic interpretations
- Responsive to nonconforming situations.

Floodplain Management

The City of Santa Barbara does not participate in the National Flood Insurance Program (NFIP). The City purchases property insurance on the commercial market that provides coverage for loss related to flood. However, Flood Insurance Rate Maps (FIRMs) were developed through the NFIP and were last updated in September 2005 and have been made available in GIS format as Digital Flood Insurance Rate Maps. These are on file with the Santa Barbara Operational Area Office of Emergency Services, County Flood Control, and the Santa Barbara City Public Library that identify floodplains, along with evacuation routes and locations of public shelters.

Safety Element

The Safety Element is a required component of the City's General Plan and is element most relevant to hazard mitigation and emergency response. The Safety Element was updated in 2013 and includes specific items as prescribed by the California Government Code as well as other relevant safety issues that are considered important. Hazard maps provided in the Safety Element depict the general locations and possible severity of various hazards and are important tools in identifying and reducing the potential effects of hazards and for hazard response planning. The Safety Element provides information to guide the evaluation of hazard-related effects, provides policies to protect the community from hazard-related risk, and supports the implementation of programs intended to enable and expedite the recovery of a community after a disaster occurs.

SECTION 5 HAZARD ASSESSMENT

Overview

The purpose of this section is to review, update and/or validate the identified and profiled hazards in 2016 City Santa Barbara Multi-Hazard Mitigation Plan (HMP). The intent is to confirm the list of hazards facing the city and determine if the current information and material is current and accurate. The importance of this is to ensure that all hazards are being considered and decisions are based on the most up-to-date information. Another purpose of this section is to screen the hazards; providing an understanding of the significance by ranking higher priority hazards in the community.

As part of this effort the City liaisoned with the Mitigation Advisory Committee (MAC) and as well as the City's local planning team. The MAC group assessed information at the county-level, while the City's planning team assessed the information relating our jurisdiction.

As part of process both groups leveraged other planning efforts and documents, including the State of California Multi-Hazard Mitigation Plan, the Santa Barbara County Comprehensive Plan Seismic Safety and Safety Element, the City's 2013 Emergency Management Plan, and the Santa Barbara County 2016 HMP; as well as other various City plans.

Local Hazard Mitigation Planning Team Hazard Assessment

Utilizing the information and material from the State of California Multi-Hazard Mitigation Plan, the Santa Barbara County Comprehensive Plan Seismic Safety and Safety Element, and the City of Santa Barbara 2011 HMP, the City's 2013 Emergency Management Plan, the Local Hazard Mitigation Planning team, the Santa Barbara County Mitigation Advisory Committee (MAC) reviewed and revised: 1) the list of hazards in the geographic area, 2) the information and material presented for each hazard, and, 3) the prioritization of the hazards. The following sections provide a summary of the work.

Hazard Identification

Based on the review of the Santa Barbara City 2016 HMP and incorporating information from other documents (i.e., the California State Multi-Hazard Mitigation Plan) and local experience and knowledge, the LHMP team identified the following hazards as being relevant to City of Santa Barbara (**Table 5.1**).

Table 0.1 Relevant Hazards in the City of Santa Barbara

List of City Hazards
Earthquake
Wildfire
Landslide and other Earth Movements
Flood
Climate-Related Hazards
Sea Level Rise
Drought and Water Shortage
Severe Weather
Energy Shortage
Oil Spills
Dam Failure
Agricultural Pests
Epidemic/Pandemic/Vector Borne Disease
Hazardous Materials Release
Terrorism
Cyber Threats
Airline Crashes
Train Accidents
Tsunami
Civil Disturbance
Marine Invasive Species

Hazard Screening/Prioritization

The intent of screening hazards is to help prioritize which hazard creates the greatest concern in the community. Because the original process used to rank hazards in the Santa Barbara City 2011

HMP is not being utilized, an alternative approach is being recommended. A summary of the process and the results of the revised hazard ranking for the 2016 HMP update are discussed below:

Ranking Tool Design
The ranking tool prioritizes hazards on two (2) separate factors:

- Probability of the hazard affecting the community
- Potential impacts of the hazard on the community

To further assist with the process, the following definition of "High", "Medium", and "Low" probability and impacts were utilized:

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

Impact
High- Catastrophic/Critical: Major loss of function, downtime, and/or evacuations
Medium- Limited: Some loss of function, downtime and/or evacuations
Low- Negligible: Minimal loss of function, downtime and/or evacuations

Based on the revised list of hazards and utilizing the alternative approach, the LHMP team screened the hazards. The results of the assessment are in **Table 5.2**. The shading of the matrix boxes indicate the priority level: red = tier 1; green = tier 2; and gray = tier 3.

Table 0.2 Hazard Screening and Ranking

Rank	High Impact	Medium Impact	Low Impact
High Probability		• Drought/Water Shortage • Energy Shortage • Flooding • Landslide/Other Earth Movements • Oil Spill • Sea Level Rise/Coastal Flooding • Severe Weather • Wildfire	• Agricultural Pests/Disease • Train Accident
Medium Probability	• Earthquake	• HazMat Release • Terrorism	• Commercial/Military Aircraft Crash • Cyber Threat
Low Probability	• Dam Failure	• Civil Disturbance • Marine Invasive Species • Natural Gas Pipeline/Shortage • Tsunami	

Hazard Profiles

The following sections represents work done by the MAC and confirmed by the LHMP team. The information provided below is relevant to the City of Santa Barbara. In other words, if the LHMP team considered a particular hazard not a threat it was not included in the HMP. The following material is intended to be an overview of the hazards; more information may be found in the State of California Multi-Hazard Mitigation Plan, the Santa Barbara County Comprehensive Plan Seismic Safety and Safety Element, City's 2013 Emergency Management Plan and other documents.

5.1.1 Earthquake

5.1.1.1 Description of Hazard

An earthquake is caused by a release of strain, within or along the edge of the Earth's tectonic plates, which produces ground motion and shaking, surface fault rupture, and secondary hazards, such as ground failure. The severity of the motion increases with the amount of energy released, decreases with distance from the causative fault or epicenter, and is amplified by soft soils. After just a few seconds, earthquakes can cause massive damage and extensive casualties.

The effect of an earthquake on the Earth's surface is called the intensity. The intensity scale consists of a series of certain key responses such as people awakening, movement of furniture, damage to chimneys, and finally, total destruction. The scale currently used in the United States is the Modified Mercalli Intensity (MMI) Scale. It was developed in 1931 by the American seismologists Harry Wood and Frank Neumann. This scale, composed of 12 increasing levels of intensity that range from imperceptible shaking to catastrophic destruction, is designated by Roman numerals. It does not have a mathematical basis; instead it is an arbitrary ranking based on observed effects.

Most people are familiar with the Richter scale, a method of rating earthquakes based on strength using an indirect measure of released energy (**Table 5.3**). The Richter scale is logarithmic. Each one-point increase corresponds to a 10-fold increase in the amplitude of the seismic shock waves and a 32-fold increase in energy released. An earthquake registering 7.0 on the Richter scale releases over 1,000 times more energy than an earthquake registering 5.0.

Table 0.3 Richter Scale

Richter Magnitudes	Earthquake Effects
Less than 3.5	Generally not felt, but recorded.
3.5-5.4	Often felt, but rarely causes damage.
Under 6.0	Slight damage to well-designed buildings. Can cause major damage to poorly constructed buildings over small regions.
6.1-6.9	Can be destructive in areas up to about 100 kilometers across residential areas.
7.0-7.9	Can cause serious damage over larger areas.
8 or greater	Can cause serious damage in areas several hundred kilometers across.

Peak ground acceleration (PGA) is a measure of the strength of ground shaking. Larger peak ground accelerations result in greater damage to structures. PGA is used to depict the risk of damage from future earthquakes by showing earthquake ground motions that have a specified probability (10%, 5%, or 2%) of being exceeded in 50 years return period. These values are often used for reference in construction design, and in assessing relative hazards when making economic and safety decisions.

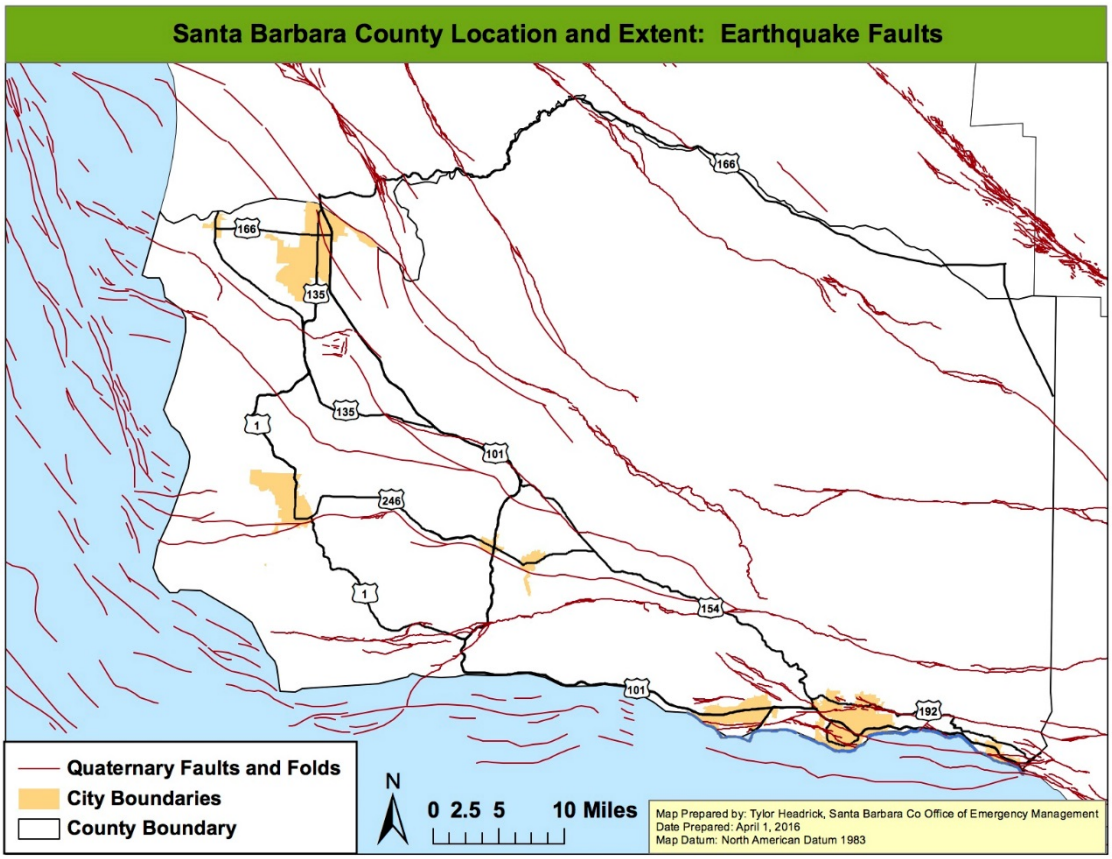
Liquefaction is the phenomenon that occurs when ground shaking causes loose, saturated soils to lose strength and act like viscous fluid. Liquefaction causes two types of ground failure: lateral spread and loss of bearing strength. Lateral spreads develop on gentle slopes and entail the sidelong movement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

5.1.1.2 Location and Extent of Hazard in Santa Barbara

As previously mentioned, Santa Barbara County, including the City of Santa Barbara, is located in a high seismic activity zone. The County is located in the Transverse Range geologic province. Movement of continental plates manifest primarily along the San Andreas Fault system. The San Andreas fault is situated 7 miles northeast of Santa Barbara County; active faults in the San Andreas Fault system that fall within Santa Barbara County include the Nacimiento, Ozena, Suey, and Little Pine faults. Other active faults in the region include the Big Pine, Mesa, Santa Ynez, Graveyard-Turkey Trap, More Ranch, Pacifico, Santa Ynez, and Santa Rose Island faults. The Santa Barbara County Comprehensive Plan Seismic Safety and Safety Element provides descriptions of all faults in Santa Barbara County, including historically active, active, potentially active and inactive, as well as their location and fault length. A map of faults in the Santa Barbara County region is located below (**Figure 5.1**).

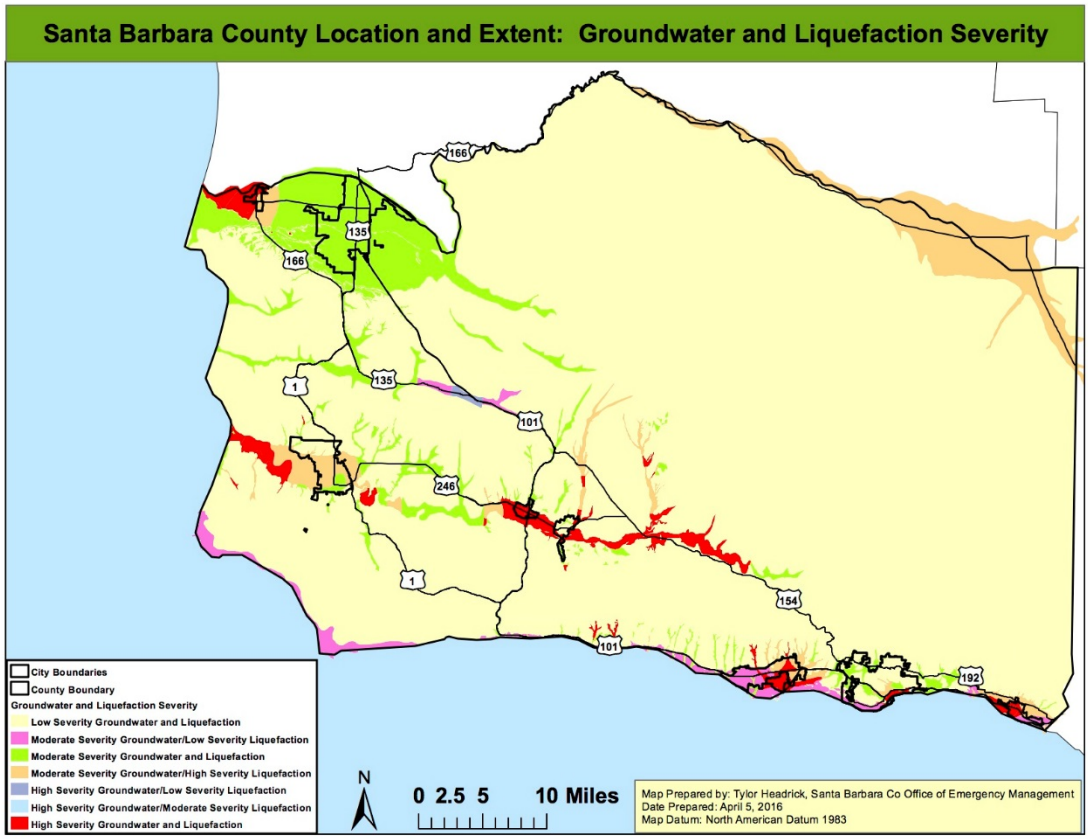
The City has areas of liquefaction that would cause severe damage in the downtown and lower eastside areas.

Figure 0.1 Earthquake Faults in Santa Barbara County



After earthquakes, some regions may be prone to liquefaction. On level ground, liquefaction results in water rising to the ground surface. On sloping ground, liquefaction will usually result in slope failure such as occurred at the Sheffield Dam in the 1925 Santa Barbara earthquake. Liquefaction risk is considered high if there were soft soils (Types D or E) present. The National Earthquake Hazards Reduction Program (NEHRP) rates soils from hard to soft, and gives the soils ratings from Type A through Type E, with the hardest soils being Type A, and the softest soils rated at Type E. The majority of the soils in Santa Barbara County are types A-C, with some areas having type D. There have been no Type E soils identified. (NOTE: A further discussion of soils can be found in the Santa Barbara County Comprehensive Plan Seismic Safety and Safety Element, along with maps of the expansive soils and collapsible soils problems ranking.) Liquefaction risk is also determined by depth to groundwater. Most of the low coastal plan and valley bottoms are underlain by alluvium and given a moderate rating with respect to liquefaction potential. Based on this information and work conducted as part of the Santa Barbara County Comprehensive Plan a map was generated indicating groundwater and liquefaction severity (**Figure 5.2**).

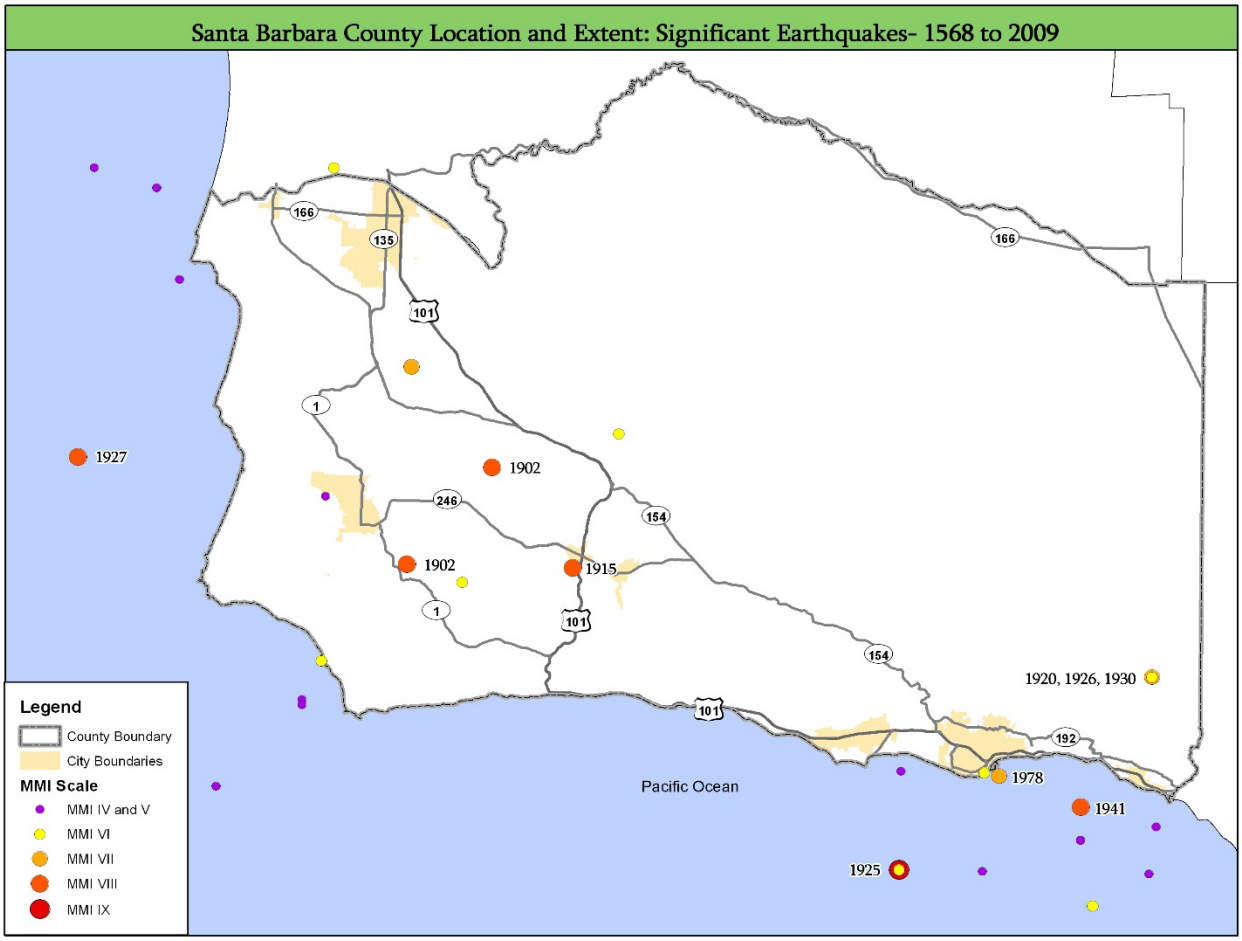
Figure 0.2 Groundwater and Liquefaction Severity



5.114 *History of Hazard in City of Santa Barbara*

City of Santa Barbara is located in a high seismic activity zone and as such has a long history of earthquakes. Although most seismic activity in California occurs along the San Andreas Fault system, most historic seismic events in the City of Santa Barbara region have been centered offshore on an east-west trending fault between Santa Barbara and the Channel Islands. The below map (**Figure 5.3**) displays historical epicenters of earthquakes located in the Santa Barbara County from 1568 to 2009. The dates of the more significant earthquake events are provided adjacent to the epicenters.

Figure 0.3 Significant Earthquakes 1568 to 2009



While more extensive discussion of previous earthquakes in Santa Barbara County is available in the Seismic and Safety Element of the Santa Barbara County Comprehensive Plan, the following information provides an overview of the more recent, significant events:

In June of 1925, the City experienced this destructive earthquake that caused property damage estimated at $8 million and killed 13 people. Most of the damage occurred at Santa Barbara and nearby towns along the coast, but the earthquake caused moderate damage at many points north of the Santa Ynez Mountains, in the Santa Ynez and Santa Maria River valleys. North of Santa Barbara, the earth dam of the Sheffield Reservoir was destroyed, but the water released caused little damage.

In Santa Barbara, few buildings on State Street escaped damage. Because parts of the main business district and the area near the seashore were built on land fill, many of the structures there were demolished, and others were so shattered that they had to be razed. In general, however, buildings of reinforced concrete were damaged little, except where workmanship was poor; frame buildings covered with stucco, sheathing, or lath also withstood the shock

well. Loss to the sewage system was heavy only in areas of land fill, but the disposal plant was destroyed above the surface of the ground.

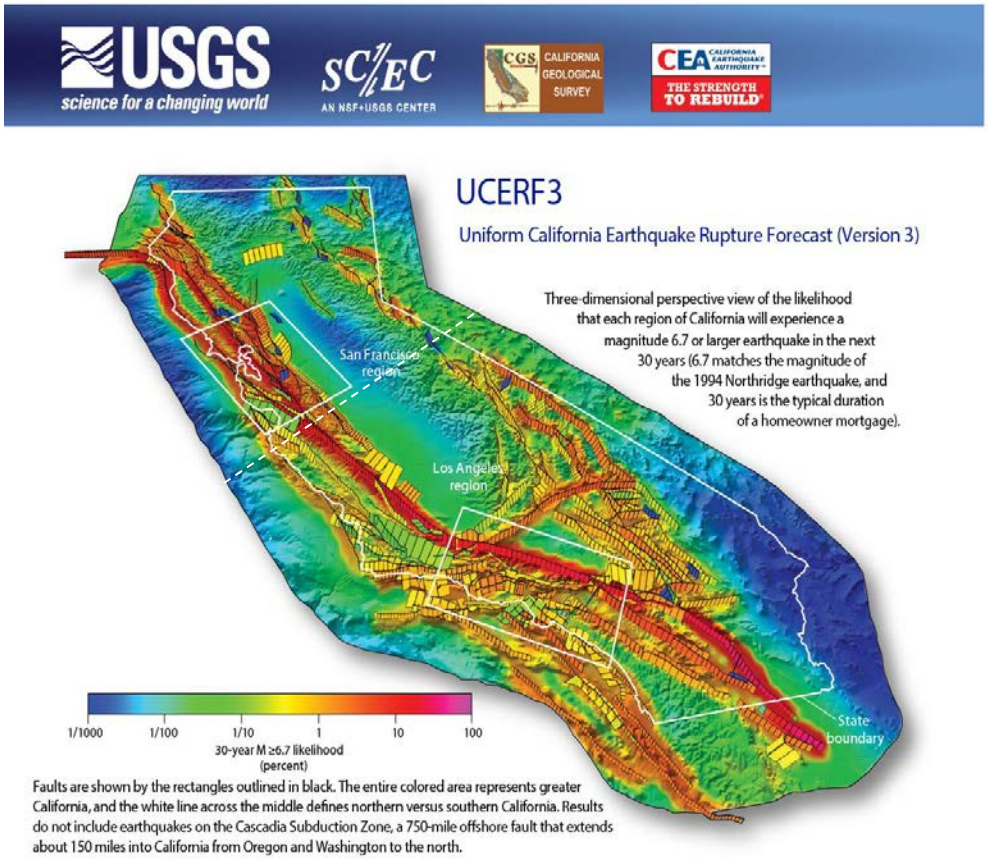
In March of 1978, and continuing sporadically through July of 1978, a swarm of small earthquakes, called micro-earthquakes occurred underneath the northeastern end of the Santa Barbara Channel. Toward the end of the micro-earthquake swarm, in July and early August of 1978, an unusually large amount of oil and tar was reported on local beaches in Santa Barbara. A common occurrence for the Santa Barbara area, the oil from these natural seeps was considered only a minor nuisance. On August 13, 1978, an earthquake occurred just to the southwest of the City of Santa Barbara, about 5 miles beneath the Santa Barbara Channel. There was minimal damage in the City. There were sixty-five people were treated for injuries at local hospitals. No deaths were reported.

On December 22, 2003 at 11:15 a.m. a magnitude 6.5 earthquake struck the central California coast. The event, known as the San Simeon Earthquake, was located 11 kilometers northeast of San Simeon, and 39 kilometers west/northwest of Paso Robles. Although the San Simeon Earthquake was felt in parts of the City there was no damage.

5.1.1.4 Probability of Occurrence

The United States Geological Survey (USGS) and their partners, as part of the latest Uniform California Earthquake Rupture Forecast Version 3 (UCERF3; 2015), have estimated the chances of having large earthquakes throughout California over the next 30 years (**Figure 5.4**).

Figure 0.4 Rates for Earthquake of Magnitude 6.7 or Larger in the Next 30 years (USGS, 2015)



Statewide, the rate of earthquakes around Magnitude 6.7 (the size of the 1994 Northridge earthquake) has been estimated to be one per 6.3 years (more than 99% likelihood in the next 30 years); in southern California, the rate is one per 12 years (93% likelihood in the next 30 years). Southern California's rates are given in **Table 5.4**.

Table 5.4 Southern California Region Earthquake Likelihoods (UCERF3, 2015)

Magnitude (greater than or equal to)	Average Repeat Time (years)	30-year likelihood of one or more events
5	0.24	100%
6	2.3	100%
6.7	12	93%
7	25	75%
7.5	87	36%
8	522	7%

5.1.1.5 *Climate Change Considerations*

To date, no credible evidence has been provided that links climate to earthquakes; however, climate and weather does play a significant role in the response and recovery from earthquakes. Effects from climate change could create cascading complications and impacts.

5.1.2 Wildfire

5.1.2.4 *Description of Hazard*

Wildfires can be classified as either a wildland fire or a wildland-urban interface (WUI) fire. The former involves situations where wildfire occurs in an area that is relatively undeveloped except for the possible existence of basic infrastructure such as roads and power lines. A WUI fire includes situations in which a wildfire enters an area that is developed with structures and other human developments. In WUI fires, the fire is fueled by both naturally occurring vegetation and the urban structural elements themselves. According to the National Fire Plan issued by the U.S. Departments of Agriculture and Interior, the wildland-urban interface is defined as "*…the line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels.*"

The WUI fire can be subdivided into three categories (NWUIFPP, 1998): The *classic wildland-urban interface* exists where well-defined urban and suburban development presses up against open expanses of wildland areas. The *mixed wildland-urban interface* is characterized by isolated homes, subdivisions, and small communities situated predominantly in wildland settings. The *occluded wildland-urban interface* exists where islands of wildland vegetation occur inside a largely urbanized area. Generally, many of the areas at risk within the Santa Barbara County fall into the classic wildland-urban interface category.

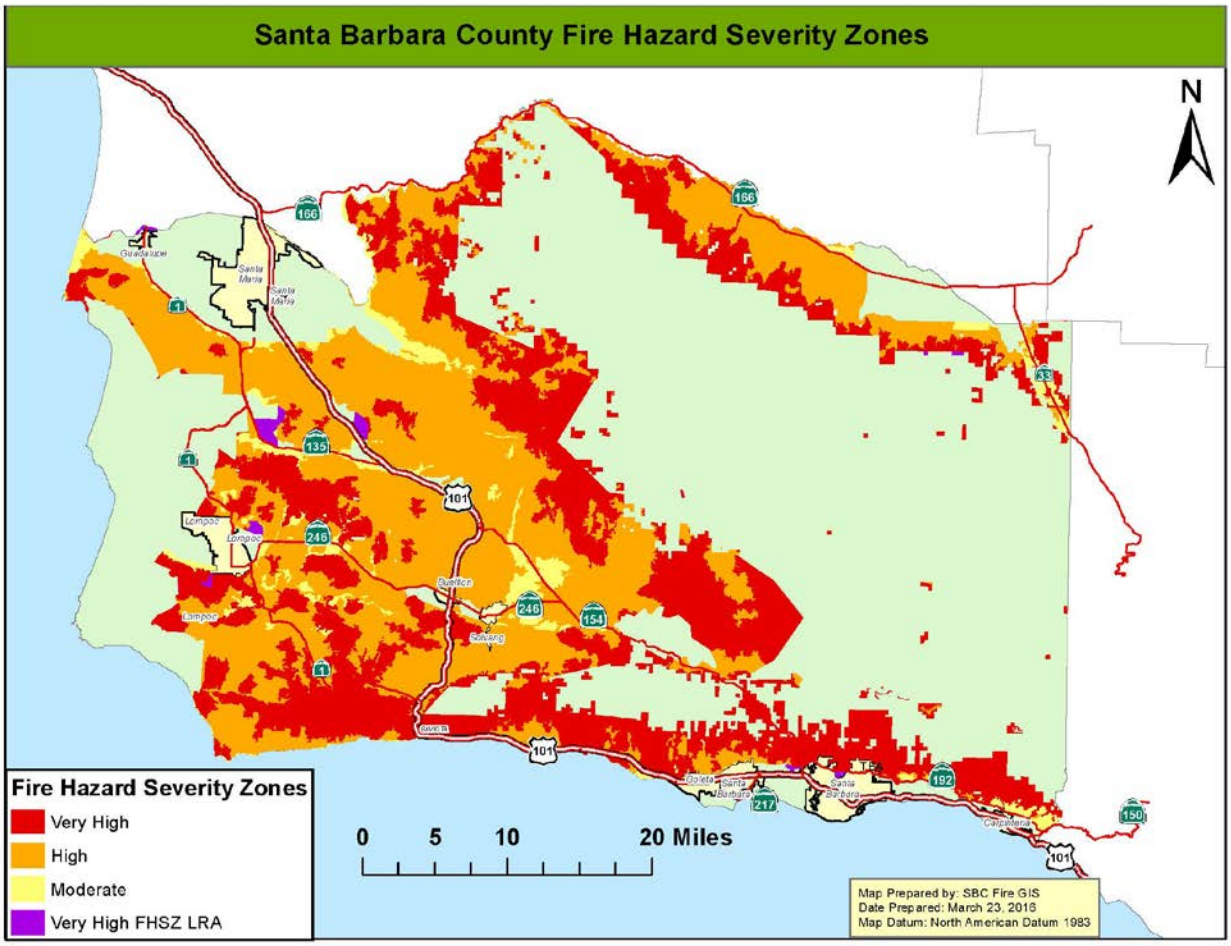
Certain conditions must be present for a wildfire hazard to occur; a large source of fuel must be present, the weather must be conducive (generally hot, dry, and windy), and fire suppression sources must not be able to easily suppress and control the fire. The cause of a majority of wildfires is human-induced or lightning; however, once burning, wildfire behavior is based on three primary factors: fuel, topography, and weather. Fuel will affect the potential size and behavior of a wildfire depending on the amount present, its burning qualities (e.g. level of moisture), and its horizontal and vertical continuity. Topography affects the movement of air, and thus the fire, over the ground surface. The terrain can also change the speed at which the fire travels, and the ability of firefighters to reach and extinguish the fire. Weather as manifested in temperature, humidity and wind (both short and long term) affect the probability, severity, and duration of wildfires.

5.1.2.5 *Location and Extent of Hazard in Santa Barbara*

The climate, topography, and vegetation in Santa Barbara County is conducive to wildfires. California Department of Forestry and Fire Protection, Fire and Resource Assessment Program (CDF-FRAP) were mandated to map areas of significant fire hazards based on fuels (vegetation), terrain, weather, and other relevant factors. These zones, referred to as Fire Hazard Severity Zones, define the application of various mitigation strategies to reduce risk associated with

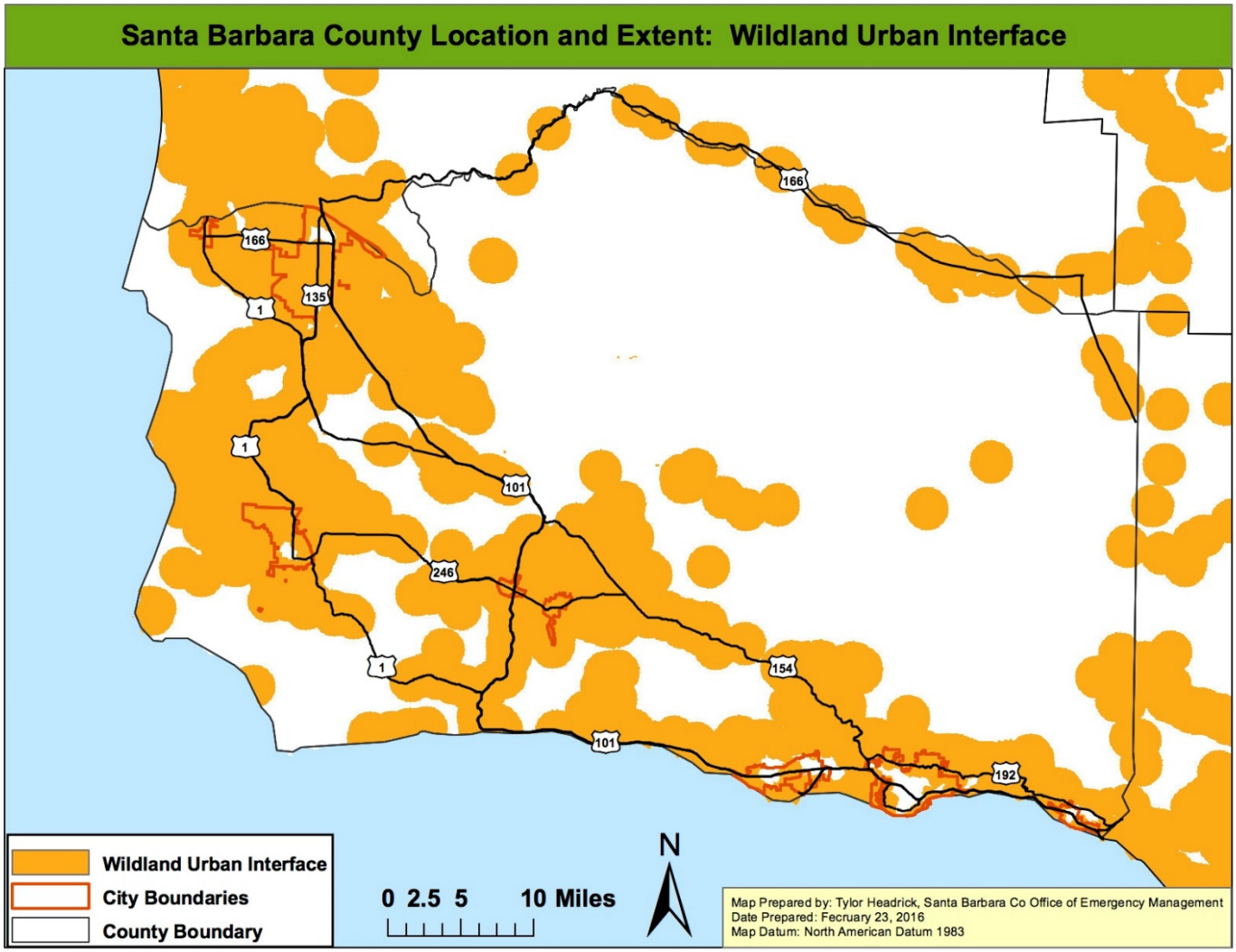
wildland fires. The most current mapping efforts by CDF-FRAP were conducted in 2007. The map below shows the Fire Hazard Severity Zones located in Santa Barbara County (**Figure 5.5**).

Figure 5.5 Fire Hazard Severity Zones



CDF-FRAP developed data that displays the relative risk to areas of significant population density from wildfire. This data is created by intersecting residential housing unit density with proximate fire threat, to give a relative measure of potential loss of structures and threats to public safety from wildfire. The map (**Figure 5.6**) was generated using this data but shows only the wildland-urban interface (WUI) in Santa Barbara County. The WUI map depicts areas where potential fuels treatments will be prioritized to reduce wildland fire threats.

Figure 5.6 Wildland-Urban Interface (WUI)



Fire representative on the LHMP team acknowledged that the WUI data shown in Figure 5.6 was developed on a statewide basis and does not consider the placement of local neighborhoods within the geography. Santa Barbara City Fire has created data at a more local level to convey communities at risk. Due to the threat, the City developed a 'Ready, Set, Go' guide for residents within the high fire area.

A list containing the federally regulated (communities which adjoin federal lands) communities at risk are within the Santa Barbara County's Hazard Mitigation Plan, which includes the City of Santa Barbara

The figure (**Figure 5.7**) below provides an overview of the location of the Communities at Risk.

Figure 0.7 Communities at Risk

5.1.2.6 History of Hazard in Santa Barbara

Because Santa Barbara County and the City are prone to wildfires. Because there are many areas in which the County and City intersect there is a long history of wildfires in the County that have affected the City (see shaded incidents). **Table 5.5** lists the major wildfires in Santa Barbara County from 1922-2015.

Table 0.5 Major Wildfires in Santa Barbara County

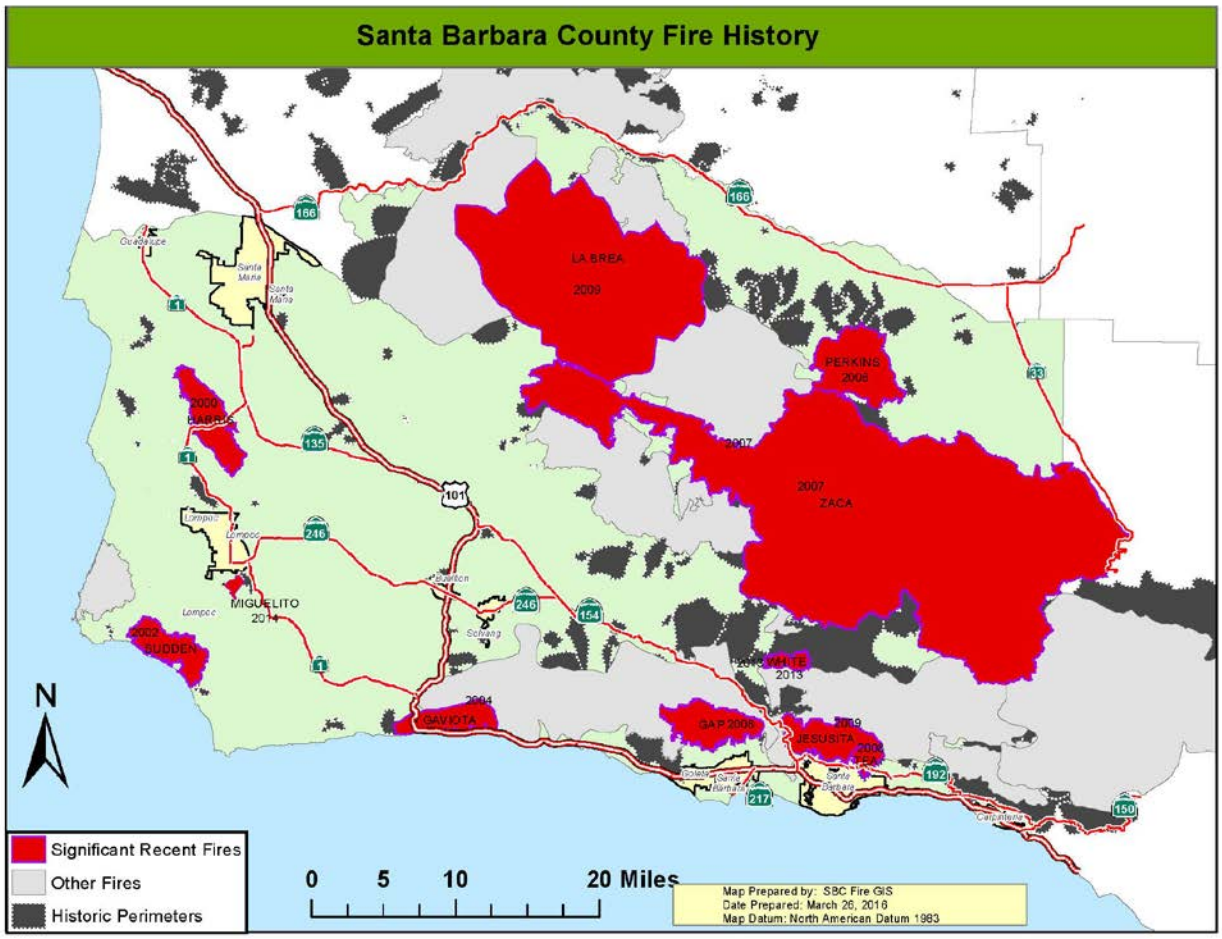
Year	Fire Name	Acres Burned
1922	Kellye Ranch	59,600
1923	Oso Canyon	70,000
1928	Aliso Canyon	42,880
1933	Indian Canyon	30,800
1950	San Marcos	9,500
1953	Big Dalton	73,450
1955	Refugio	84,770
1964*	Coyote	67,000
1966	Wellman	93,600

1971	Romero	14,538
1977*	Sycamore Canyon	805
1977	Hondo Canyon	8,087
1979	Spanish Ranch	1,190
1979	Eagle Canyon	3,765
1990*	Paint	4,424
1993	Marre	43,864
1994	Oak Hill	2,130
1997	Santa Rosa	3,074
1999	Spanish Ranch	22,296
1999	Camuesa	180
2000	Harris	8,684
2002	Sudden	7,500
2004	Gaviota	7,197
2006	Perkins	14,923
2007	Zaca	240,807
2008	Gap	9,443
2008*	Tea	1,940
2009*	Jesusita	8,733
2009	La Brea	89,489
2010	Bear Creek	1,252
2011	Figueroa	698
2013	White	1,984
2015	Miguelito	632

***Fires effecting the City of Santa Barbara**

The CDF-FRAP compiles fire perimeters of wildfires and has established an on-going fire perimeter data capture process. The map below (**Figure 5.8**) shows historic, significant wildfire perimeters in Santa Barbara County. Fire perimeters provide a reasonable view of the spatial distribution of past large fires.

Figure 5.8 Santa Barbara County Fire History



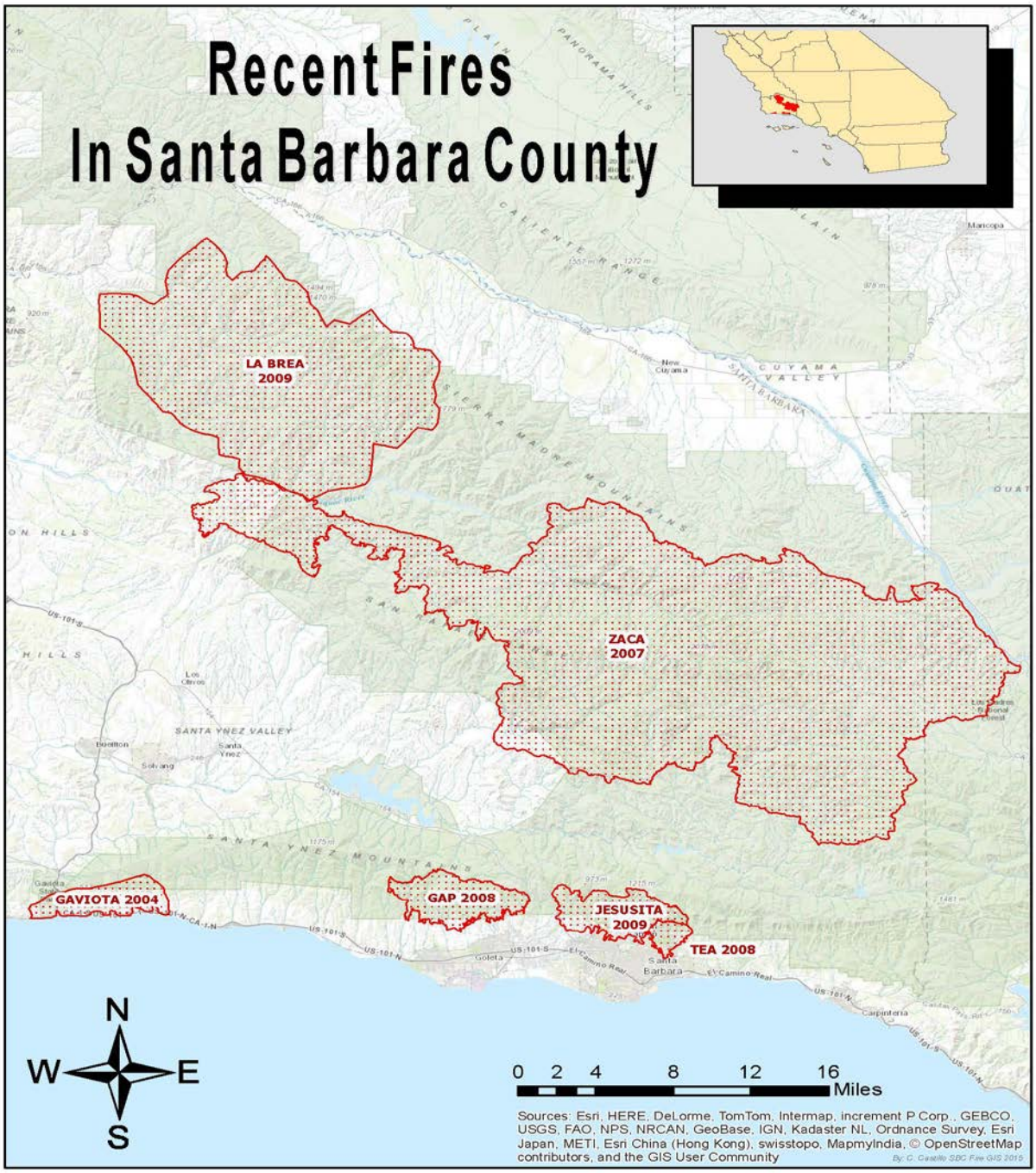
Over the last ten years, Santa Barbara County has experienced seven (7) major fires. Three of these fires; Gap, Tea, and Jesusita; directly threatened the heavily populated Santa Barbara Front Country and areas of the City of Santa Barbara. Two of these fires, Tea and Jesusita, destroyed close to three hundred structures and burned a total 16 ½ square miles. Combined, the La Brea Fire and the Zaca Fire burned a total of 518 square miles, predominately in backcountry areas of the County. Although these two fires did not directly threaten urban areas, the smoke and ash produced created air quality issues for hundreds of miles. Recently the Miguelito and the Mesa fires threatened the Lompoc area (2015). While more extensive discussion of previous wildfires in Santa Barbara County is available, the following information provides an overview and the location (**Figure 5.9**) of the more recent, significant events:

- The Zaca Wildfire burned 240,207 acres, making the Zaca Fire one of the largest wildfires in California history. The total cost of suppression was over $119 million.
- The Gap Wildfire charred 9,443 acres of forest in the Los Padres National Forest. The fire was located in the Santa Ynez Mountains north of the community of Goleta.
- The Jesusita Fire burned over 8,700 acres in the hills above the City of Santa Barbara. This wildfire was driven by a combination of a large dead fuel bed and sundowner winds gusting over 60 miles per hour. The damage, as a result of this fire, was significant, with

80 homes destroyed and another 15 homes badly damaged. No deaths were reported, but at least 30 firefighters were injured battling the fire.

- The La Brea Wildfire burned over 89,000 acres in the Los Padres National Forest in the County of Santa Barbara. The fire was fueled by very hot temperatures, low relative humidity and significant heavy fuels.

Figure 5.9 Recent Fires in Santa Barbara County

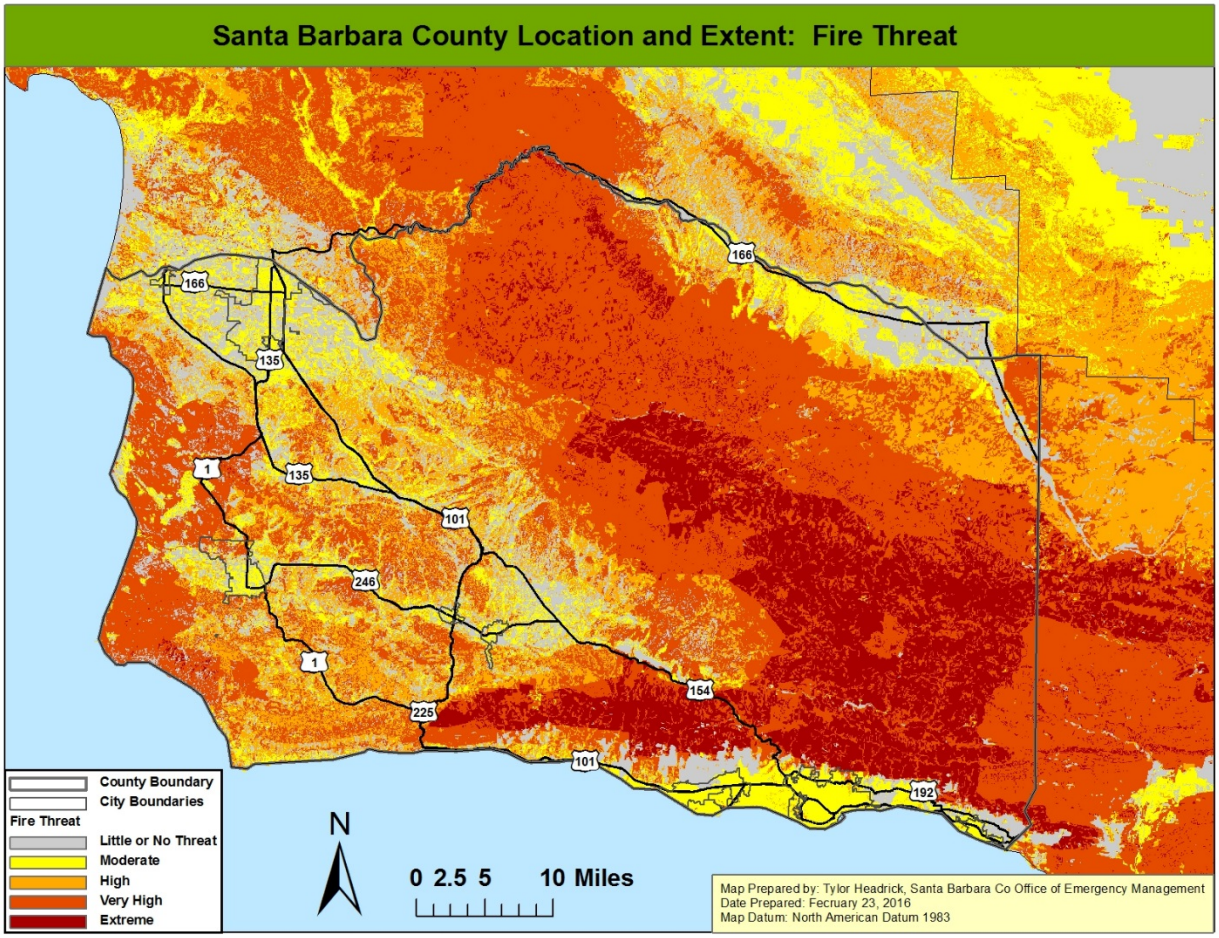


5.1.2.7 *Probability of Occurrence*

Vegetation and topography were the significant elements in the identification of the fire threat zones. A substantial amount of the vegetation in Santa Barbara is commonly called chaparral, it is a dense and scrubby bush that has evolved to persist in a fire-prone habitat. Chaparral plants will eventually age and die; however, they will not be replaced by new growth until a fire rejuvenates the area. Chamise, manzanita and ceanothus are all examples of chaparral which are quite common in Santa Barbara County.

Santa Barbara County was subject to 29 major wildfires over 88 years, resulting in a 33% chance of occurrence in any given year. In addition, the map below (**Figure 5.10**) shows the threat of fire to Santa Barbara County. Fire threat is a combination of two (2) factors: 1) fire frequency or the likelihood of a given area burning, and 2) potential fire behavior. These two factors are combined to create four (4) threat classes ranging from moderate to extreme.

Figure 5.10 Fire Threat



5.1.2.8 *Climate Change Considerations*

Climate change plays a significant role in wildfire hazards. The changing conditions from wet to dry can create more fuel; the increased possibility of high winds increase risk and present a challenge, and drought conditions could hinder ability to contain fires. Large wildfires also have several indirect effects beyond those of a smaller, local fire. These may include air quality and

health issues, road closures, business closures, and other forms of losses. Furthermore, large wildfires increase the threat of other disasters such as landslide and flooding.

5.1.3 Landslide and other Earth Movements

5.1.3.4 Description of Hazard

Landslides can be defined as the movement of a mass of rock, debris, or earth down an incline. Types of landslides include: rock falls, rock slides, deep slope failures, shallow debris flows, and mud flows.

- Slope failure occurs when there is erosion of slopes by surface-water runoff. The intensity of slope wash is dependent on the discharge and velocity of surface runoff and on the resistance of surface materials to erosion.
- Mudflows are defined as flows or rivers of liquid mud down a hillside on the surface of normally dry land. They occur when water saturates the ground, usually following long and heavy rain falls, or rapid snow melt. Mud forms and flows down slope if there is no ground cover such as brush or trees to hold the soil in place.
- Debris Flow is defined when water begins to wash material from a slope or when water sheets off of a newly burned stretch of land. Chaparral land is especially susceptible to debris flows after a fire. The flow will pick up speed and debris as it descends the slope. As the system gradually picks up speed it takes on the characteristics of a basic river system, carrying everything in its path along with it.

The most common cause of a landslide is an increase in the down slope gravitational stress applied to slope materials, also known as over-steepening. Over-steepening can be caused by natural processes or by man-made activities. Undercutting of a valley wall by stream erosion or of a sea cliff by wave erosion are ways in which over-steeping may occur naturally.

5.1.3.5 Location and Extent of Hazard in Santa Barbara

The location and extent of landslides are extremely difficult to predict consistently for a planning area the size of Santa Barbara County. Landslides and landslide prone sedimentary formations are present throughout the coastal plain of western Santa Barbara County (**Figure 5.11**). Landslides also occur in the granitic mountains of East Santa Barbara County, although they are less prevalent. Many of these landslides are thought to have occurred under much wetter climatic conditions than at present. Recent landslides are those with fresh or sharp geomorphic expressions suggestive of active (ongoing) movement or movement within the past several decades. Reactivations of existing landslides can be triggered by disturbances such as heavy rainfall, seismic shaking and/or grading. Many recent landslides are thought to be reactivations of ancient landslides.

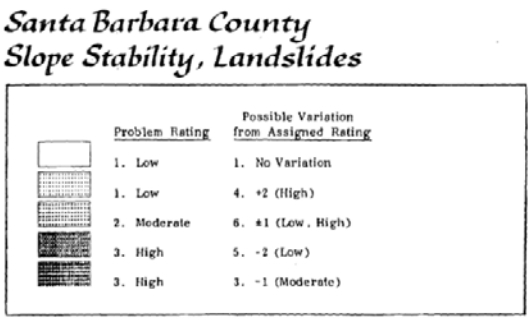
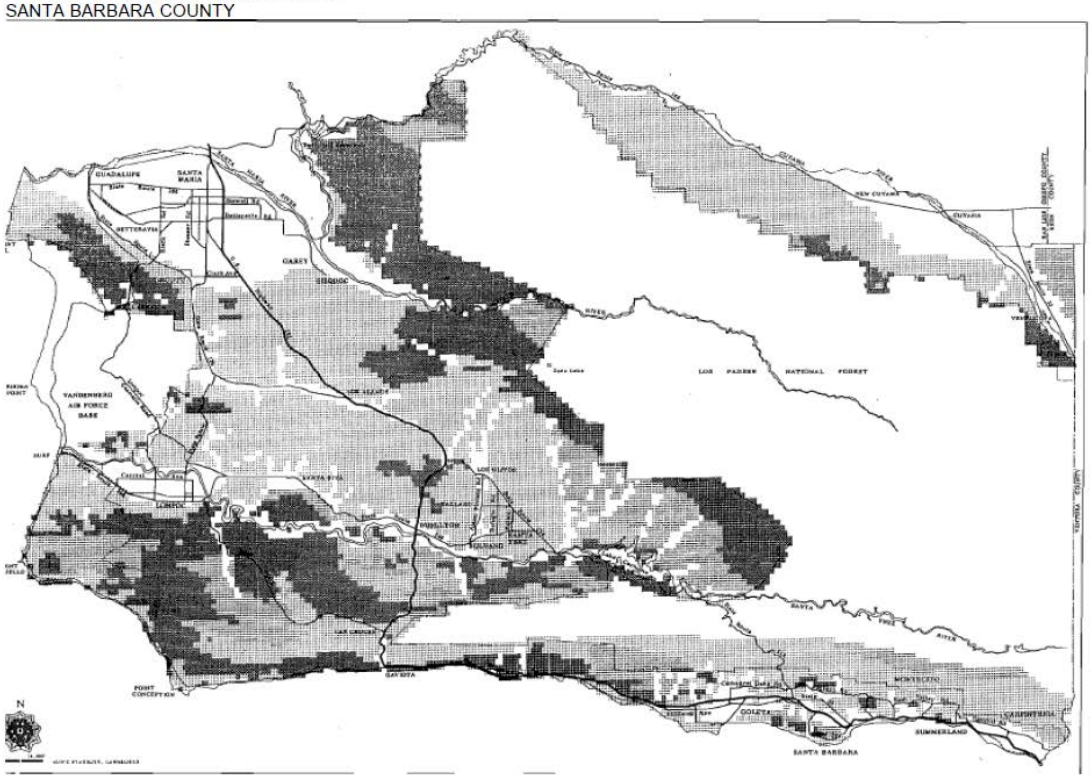


Figure 0.11 Slope Stability, Landslides

SLOPE STABILITY, LANDSLIDES
SANTA BARBARA COUNTY



The Santa Barbara County Comprehensive Plan Seismic Safety and Safety Element lists the areas in Santa Barbara County, that include a small portion of the City, where there is fairly severe land sliding and associated geologic formations. The areas are as follows:

- Foothills in the Summerland area
- Foothills of the South Coast – from Santa Barbara west to Gaviota Pass
- Hope Ranch area – west of Lavigia Hill to Goleta
- Sea cliffs along the coast from Santa Barbara to Gaviota, particularly those with out-of-slope dips
- Solvang area south of the Santa Ynez River in the vicinity of, and east of Alisal Ranch
- Areas east and northeast of Los Olivos near the Los Padres National Forest boundary
- Lompoc area south of Santa Ynez River
- Mountains south of Guadalupe and east of Point Sal
- Sycamore Canyon Road area between Alameda Padre Serra and Stanwood Drive; although in the county had a big effect on the City in regards to fire response and mutual aid in that area.

5.1.3.6 History of Hazard in Santa Barbara

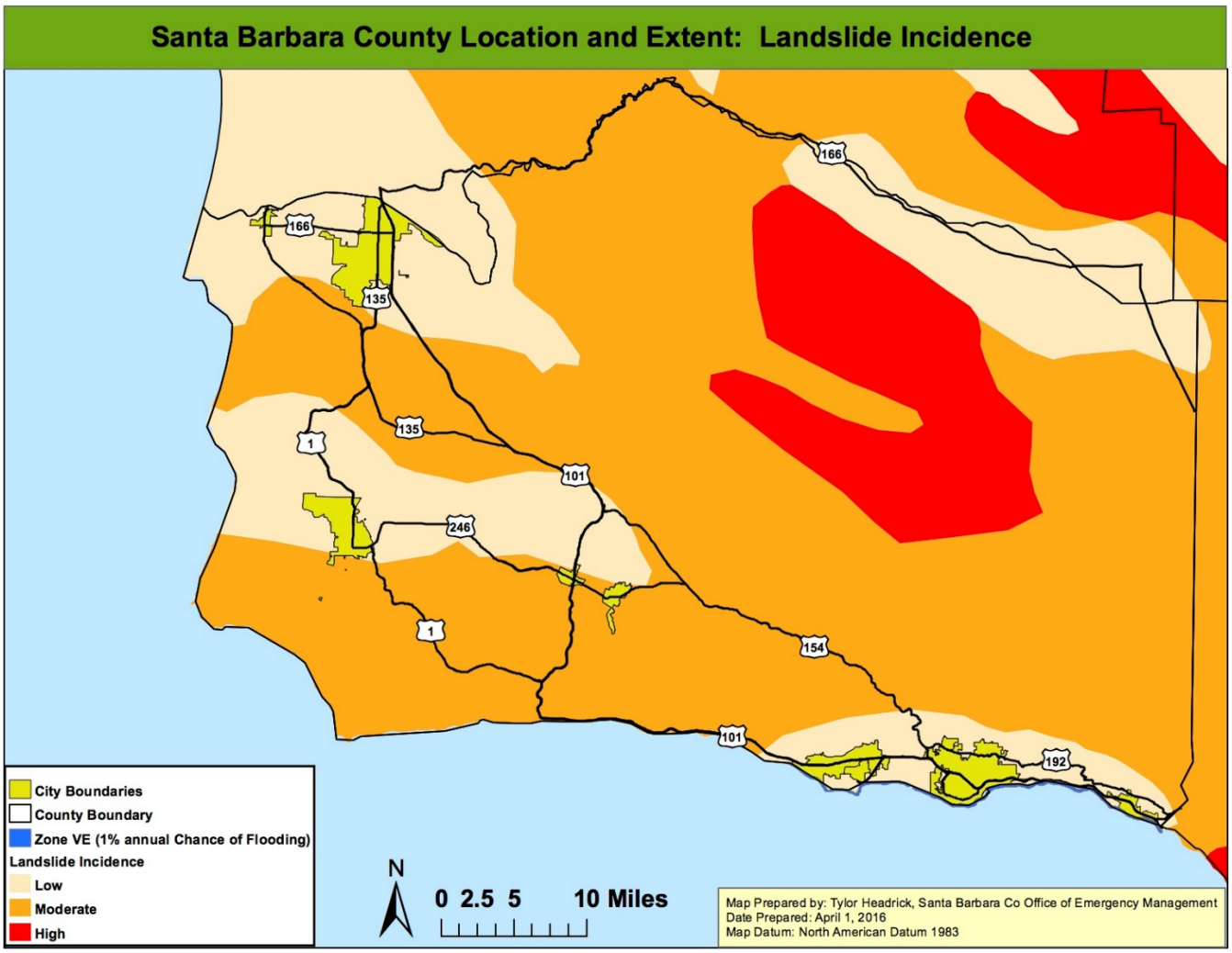
As previously mention, Santa Barbara County is prone to landslides; however the City has not experience any significant slides. However, some slides within the county has affected a few transportation corridors and hampered first responders

5.1.3.7 Probability of Occurrence

Figure 5.13 shows the general locations of high and moderate landslide risk in Santa Barbara County These areas are considered to have a higher probability of landslide occurrence than the low landslide risk areas in Santa Barbara County.

In order for landslides to occur, the correct geological conditions, which include unstable or weak soil or rock, and topographical conditions, such as steep slopes, are necessary. Heavy rain often triggers these hazards, as the water adds extra weight that the soil cannot bear. Over irrigating has the same affect. Earthquakes can also affect soil stability, causing enough weakening to favor gravitational forces.

Figure 0.13 Landslide Incidence



5.1.3.8 Climate Change Consideration

Climate change can increase the frequency and/or intensity of landslides. Changes in precipitation, specifically the increased frequency of intense precipitation, can result in a water content the ground cannot tolerate, and may cause landslides. These landslides may happen more frequently due to the increased number of heavy rainfall events. Also, the increased heavy precipitation events may cause instability in areas where landslides we not as likely before. Therefore, resulting landslides may be larger or more widespread.

5.1.4 Flood

5.1.4.4 Description of Hazard

A flood is a general and temporary condition of partial or complete inundation on land that is normally dry. Several factors determine the severity of floods, including rainfall intensity and duration, antecedent moisture conditions, surface permeability, and geographic characteristics of the watershed such as shape and slope. Other causes can include a ruptured dam or levee, rapid ice or snow melting in the mountains, under-engineered infrastructure, or even a poorly placed beaver dam can overwhelm a river or channel and send water spreading over adjacent land or floodplains.

A large amount of rainfall in a short time can result in flash flood conditions, as can a dam failure or other sudden spill. The National Weather Service's definition of a flash flood is a flood occurring in a watershed where the time of travel of the peak of flow from one end of the watershed to the other is less than six hours.

Another form of flooding occurs when coastal storms produce large ocean waves that sweep across coastlines making landfall. Storm surges inundate coastal areas, destroy dunes, and cause flooding. If a storm surge occurs at the same time as high tide, the water height will be even greater. The County historically has been vulnerable to storm surge inundation associated with tropical storms and El Nino.

5.1.4.5 Location and Extent of Hazard in Santa Barbara

The geographical location, climate, and topography of Santa Barbara City and County make it prone to flooding. In regions such as Santa Barbara, without extended periods of below-freezing temperatures, floods usually occur during the season of highest precipitations or during heavy rainfalls after long dry spells. Additionally, due to the Mediterranean climate and the variability of rainfall, stream flow throughout the County is highly variable and directly impacted from rainfall with little snowmelt or base flow from headwaters. Watercourses can experience a high amount of sedimentation during wet years and high amounts of vegetative growth during dry and moderate years.

The drainages in the City of Santa Barbara are characterized by high intensity, short duration runoff events, due to the relatively short distance from the top of the Santa Ynez Mountains to the Pacific Ocean. Runoff from high intensity, short duration storm events can cause inundation of over bank areas, debris including sediment, rock, downed trees in the water that can plug culverts and bridges, erosion and sloughing of banks, and loss of channel capacity due to sedimentation.

Another contributing factor to flooding is the City's location along the Pacific Ocean. With its six (6) miles of coastline, the City is susceptible to storm surge events following storms off the coast. Additionally, portions of the City's subject to flooding due to flash flooding, urban flooding, watershed channel overflow, and downstream flooding.

5.1.4.6 History of Hazard in Santa Barbara

Flooding has been a major problem in the City of Santa Barbara. The City has several watershed areas that have different types of flooding problems, including over bank riverine flooding, flash floods, tidal flooding/tsunamis, and dam failure. The most common flooding in Santa Barbara is due to watershed channel flooding and flash flood events.

Between 1862 and the 2014, Santa Barbara City and County experienced 19 significant floods. Eight of these floods received Presidential Disaster Declarations. **Table 5.6** lists these floods, as well as information concerning the nature of the flooding and the extent of the damages. Shaded events occurred in the City of Santa Barbara.

Table 0.6 Historical Records of Large Floods in Santa Barbara County

Date	Damages	Source of Estimate	Comments
1862	Not available	1993 Precipitation Report	Largest discharges ever in California
1907	Significant damage to structures, crops	1993 Precipitation Report	4 straight days of rain, entire Lompoc Valley engulfed
1914	Twelve houses and six bridges lost	County of Santa Barbara Sanitation and Flood Control	Destroyed 2 dams, 22 deaths
1952	50+ homes inundated, large-scale evacuations	EIR, 1993 Precipitation Report	Propagated the formation of the Flood Control District
1964	Millions of dollars	Floodplain Information Montecito Streams Vicinity of Montecito, SB County	Relatively light rain fell on recently burned areas. 20' walls of water, mud, boulders, and trees
1969	$4.5 million	Floodplain Information Montecito Streams Vicinity of Montecito, SB County	Highest flows in 2900 years on Santa Ynez River, 16" of rain in 24 hours at Juncal Dam
1971	Federal Disaster Declaration	Floodplain Information Montecito Streams Vicinity of Montecito, SB County	High flows and flooding along Romero Canyon Creek, Garrapata Creek, and Toro Canyon Creek
1978	Millions of dollars, Presidential Disaster Declaration	1993 Precipitation Report and Hydrology Methods	Inundation of agricultural areas and mudslides.
1980	Presidential Disaster Declaration	n/a	Severe flooding, mudslides, and high tides throughout County
1982-1983	2 Presidential Disaster Declarations	n/a	Parts of southern California received over 200% of normal rainfall
1993	$1.4 million in disaster recovery funds received from FEMA	1993 Precipitation Report and Hydrology Methods	180%-209% of normal rainfall, with highest-ever intensity for the County recorded at Buellton Fire Station: $1^1/_4$ inches in 15 minutes.
January 1995	$50 million, Presidential Disaster Declaration	1995 Floods	Flooding on most major channels in Goleta, Santa Barbara, Montecito, and Carpinteria
March 1995	$30 million, Presidential Disaster Declaration	1995 Floods	Major flooding in Goleta, Santa Barbara, and Montecito, many of the same structures flooded in January were flooded again

Date	Damages	Source of Estimate	Comments
1998	$15 million, Presidential Disaster Declaration	1998 Flood Report	21.36" of rainfall that month in Santa Barbara, many areas at 600% of normal February rainfall
February 2005	$2 million	NCDC	In Santa Barbara county, flash flooding and mudslides closed down Highway 101 at Bates Road.
January 26, 2011	Total Individual Assistance: $1,909,557 Total Public Assistance: $75,414,223 Countywide per capita impact: Santa Barbara County- $9.43, Presidential Disaster Declaration	FEMA	Severe winter storms, flooding, and debris and mudflows occurred from December 17, 2010 to January 4, 2011. The counties affected include: Inyo, Kern, Kings, Orange, Riverside, San Bernardino, San Diego, San Luis Obispo, Santa Barbara, and Tulare.
March 2011	$1.7 Million	County Insurance Claims	A severe winter storm occurred in March 2011 that included flooding, debris and mudflows flows throughout Santa Barbara County
March 1, 2014	$500k	Television Reports	A strong winter storm caused significant damage to coastal properties on the south coast of Santa Barbara County. Coastal Damage; Goleta Pier partially closed
December 12, 2014	<$100k	County Flood Control District	A brief but intense rainfall, portions of which covered a limited area that exceeded a 200-year return period, caused damage county-wide, mostly in the form of downed trees, bank erosion and sediment and debris deposition.

While there is extensive detailed documentation of historical flood events in Santa Barbara County, the following section provides a summary of the more recent significant flood events:

1992 Flood- The 1992 – 1993 rainy season was one of the wettest recorded in Santa Barbara County, areas of the County received 180% to 209% normal rainfall. One of the County's highest short-duration rainfall intensities was recorded during 1993; 1-¼-inches fell in fifteen minutes at the Buellton Fire Station. Following a 25-year storm event that occurred in late March, Santa Barbara was declared a federal disaster area with 12 creeks substantially damaged along with several detention basins and residences. Santa Barbara County received approximately $1.4 million in disaster recovery funds from FEMA. (1993 Precipitation Report and Hydrology Methods) (Presidential Disaster Declaration)

1995 Flood- The floods of 1995 brought widespread flooding to Santa Barbara County. The most severe flooding occurred on the South Coast while the rest of the County was largely

spared from serious damages. On the South Coast, the 1995 Flood was more severe and wide spread than either the 1969 or 1967 floods. Flooding occurred on most major streams from Goleta to Montecito. Estimated public and private damages were around $100 million and the area was declared a federal disaster area. (1995 Floods)

January 1995- Flooding occurred on most major channels in Goleta, Santa Barbara, Montecito, and Carpinteria. Approximately 510 structures were reported flooded and/or damaged along the South Coast, with a total cost resulting from public and private damages of approximately $50,000,000. All modes of transportation in and out of the South Coast were cut off for several hours; some modes of transportation were not restored for several days. (1995 Floods) (Presidential Disaster Declaration)

March 1995- During the March 10th 1995 storm, major flooding occurred again in the areas of Goleta, Santa Barbara, and Montecito. More than 300 structures were reported flooded and/or damaged; many of the same structures flooded or damaged during the January 1995 storm event. Approximately 30 million dollars of public and private property were damaged during the storm. There was also one death due to this storm in the Sycamore Canyon area of the City. Once again, all modes of transportation in and out of the South Coast were cut off for several hours. (1995 Floods) (Presidential Disaster Declaration)

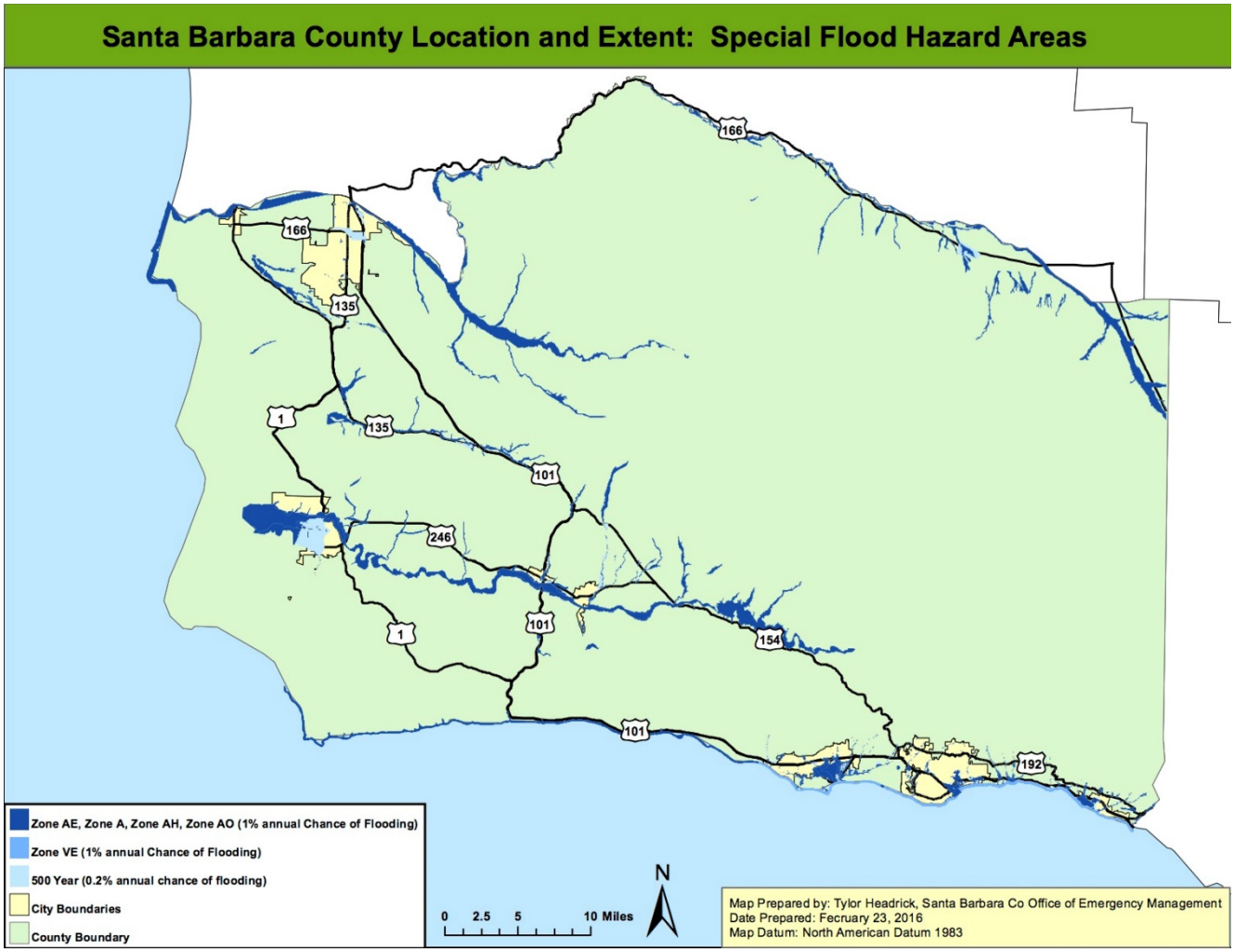
1998 Flood– February 1998 brought several record-breaking rainfalls with 50-year storm event intensities. The City of Santa Barbara recorded its wettest month in history, 21.36-inches of rainfall. By the end of the month, many areas in the County had received 600% of normal February rainfall. Flood related damages within Santa Barbara occurred during three major storm periods: February 1-4, February 6-9, and February 22-24. The cost to repair extensive flood damage to public and private property was estimated at $15 million. Just like in 1995, transportation throughout the County was disrupted through closures of roads, the Santa Barbara Airport, and train service. Flood damage was spread throughout the County and the County was declared a Federal Disaster Area on February 9. (Presidential Disaster Declaration)

Although the February storms had higher annual rainfalls, flooding in 1998 was considered less severe than other historical events due to flood control improvements, such as Cachuma Reservoir, and channel and debris dam maintenance performed by the County. (1998 Flood Report)

5.1.4.7 Probability of Occurrence

The probability of flooding in Santa Barbara County, which includes the City of Santa Barbara, is shown in **Figure 5.14**. The map shows the location of the special flood hazard zones in Santa Barbara County. The flood hazard zones depicted on the map are derived from FEMA's Flood Insurance Rate Maps (FIRM) and indicate the probability of flooding happening over a given period of time. Flood zones are geographic areas that defined varying levels of flood risk. Each zone reflects the severity or type of flooding in the area. The FIRM boundaries are developed by FEMA to convey flood risk.

Figure 5.14 Special Flood Hazard Area



Within the coastal special flood hazard area, there are two primary flood zones: Zone VE and Zone AE. Zone VE, also known as the Coastal High Hazard Area, has a wave component that is greater than three feet in height. Coastal Zone AE has a wave component of 0-3 feet in height.

The Federal Emergency Management Agency is conducting a coastal flood study for Santa Barbara County as part of the California Coastal Analysis and Mapping Project. Results from this Open Pacific Coast Study will produce flood and wave data for the National Flood Insurance Program, Flood Insurance Study reports, and regulatory Flood Insurance Rate Map panels. [1]

This coastal study will result in floodplain mapping that is anticipated to become effective in 2018. Current indications are that the resulting base flood elevations will be several feet higher than the current flood mapping.

[1] Source: FEMA; Santa Barbara, California Open Pacific Coast Study, California Coastal Analysis and Mapping Project, April 2016

The following below describes the different flood hazard zones and their associated probabilities.

Zone A

Zone A is the flood insurance rate zone that corresponds to the 100-year floodplains that are determined in the Flood Insurance Study (FIS) by approximate methods. Because detailed hydraulic analyses are not performed for such areas, no BFEs or depths are shown within this zone. Mandatory flood insurance purchase requirements apply.

Zone AE and A1-A30

Zones AE and A1-A30 are the flood insurance rate zones that correspond to the 100-year floodplains that are determined in the FIS by detailed methods. In most instances, BFEs derived from the detailed hydraulic analyses are shown at selected intervals within this zone. Mandatory flood insurance purchase requirements apply.

Zone AH

Zone AH is the flood insurance rate zone that corresponds to the areas of 100-year shallow flooding with a constant water-surface elevation (usually areas of ponding) where average depths are between 1 and 3 feet. The BFEs derived from the detailed hydraulic analyses are shown at selected intervals within this zone. Mandatory flood insurance purchase requirements apply.

Zone AO

Zone AO is the flood insurance rate zone that corresponds to the areas of 100-year shallow flooding (usually sheet flow on sloping terrain) where average depths are between 1 and 3 feet. The depth should be averaged along the cross section and then along the direction of flow to determine the extent of the zone. Average flood depths derived from the detailed hydraulic analyses are shown within this zone. In addition, alluvial fan flood hazards are shown as Zone AO on the FIRM. Mandatory flood insurance purchase requirements apply.

Zone AR

Zone AR is the flood insurance rate zone used to depict areas protected from flood hazards by flood control structures, such as a levee, that are being restored. FEMA will consider using the Zone AR designation for a community if the flood protection system has been deemed restorable by a Federal agency in consultation with a local project sponsor; a minimum level of flood protection is still provided to the community by the system; and restoration of the flood protection system is scheduled to begin within a designated time period and in accordance with a progress plan negotiated between the community and FEMA. Mandatory purchase requirements for flood insurance will apply in Zone AR, but the rate will not exceed the rate for unnumbered A zones if the structure is built in compliance with Zone AR floodplain management regulations.

For floodplain management in Zone AR areas, elevation is not required for improvements to existing structures. However, for new construction, the structure must be elevated (or floodproofed for non-residential structures) such that the lowest floor, including basement, is a maximum of 3 feet above the highest adjacent existing grade if the depth of the base flood elevation (BFE) does not exceed 5 feet at the proposed development site. For infill sites, rehabilitation of existing structures, or redevelopment of previously developed areas, there is a 3 foot elevation requirement regardless of the depth of the BFE at the project site.

The Zone AR designation will be removed and the restored flood control system shown as providing protection from the 1% annual chance flood on the NFIP map upon completion of the restoration project and submittal of all the necessary data to FEMA.

Zone A99

Zone A99 is the flood insurance rate zone that corresponds to areas of the 100-year floodplains that will be protected by a Federal flood protection system where construction has reached specified statutory milestones. No BFEs or depths are shown within this zone. Mandatory flood insurance purchase requirements apply.

Zone D

The Zone D designation on NFIP maps is used for areas where there are possible but undetermined flood hazards. In areas designated as Zone D, no analysis of flood hazards has been conducted. Mandatory flood insurance purchase requirements do not apply, but coverage is available. The flood insurance rates for properties in Zone D are commensurate with the uncertainty of the flood risk

Zone V

Zone V is the flood insurance rate zone that corresponds to the 100-year coastal floodplains that have additional hazards associated with storm waves. Because approximate hydraulic analyses are performed for such areas, no BFEs are shown within this zone. Mandatory flood insurance purchase requirements apply.

Zone VE

Zone VE is the flood insurance rate zone that corresponds to the 100-year coastal floodplains that have additional hazards associated with storm waves. BFEs derived from the detailed hydraulic analyses are shown at selected intervals within this zone. Mandatory flood insurance purchase requirements apply.

Zones B, C, and X

Zones B, C, and X are the flood insurance rate zones that correspond to areas outside the 100-year floodplains, areas of 100-year sheet flow flooding where average depths are less than 1 foot, areas of 100-year stream flooding where the contributing drainage area is less than 1 square mile, or areas protected from the 100-year flood by levees. No BFEs or depths are shown within this zone.

5.1.4.8 Climate Change Consideration

Climate change is both a present threat and a slow-onset disaster. It acts as an amplifier of existing hazards. Extreme weather events have become more frequent over the past 40 to 50 years and this trend is projected to continue. Rising sea levels, changes in rainfall distribution and intensity are

expected to have a significant impact on coastal communities, including portions of Santa Barbara County. This section presents a discussion of how climate change might impact the frequency, intensity and distribution of flood hazards.

5.1.5 Climate-related Hazards

This section assesses hazards that are related to climate and weather. NASA defines weather as the way the atmosphere is behaving, mainly with respect to its effects upon life and human activities. The difference between weather and climate is that weather consists of the short-term (minutes to months) changes in the atmosphere. Most people think of weather in terms of temperature, humidity, precipitation, cloudiness, brightness, visibility, wind, and atmospheric pressure, as in high and low pressure. In most places, weather can change from minute-to-minute, hour-to-hour, day-to-day, and season-to season. Climate, however, is the average of weather over time and space. Fifty-eight long-term changes in the climate, especially those driven by the accumulation of anthropogenic greenhouse gases in the atmosphere, are expected to change short-term weather patterns and thus change weather-related impacts, both short- and long-term. Most prominently, climate change is warming the average global temperatures, which will result in more frequent and intense extreme events related to changes in temperature and precipitation, such as heat waves, flooding.

In the State Hazard Mitigation Plan, climate change is treated as a condition that will change and potentially exacerbate the impact of other hazards rather than being treated as a distinct hazard with unique impacts. For example, extreme heat and heat waves is an existing hazard that will be exacerbated by climate change. Impacts of climate change on the frequency, timing, and magnitude of flooding varies with the geography throughout the state. Areas that experience early run off from snow melt coupled with intensified rain or coastal areas experiencing sea level rise may be more greatly impacted by flooding. Hazards that have the potential to be affected by climate change are grouped in this subsection.

The following section are the relevant climate-related hazards in Santa Barbara.

5.1.5.4 Sea Level Rise and Erosion

5.1.5.4.1 Description of Hazard

Sea level rise (SLR) is defined as the rising of the level of the sea as a result of the so-called greenhouse effect or global warming. SLR can occur through one or more of three (3) processes that include eustasy, isostasy, or thermal expansion. Erosion is a natural process which alters existing geomorphic features. Erosion can occur due to a number of factors, including winter storms, tidal action, wind-generated high surf, wave action, and rising sea levels.

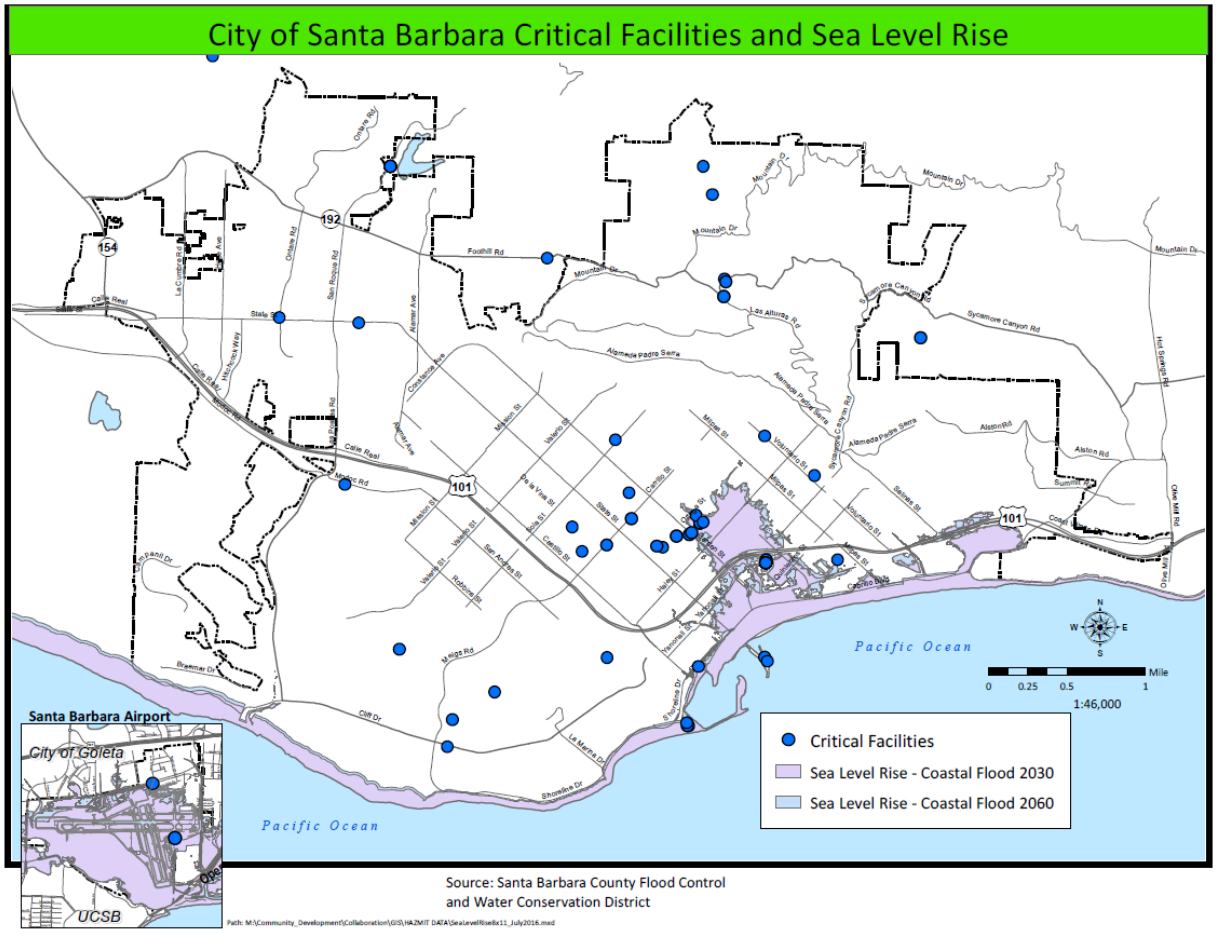
In 2014, the City received a grant from the CCC to update the LUP, not including the Airport. The primary goals are to update and clarify LUP text, policies, and maps and to amend a targeted portion of the IP to include climate change adaption actions. The draft LUP update and targeted IP amendment are scheduled to be completed in spring 2016, followed by Planning Commission and City Council adoption and Coastal Commission certification.

One of the grant tasks was to conduct a sea level rise vulnerability assessment for the City. This task was fulfilled by a team of University of California Santa Barbara Bren School Master degree candidates. The City of Santa Barbara Sea Level Rise Vulnerability Assessment (March 2015) is

being used to inform policy development and the development of practical short term measures for the targeted IP amendment.

5.1.5.4.2 Location and Extent of Hazard in Santa Barbara

The impacts from SLR and erosion in Santa Barbara City will be felt along its six (6) mile long coastline. SLR coupled with increased frequency, severity, and duration of high tide and storm events related to climate change will result in more frequent and severe extreme events along the coast. These events could expose the coast to severe flooding and erosion, damage to coastal structures and real estate, and salinity intrusion into delta areas and coastal aquifers (Projecting Future Sea Level, A Report from the California Climate Change Center, 2006).

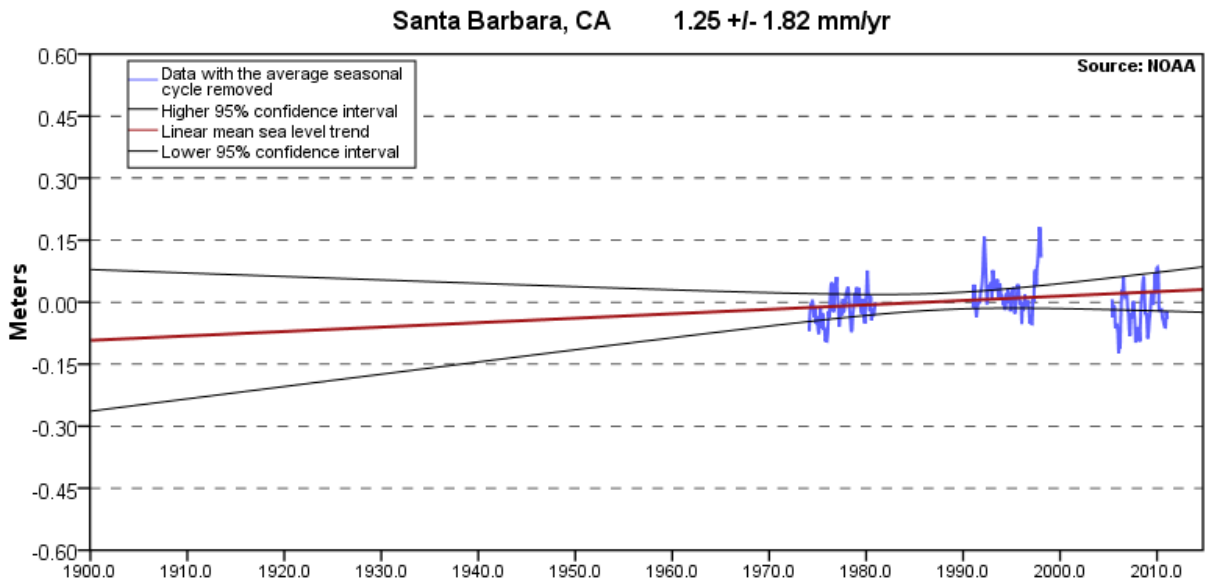


5.1.5.4.3 History of Hazard in Santa Barbara

Typically, the highest sea level readings along California's coastline occur during periods of heavy rain that coincide with high tides, causing coastal flooding, coastal bluff erosion, and landslides such as were experienced during the 1998 El Nino storms. Sea levels are already rising along the Santa Barbara County and City coastlines as is evident in long term tidal gauge records from

Station 9411340 since 1973, where the rate of rise has been approximately 0.41 feet per century[2] (**Figure 5.15**).

Figure 0.15 Mean Sea Level Trend in Santa Barbara



5.1.5.4.4 Probability of Occurrence

As discussed above, the potential impacts of global warming and climate change include increased opportunities for severe weather that may result in sea level rise and erosion. Santa Barbara County's land mass includes more than 110 miles of coastline, which includes six (6) miles in the City of Santa Barbara, with varying geologic features including steep coastal bluffs, beaches, wetlands, bays, and deltas. It also supports varying levels of development and land use, including recreational, agricultural, industrial, commercial, and residential.

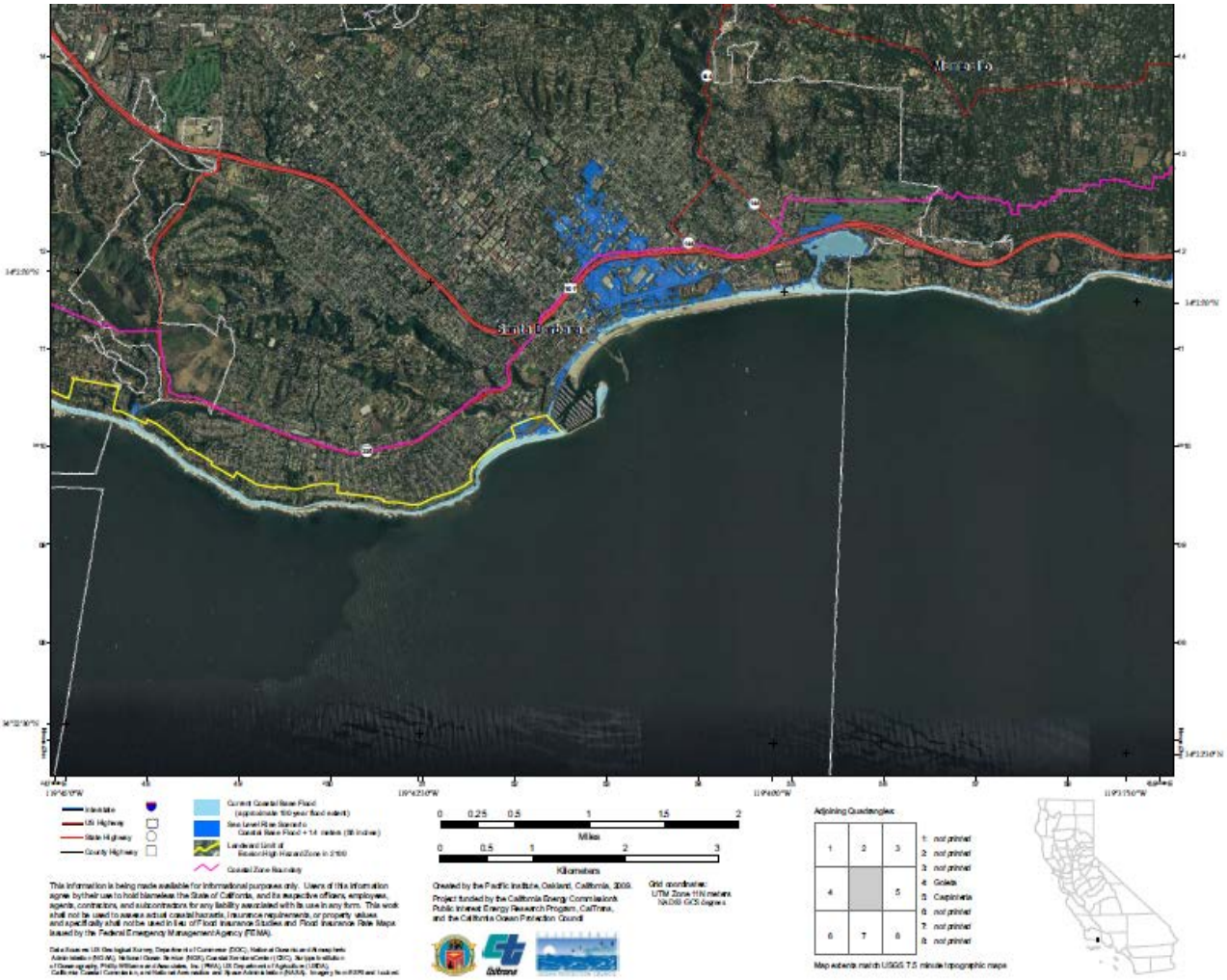
A growing consensus of scientists believes that sea level rise will continue and the rate of rise will increase. The Intergovernmental Panel on Climate Change (IPCC) suggests that global SLR on the order of 0.2 m (0.66 ft.) and 0.6 m (1.97 ft.) is possible by 2100 with other scientists indicating this rise could be over 1 meter (3.28 ft.). [3] **Figure 5.16** depicts areas (dark blue along and near the Santa Barbara County coastline that may be vulnerable to sea level rise in a 1.4 meter sea level rise scenario. [4] From the figure, it is apparent that a considerable number of buildings and infrastructure may be impacted.

[2] NOAA: http://tidesandcurrents.noaa.gov/sltrends/sltrends_station.shtml?stnid=9411340; retrieved April 6, 2011.

[3] M. Vermeer and S. Rahmstorf. 2009. Global sea level linked to global temperature. Proceedings of the National Academy of Sciences, USA.

[4] M. Heberger, H. Cookley, P. Herrera, The Pacific Institute, May 2009. The Impacts of Sea-Level Rise on The California Coast.

Figure 0.16 Sea Level Rise Santa Barbara Quadrangle



5.1.5.4.5 Climate Change Considerations

This entire section is dedicated to climate change hazards, and as such, is focused on climate change's effects on the community. However, it is important to highlight climate change's potential direct impact.

As mentioned above, SLR can be caused by three (3) different processes. Two (2) of which, melting of ice sheets and/or thermal expansion of water, are a result of climate change and/or global warming.

Erosion can be increased by climate change in two (2) ways. First, sea level rise, over time, will cause more rapid erosion of more inland areas than in previous years. This will be chronic erosion, however it will reach new, more inland areas, in the future due to higher average sea levels. Secondly, while the topic of increased frequency of storms is up in debate, if more severe or frequent storms do occur, it will increase coastal erosion events. More frequent storms will impact how frequently acute coastal erosion events occur, while more intense events will cause the erosion to extend further inland than before.

5.1.5.5 Drought and Water Shortages

5.1.5.5.1 Description of Hazard

Drought and water shortages are a gradual phenomenon and generally are not signified by one or two dry years. California's and Santa Barbara's extensive system of water supply infrastructure (reservoirs, groundwater basins, and interregional conveyance facilities) generally mitigates the effects of short-term dry periods for most water users. However, drought conditions are present when a region receives below-average precipitation, resulting in prolonged shortages in its water supply, whether atmospheric, surface, or ground water. A drought can last for months or years, or may be declared after as few as 15 days.

5.1.5.5.2 Location and Extent of Hazard in Santa Barbara

The entire county is subject to drought conditions and water shortages.

5.1.5.5.3 History of Hazard in Santa Barbara

Santa Barbara County has had three (3) State and/or Federally declared drought disasters since 1950; in 1990, 1991, and 2001. The State of California and Santa Barbara are currently in a drought. The average rainfall in downtown Santa Barbara City is 18.25 inches; however, since 2016, Santa Barbara has experienced significantly less than normal rainfall. The effects of the drought are most visible when looking at the current capacity and maximum storage of the two main water reservoirs in the county, Lake Cachuma and Twitchell. On February 16, 2016, Cachuma was reported to be at 14.9% capacity, and Twitchell was at 0.2% capacity.

5.1.5.5.4 Probability of Occurrence

In any given year, Santa Barbara County, which includes the City of Santa Barbara, can be subject to drought conditions and water shortages. For this reason, the City is currently in the process of building a desalination plant which should be operational in the fall of 2016. Click here for updated information on the progress of the plant.

5.1.5.5.5 Climate Change Considerations

This entire section is dedicated to climate change hazards, and as such, is focused on climate change's effects on the community. However, it is important to highlight climate change's potential direct impact.

Climate change has the potential to make drought events more common in the West, including California. Extreme heat creates conditions more conducive for evaporation of moisture from the ground, thereby increasing the possibility of drought. A warming planet could lead to earlier melting of winter snow packs, leaving lower stream flows and drier conditions in the late spring and summer. Snow packs are important in terms of providing water storage and ensuring adequate supply in the summer, when water is most needed. Changing precipitation distribution and intensity have the potential to cause more of the precipitation that does fall to run-off rather than

be stored. The result of these processes is an increased potential for more frequent and more severe periods of drought.

5.1.5.6 Severe Weather and Storms

5.1.5.6.1 Extreme Heat

5.1.5.6.1.1 Description of Hazard

Extreme Heat is a function of heat and relative humidity. A Heat Index describes how hot the heat-humidity combination makes the air feel. As relative humidity increases, the air seems warmer than it actually is because the body is less able to cool itself via evaporation of perspiration. As the Heat Index rises, so do health risks such as heat exhaustion, sunstroke, and heatstroke. Some Heat Index Program Alert procedures are implemented when the high temperature is expected to exceed 105° to 110° (depending on local climate) for at least two consecutive days.

5.1.5.6.1.2 Location and Extent of Hazard in Santa Barbara

The entire county, which includes the City of Santa Barbara, is subject to extreme heat conditions, particularly inland areas.

5.1.5.6.1.3 History of Hazard in Santa Barbara

Santa Barbara County and City has experienced several extreme heat events in the past; however, they are not well documented. One documented event occurred in September 1856 where a U.S. Coast Guard vessel recorded a record temperature of 135 degrees Fahrenheit during a sundowner event on the Santa Barbara coast.

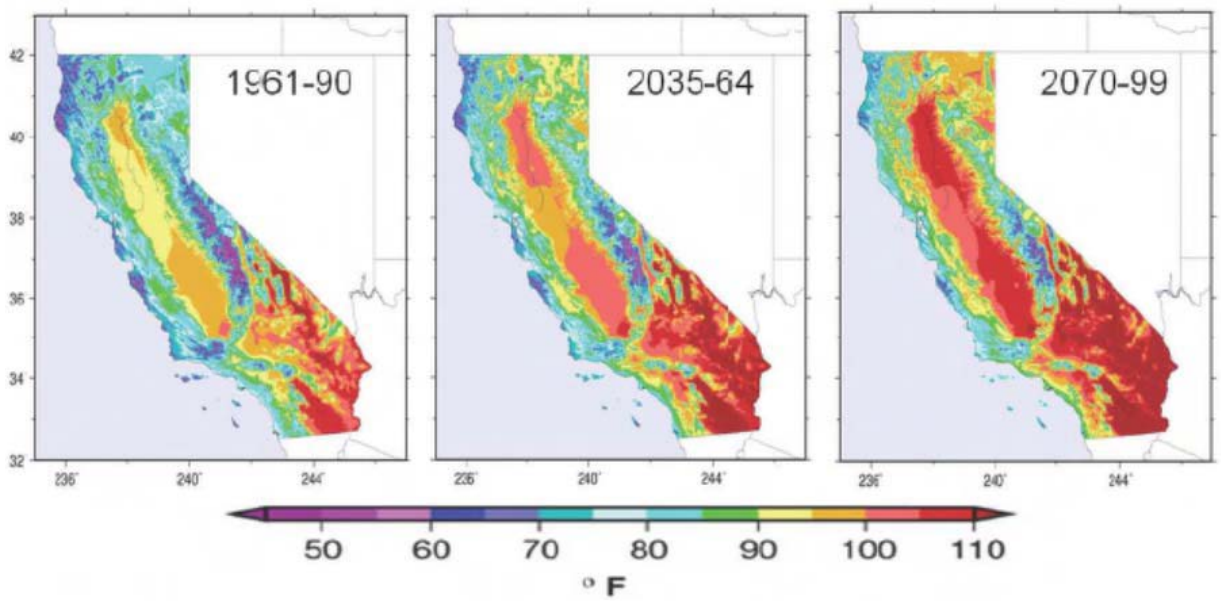
5.1.5.6.1.4 Probability of Occurrence

In any given year, Santa Barbara can be subject to extreme heat conditions.

5.1.5.6.1.5 Climate Change Considerations

As temperatures rise due to climate change, Californians will face greater risk of death from dehydration, heat stroke/exhaustion, heart attack, stroke, and respiratory distress caused by extreme heat. By mid-century, extreme heat events in urban centers could cause two to three times more heat-related deaths than occur today. By 2100, hotter temperatures are expected throughout the state, with an increase of 3 to 5.5°F under the lower emissions scenario and 8 to 10.5°F under the higher emissions scenario (**Figure 5.17**).

Figure 5.17 Comparison between Historic and Projected Temperature



5.1.6 Energy Shortage and Resiliency

5.1.6.4 Description of Hazard

Energy shortages (or disruptions) are considered a form of lifeline system failure. Disruptions can be the consequence of another hazard, or can be a primary hazard, absent of an outside trigger. A failure could involve one, or a combination of the potable water system, power system, natural gas system, wastewater system, communication system, or transportation system. Most power blackouts are not human caused. They are the result of situations involving unintended events, such as an overwhelming need for power due to weather conditions, equipment failure, or accidents. They may also fail due to natural hazards such as earthquakes, floods, and landslides. These outages can last anywhere from a few minutes to several weeks.

Santa Barbara County has two service providers. Pacific Gas and Electric (PG&E) provides electricity in the northern part of the County, with termination of services north of the Gaviota area. Southern California Edison (SCE) provides power to the Southern parts of the County, with termination of services in Gaviota. The two systems are not connected. Thus, is there is a major interruption of service in the Santa Barbara area, then all serviced could be denied in either direction.

Both power companies are well aware of the restrictions on their systems and are making planned systematic changes to address the shortcomings. SCE has temporarily deployed several portable generators in the Goleta Valley to mitigate any problems that may occur during the El Nino rain season.

The City of Santa Barbara is served by the Southern California Edison Company. There are two lines that serve the southern portion of the County that includes the City.

5.1.6.5 Location and Extent of Hazard in Santa Barbara

The entire county, which includes the City of Santa Barbara, is subject to energy shortages.

5.1.6.6 History of Hazard in Santa Barbara

Energy disruptions on a small scale have occurred on a regular basis in Santa Barbara City; especially during strong wind / storm events.

5.1.6.7 Probability of Occurrence

In any given year, Santa Barbara City can be subject to energy shortages. A large disruption due to a power failure or rotating brown out a highly likely during strong storm events or during times of extreme heat.

5.1.6.8 Climate Change Considerations

With increased changes in weather and climate, the demands on energy will shift too. This shift in demand could have significant impacts on energy supply and demand.

5.1.7 Oil Spills

5.1.7.4 Description of Hazard

An oil spill is a release of liquid petroleum hydrocarbon into the environment due to human activity or technological error that results in pollution of land, water, and air. Oil releases also occur naturally through oil seeps either on land or under water. Marine oil spills, whether accidental or intentional, can result from the release of crude oil from offshore oil platforms, drilling rigs, wells, pipelines, tank trucks, and marine tank vessels (tankers). Refined petroleum products such as gasoline, diesel, and heavier fuels such as bunker fuel used by cargo ships are also sources of potential oil spill releases. Depending on the origin, size, and duration of the release, an oil spill can have serious impacts on air and water quality, public health, plant and animal habitat, and biological resources. Clean up and recovery is time and cost consuming, and dependent on weather conditions such as wind and rain. Tidal and Current conditions may also make the spill more dynamic.

5.1.7.5 Location and Extent of Hazard in Santa Barbara

This hazard can occur in any part of Santa Barbara City where existing oil & gas operations are located, including off shore where there are several platforms and undersea pipelines.

5.1.7.6 History of Hazard in Santa Barbara

Santa Barbara City has experienced the following large oil spills

- January 28, 1969 Platform A - 80,000 to 100,000 barrels
- May 19, 2015 Plains All American Pipeline at Refugio - 3,400 barrels

5.1.7.7 Probability of Occurrence

In any given year, Santa Barbara City could be subject to oil spills offshore.

5.1.7.8 Climate Change Considerations

With increased changes in weather, climate, and economics, the demands for oil & gas production may shift. This shift in demand could increase production, distribution, and transportation of oil products; thus increasing the potential oil spill occurrences.

5.1.8 Dam Failure

5.1.8.4 Description of Hazard

Dams fail due to old age, poor design, structural damage, improper siting, landslides flowing into a reservoir, or terrorist actions. Structural damage is often a result of a flood, erosion, or earthquake. A catastrophic dam failure could inundate the area downstream. The force of the water is large enough to carry boulders, trees, automobiles, and even houses along a destructive path downstream. The potential for casualties, environmental damage, and economic loss is great. Damage to electric generating facilities and transmission lines could impact life support systems in communities outside the immediate hazard area.

5.1.8.5 History of Hazard in Santa Barbara

The State of California and the federal government have a rigorous Dam Safety Program. This is a proactive program that ensure proper planning in the event of failure but also sets standards for dam design and maintenance. Because of this, many potential issues have been addressed and/or resolved. Prior to the implementation of this program Santa Barbara did experience a dam related incident.

Built in 1917, the Sheffield Dam only survived for eight years, failing catastrophically during an earthquake in 1925 in the City of Santa Barbara. It was built on sandy soil which liquefied during the event. The center 300-feet of the 720-feet long dam broke off and was carried away on the liquefied soil, spilling 30 million gallons of water. Damage estimates are unavailable.

5.1.8.6 Location and Extent of Hazard in Santa Barbara

There are two (2) dams in the City; of these one is owned and operated by the City of Santa Barbara; Gibraltar Dam. These dams range in purpose from water supply to flood control. Dam failure inundation zones mapped by the State of California indicate areas that would be inundated should a dam fail catastrophically. The inundation mapping is considered confidential by the State of California.

Gibraltar Dam and reservoir are located on the Santa Ynez River in Santa Barbara County, about 9 miles north of the City and upstream from Lake Cachuma. The City owns and operates the dam and reservoir pursuant to a Notice of Appropriation posted on October 11, 1904. Stored water is diverted through Mission Tunnel to the Cater Water Treatment Plant. The dam is a constant radius, concrete arch dam constructed in 1920 with an original capacity of 14,500 AF; it was raised to current elevation in 1949 and strengthened in 1991.Gibraltar Reservoir is the source of about one-third of the City of Santa Barbara's water supply. Loss of storage capacity due to siltation has been an issue since the dam was constructed. To monitor changes in capacity, and pursuant to the requirements of the Upper Santa Ynez River Operations Agreement, the City commissions a bathymetric survey of Gibraltar Reservoir at approximately three year intervals.

The other dam and reservoir in the City is Lauro Dam, which is owned and operated by the Bureau of Reclamation. Lauro Dam and Reservoir are located on Diablo Creek near Santa Barbara. The dam is an earth fill structure with a crest length of 540 feet and a height of 137 feet. The reservoir has a capacity of 640 acre-feet.

(**Figure 5.18**).
Figure 5.19 displays the dam failure inundation areas along with the location of major dams in the County.

Figure 0.18 Dam Locations

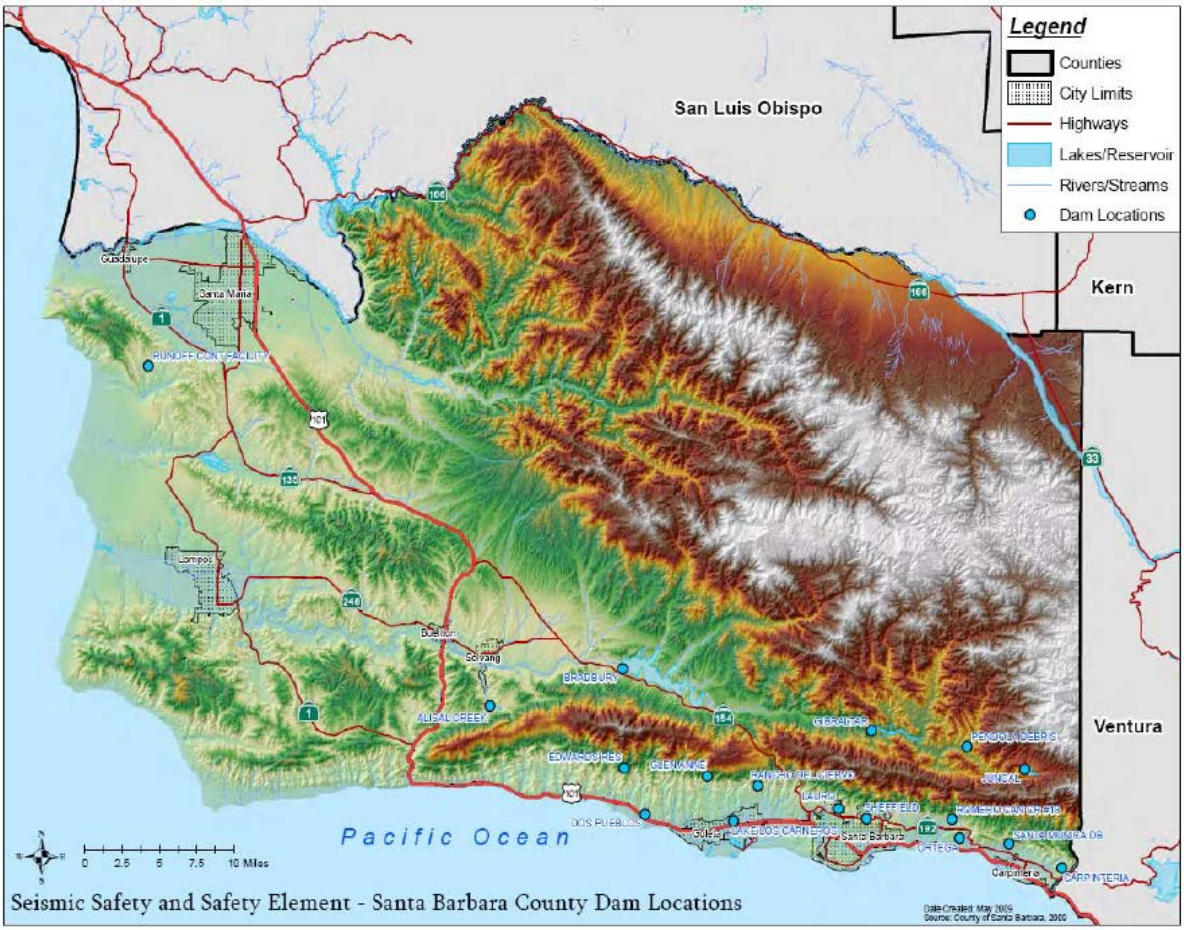


Figure 0.19 Dam Inundation Zones

NEED MAP

5.1.8.7 Probability of Occurrence

Dam failure events are infrequent and usually coincide with the events that cause them, such as earthquakes, landslides and excessive rainfall and snowmelt. There is a "residual risk" associated with dams; residual risk is the risk that remains after safeguards have been implemented. For dams, the residual risk is associated with events beyond those that the facility was designed to withstand.

However, the probability of occurrence of any type of dam failure event is considered to be low in today's regulatory and dam safety oversight environment.

5.1.8.8 Climate Change Considerations

Increased rainfall from changing climate conditions could present a risk to dams in Santa Barbara County if volume of runoff is greater than the dam's capacity. This could cause the County to release stored water into the downstream water courses in order to ensure the integrity of the dam.

5.1.9 Agricultural Pests

5.1.9.4 Description of Hazard

Agricultural pests and disease infestation occur when an undesirable organism inhabits an area in a manner that causes serious harm to agriculture crops, livestock or poultry, and wild land vegetation or animals. Countless insects and diseases live on, in, and around plants and animals in all environments. Most are harmless, while some can cause significant damage and loss. Under some conditions, insects and diseases that have been relatively harmless can become hazardous. For example, severe drought conditions can weaken trees and make them more susceptible to destruction from insect attacks than they would be under normal conditions.

5.1.9.5 History of Hazard in Santa Barbara

The City of Santa Barbara does not have any historical record regarding agricultural pests that have caused any type of incident

5.1.9.6 Location and Extent of Hazard in Santa Barbara

The County's agricultural emergency events does effect the city except in regard to loss revenue.

Figure 5.20 shows land that, under the Williamson Act, has been zoned as agricultural, open space, or recreational. These lands are susceptible to agricultural pests and diseases. **Figure 5.21** portrays crop land. These areas are also susceptible to agricultural pests and diseases.

Figure 0.20 Agricultural Preserves, 2010

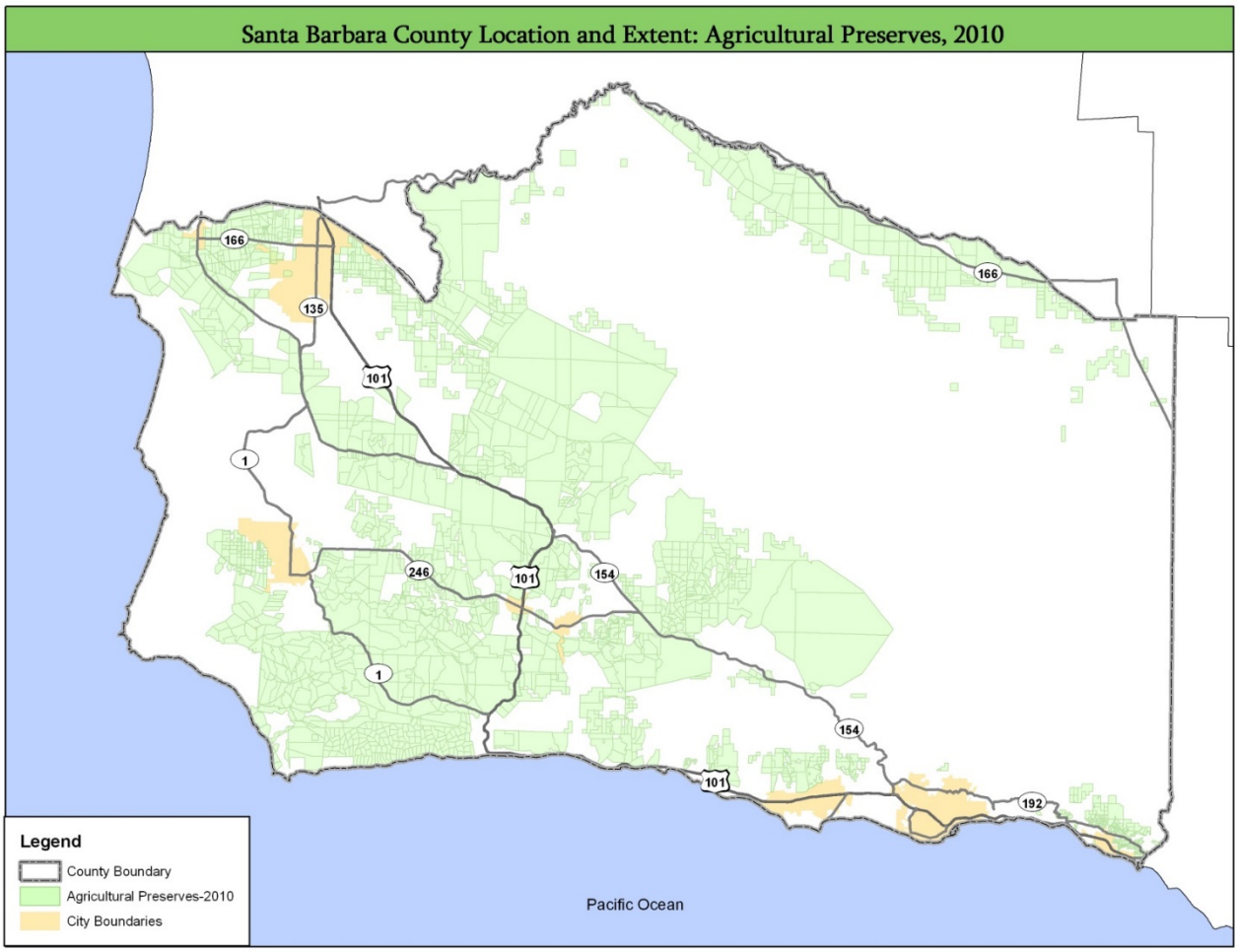
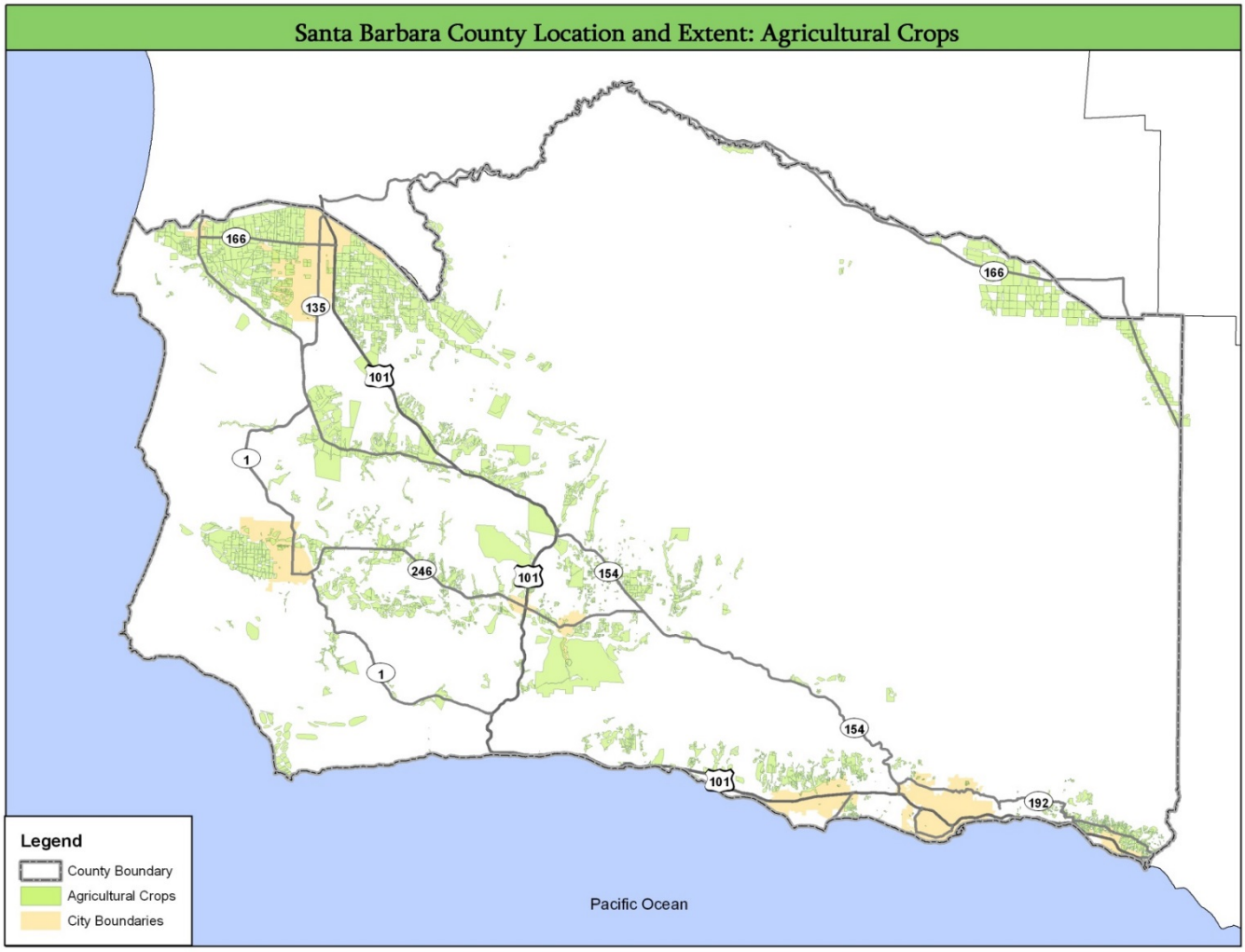


Figure 0.21 Agricultural Crops



5.1.9.7 Probability of Occurrence

Due to its interaction with the global economy, its mild Mediterranean climate, and its diversified agricultural and native landscape, Santa Barbara County currently experiences and will continue to experience periodic losses due to agricultural pests and diseases. The probability in the City of Santa Barbara is low; but the City would feel loss as it does interact with the County in regards to economics.

5.1.9.8 Climate Change Consideration

California farmers contend with a wide range of crop-damaging pests and pathogens. Continued climate change is likely to alter the abundance and types of many pests, lengthen pests' breeding season, and increase pathogen growth rates. For example, the pink bollworm, a common pest of cotton crops, is currently a problem only in southern desert valleys because it cannot survive winter frosts elsewhere in the state. However, if winter temperatures rise 3 to 4.5°F, the pink bollworm's range would likely expand northward, which could lead to substantial economic and ecological consequences for the state.

Temperature is not the only climatic influence on pests. For example, some insects are unable to cope in extreme drought, while others cannot survive in extremely wet conditions. Furthermore, while warming speeds up the lifecycles of many insects, suggesting that pest problems could increase, some insects may grow more slowly as elevated carbon dioxide levels decrease the protein content of the leaves on which they feed (California Climate Change Center 2006).

5.1.10 Epidemic/Pandemic/Vector Borne Disease

5.1.10.4 Description of Hazard

Infectious disease emergencies are circumstances caused by biological agents, including organisms such as bacteria, viruses or toxins, with the potential for significant illness or death in the population.

Infectious disease emergencies may be caused by:

- Naturally occurring diseases spread person to person (e.g., measles, mumps, meningococcal disease, tuberculosis)
- Foodborne (e.g.: salmonella, E.coli, botulinum toxin, etc.)
- Vectors such as a mosquito that spread disease (e.g.: West Nile virus, dengue, Zika, malaria).
- Newly emerging infectious diseases (e.g.: Ebola, Zika, SARS, MERS, avian influenza).
- Intentionally caused spread of disease or toxins known as bioterrorism. Past bioterrorism events include the contamination of restaurant food with E.coli in Oregon (1984) and the release of Sarin gas in the Tokyo subway (1995).

The impact of infectious disease emergencies on the local community and its critical infrastructure will depends on:

- The type of biological agent and availability of treatment for victims
- The availability of prophylaxis for responders and the public
- The scale of exposure and ongoing exposure
- The mode of transmission and whether transmission can be interrupted
- Whether the event is affecting staffing for critical infrastructure within and outside of the county such as transportation, law enforcement, health care, and the medical and food supply chains.

Outbreaks, Epidemics, and Pandemics

An **outbreak** is when there are more cases than would be normally expected, often suddenly, of an infectious disease in a community or facility.
An **epidemic** is when there are more cases than would be normally expected of an infectious disease, often suddenly, in a population of a large geographic area.
A **pandemic** refers to an epidemic that has spread over several countries or continents, usually affecting a large number of people. Examples include pandemic influenza and Severe Acute Respiratory Syndrome or “SARS”.

Outbreaks, epidemics, or pandemics can occur when a new virus emerges to which the population has little immunity. The 20th century saw three such pandemics, the most notable of which was the 1918 Spanish influenza pandemic that was responsible for 20 million deaths throughout the world. Secondary impacts include significant economic disruption to a community’s infrastructure

due to loss of employee work time, essential services and products, and costs of treating or preventing spread of the disease.

Public health measures are used to control outbreaks, epidemics, or pandemics of infectious diseases, and are especially important for diseases with high morbidity or mortality and limited medical prophylaxis and/or rapid treatment.

Measures to control disease include:

- Legal measure such as isolation and quarantine of persons or products, and legal closure of food establishments.
- Control of contaminated food or water through recall of product or, for water, "Do Not Use", "Do Not Drink" or "Boil Water" orders issued by state or local health departments.

Vector control to eliminate vectors such as mosquitos that carry the disease from person to person. The Vector Borne Disease Section of the California Department of Public Health identifies the following types of diseases:

• *Africanized Honeybees*	• *Bed Bugs*	• *Body Lice*
• *Cat Scratch Disease*	• *Conenose Bugs*	• *Hantavirus Cardiopulmonary Syndrome*
• *Head lice*	• *Lyme Disease*	• *Mosquitoes*
• *Murine Typhus*	• *Plague*	• *Ticks*
• *West Nile Virus*	• *Red Imported Fire Ants*	• *Scabies*
• *Swimmer's Itch*	• *Tularemia*	• *Zike Virus*

5.1.10.5 Location and Extent of Hazard in Santa Barbara

An infectious disease hazard can occur throughout the entire County, which would include the City of Santa Barbara.

5.1.10.6 History of Hazard in Santa Barbara

1. Foodborne outbreaks occur every year in Santa Barbara County, which includes the City, commonly the result of Norovirus, and have sickened up to 100 individuals at a single facility.
2. 2009 H1N1 "Swine Flu" pandemic required rationing and prioritization of influenza vaccine. Public was given 27,000 vaccinations at large and small scale clinics. One hundred thirty-two thousand (132,000) doses of vaccine were distributed Countywide through response partners. The Santa Barbara Public Health Department Operations Center was activated for more than three months.

5.1.10.7 Probability of Occurrence

Disease outbreaks and flu epidemics occur on an ongoing basis. Occasionally these outbreaks require the initiation of the Santa Barbara County Public Health Department Infectious Disease Response Plan but have required little to no support from the City Emergency Operations Center.

There is a continued threat from a novel influenza virus or other emerging epidemic or pandemic disease that would require a disaster response at the EOC level. The disease could affect the city infrastructure, and the ability of the EOC and other city departments to respond due to disease related loss of staff.

5.1.10.8 Climate Change Consideration

- While many vector born and zoonotic diseases (VBZD), such as malaria, yellow fever, dengue, and murine typhus, are rarely seen in the United States, we are directly susceptible to VBZD that are found in warmer climates and vulnerable due to global trade and travel.
- Many VBZD are climate sensitive and ecological shifts associated with climate change are expected to impact the distribution and incidences of these diseases.
- Changes in temperature and precipitation directly affect vector born disease transmission through pathogen-host interaction, and indirectly through ecosystem changes and species composition.
- As temperatures increases vectors can spread into new areas that were previously too cold. For example, two mosquito vectors that carry malaria are now found at the U.S.-Mexico border.

5.1.11 Hazardous Materials Release

5.1.11.4 Description of Hazard

Hazardous Waste/Materials are widely used or created at facilities such as hospitals, wastewater treatments plants, universities and industrial/manufacturing warehouses. Several household products such as cleaning supplies and paint are also considered hazardous materials. Hazardous materials include:

- Explosives;
- Flammable, non-flammable, and poisonous gases;
- Flammable liquids;
- Flammable, spontaneously combustible, and dangerous when wet solids;
- Oxidizers and organic peroxides;
- Poisons and infectious substances;
- Radioactive materials; and
- Corrosive materials.

Both mobile and external hazardous materials releases can spread and affect a wide area, through the release of plumes of chemical, biological, or radiological elements or leaks or spills. Conversely, internal releases are more likely to be confined to the structure the material is store in.

Chemical may be corrosive or otherwise damaging over time. A hazardous materials release could also result in fire or explosion. Contamination may be carried out of the immediate area of the incident by people, vehicles, wind, and water. Weather conditions can increase the size and intensity of the Hazardous Materials Release. Typography, such as hills and canyons, can increase the size of the release or make it more difficult to contain.

5.1.11.5 Location and Extent of Hazard in Santa Barbara

The locations and identity of facilities that store hazardous materials are reported to local and federal governments. Many facilities have their own hazardous materials guides and response plans, including transportation companies who transport hazardous materials.

The release of hazardous materials into the environment can cause a multitude of problems. Although these incidents can happen almost anywhere, certain areas of the City are at higher risk, such as near roadways that are frequently used to transport hazardous materials and locations with industrial facilities that use, store, and/or dispose of such materials. Areas crossed by railways, waterways, airways, and pipelines also have increased potential for mishaps.

5.1.11.6 History of Hazard in Santa Barbara

In 1984, there was a chemical release from a chemical disposal truck on Hwy 101 in Santa Barbara City. The truck held a mixture of chemicals that were to be delivered to the Casmalia Chemical Dump (currently closed) in Santa Barbara County. The chemical release not only caused a cloud, but it released some of the liquid into the Mission Creek watershed area. This caused the evacuation of over 200 residents in the Westside areas of the city. The incident closed the Highway 101 north and south, which cause surface street gridlock for several hours.

5.1.11.7 Probability of Occurrence

The release of hazardous materials can occur throughout the entire county. Incidences can occur during production, storage, transportation, use or disposal of hazardous materials. Communities can be at risk if a chemical is used unsafely or released in harmful amounts into the environment. Hazardous materials can cause death, serious injury, long lasting health effects, and damage to buildings, the environment, homes, and other property.

5.1.11.8 Climate Change Consideration

As mentioned above, weather can play a significant factor in hazardous material releases. While there is little evidence to link climate change increase occurrences of hazardous material releases, it could impact the response and recovery efforts.

5.1.12 Terrorism

5.1.12.4 Description of Hazard

The term terrorism refers to intentional, criminal malicious acts. There is no single, universally accepted definition of terrorism, and it can be interpreted in many ways. Terrorism is defined in the Code of Federal Regulations as "*...the unlawful use of force and violence against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of political or social objectives.*" (28 CFR, Section 0.85). For the purposes of this plan, terrorism refers to the use of weapons of mass destruction, including biological, chemical, nuclear, and radiological weapons; arson, incendiary, explosive, and armed attacks; industrial sabotage and intentional hazardous materials releases; and cyber terrorism. Conventional Attacks/Active Shooter incident is initiated by humans. It can be a well-planned coordinated attack with multiple suspects, or the result of a lone individual on a rampage.

5.1.12.5 Location and Extent of Hazard in Santa Barbara

Terrorism can occur throughout the entire city but due to its intended purpose would most likely happened in more populous urban areas where more devastation (and fear) will ensue.

5.1.12.6 History of Hazard in Santa Barbara

There has been no recorded history of terrorism in the City of Santa Barbara.

5.1.12.7 Probability of Occurrence

All City businesses and facilities are perceived as a soft target resulting in increased property crimes by criminals who live outside the City. Climate Change Consideration

While there is little evidence to link climate change increase occurrences of terrorism, depending on the type of attack, it could impact the response and recovery efforts.

5.1.13 Cyber Threats

5.1.13.4 Description of Hazard

A cyber security threat is a circumstance or event that has or indicates the potential to exploit vulnerabilities and to adversely impact organizational operations, organizational assets (including information and information systems), individuals, other organizations, or society. Critical infrastructure, such as utilities and telecommunications, are also potential targets. Examples of cyber threats include malware, phishing, denial of service attacks, ransomware, and state-sponsored hacking.

5.1.13.5 Location and Extent of Hazard in Santa Barbara

This hazard can happen anywhere within the County or City but will generally be targeted towards larger corporations or government.

5.1.13.6 History of Hazard in Santa Barbara

While there have been several smaller cyber threats and hacking, none have reached a level of significance.

5.1.13.7 Probability of Occurrence

Cyber threats are on the rise globally, national, and locally. The probability of occurrence of cyber threats is rapidly increasing, especially with increased reliance on the Internet and cloud-based computing.

5.1.13.8 Climate Change Consideration

While there is little evidence to link climate change to increase in occurrences of cyber threats, the target could be related to persons/groups with issues with individuals or companies they perceive to have effect on the climate (i.e., greenhouse gas producers).

5.1.14 Aircraft Crashes

5.1.14.4 Description of Hazard

Airline crashes are defined as any accident of private, commercial, or military aircraft on land or over sea. Airline crashes, like other transportation accidents, are less likely to lead to a state or federal disaster declaration, than other hazards previously and afore mentioned.

5.1.14.5 Location and Extent of Hazard in Santa Barbara

In addition to being within the flight pattern of many airports providing regional flights (i.e., Los Angeles International, San Francisco International, Oakland, San Jose International, Burbank Airport, John Wayne Airport, Long Beach Airport, Ontario International Airport), Santa Barbara has one (1) general aviation airport

The Santa Barbara Airport (SBA) is located near Goleta, west of Santa Barbara. On any given day, an average of 2,100 passengers arrive and depart from the airport. Santa Barbara is the busiest airport on the California coast, between Los Angeles and San Jose; serving more than 700,000 passengers annually. Five passenger airlines and one cargo carrier operate approximately 40 daily flight departures at the airport.

5.1.14.6 History of Hazard in Santa Barbara

Currently in the City of Santa Barbara there has not been a record of a large aircraft incident.

5.1.14.7 Probability of Occurrence

With the amount of general aviation operations, private flights, and its position between Los Angeles/San Diego and the Bay Area, there is a notable possibility of Santa Barbara City experiencing an airline crash.

5.1.14.8 Climate Change Consideration

There is no none linkage between climate change and airline crashes. Although bad weather does play a factor in some airline crashes, current technology does a good job of forecasting potential conditions.

5.1.15 Train Accidents

5.1.15.4 Description of Hazard

Train accidents are defined as any accidents involving public or private trains carrying passengers or cargo along the rail corridor. Train accidents, like other transportation accidents, are less likely to lead to a state or federal disaster declaration, than other hazards previously and afore mentioned.

5.1.15.5 Location and Extent of Hazard in Santa Barbara

Trains running through Santa Barbara City, and in close proximity to U.S. Highway 101, carry both commuters and commodities. Such commodities include hazardous materials, fuel (including oil), agriculture, meats, and non-consumables. A hazardous materials incident on the rails or roadway has the potential to shut down both rail and highway transportation routes where the two are within close proximity to another.

5.1.15.6 History of Hazard in Santa Barbara

In 1991 the Seacliff Incident, in neighboring Ventura County, occurred when a train released 440 gallons of aqueous hydrazine. The accident required the evacuation of the nearby Seacliff Community along with the shutting down of Highway 101, and took 5 days to cleanup. The City has not experienced this type of incident; but there is a history of many fatalities on the tracks running through Santa Barbara.

5.1.15.7 Probability of Occurrence

Train accidents are generally localized and the incidents result in limited impacts at the community level. However, if there are volatile or flammable substances on the train and the train is in a highly populated or densely forested area, death, injuries, and damage to homes, infrastructure, and the environment, including forest fires can occur.

5.1.15.8 Climate Change Consideration

There is no none linkage between climate change and train accidents; however, because of rail road track proximity along the Pacific Ocean, sea level rise could impact service. It is expected that conditions would be gradual in nature and would not create unforeseen problems or complications.

5.1.16 Tsunami

5.1.16.4 Description of Hazard

A tsunami is a series of long waves generated in the ocean by a sudden displacement of a large volume of water. Underwater earthquakes, landslides, volcanic eruptions, meteoric impacts, or onshore slope failures cause this displacement. Tsunami waves travel at speeds averaging 450 to 600 miles per hour. As a tsunami nears the coastline, its speed diminishes, its wavelength decreases, and its height increases. Depending on the type of event that creates the tsunami, as well the remoteness of the event, the tsunami could reach land within a few minutes or after several hours. Low-lying areas could experience severe inland inundation of water and deposition of debris more than 3,000 feet inland.

5.1.16.5 Location and Extent of Hazard in Santa Barbara

The City of Santa Barbara is located on or near several offshore geological faults, the more prominent faults being the Mesa Fault, the Santa Ynez Fault in the mountains, and the Santa Rosa Fault. There are other unnamed faults in the offshore area of the Channel Islands. These faults have been active in the past and can subject the entire area to seismic action at any time.

5.1.16.6 History of Hazard in Santa Barbara

The relative threat for local tsunamis in Santa Barbara can be considered low due to low recurrence frequencies. Large, locally-generated tsunamis are estimated to occur once every 100 years. Thirteen possible tsunamis have been observed or recorded from local earthquakes between 1812 and 1988. These tsunami events were poorly documented and some are very questionable. There is no doubt that earthquakes occurring along submarine faults off Santa Barbara could generate large destructive local tsunamis (http://www.drgeorgepc.com/Tsunami1812SantaBarbara.html). Internet research provides some documentation that two tsunamis were generated from two major earthquakes in the Santa Barbara City region in December of 1812. The size of these tsunamis may never be known with certainty, but there are unconfirmed estimates of 30-35 feet waves in Santa Barbara City. The estimates are found in various literature and based on anecdotal history only.

Major faults of the San Andreas zone, although capable of strong earthquakes, cannot generate any significant tsunamis. Only earthquakes in the Transverse Ranges, specifically the seaward extensions in the Santa Barbara Channel and offshore area from Point Arguello, can generate local tsunamis of any significance. The reason for this may be that earthquakes occurring in these regions result in a significant vertical displacement of the crust along these faults. Such tectonic displacements are necessary for tsunami generation.

Two separate events, occurring in 1877 and 1896, are listed in NOAA's online database as having heights of 1.8 and 2.5 feet waves. However, tsunami heights from historical records are estimated and should not be regarded as exact. Other recorded tsunamis affecting Santa Barbara during the 20th century are in the 0.1 – 1.0 foot range.

On February 27, 2010, a magnitude 8.8 earthquake occurred along the central coast of Chile and produced a tsunami. For the coast of Southern California, it was one of the largest tsunami episodes since 1964. In general, tsunami waves between 2 and 4 feet were reported. Tsunami waves of around 3 feet were reported by tide gauges across the Santa Barbara Channel. At Santa Barbara Pier, significant beach erosion was reported along with displacement of buoys. The tsunami surge lasted in excess of 20 hours. The most significant damage occurred along the coasts of Ventura and southern Santa Barbara counties. Numerous reports of dock damage were reported along with beach erosion.

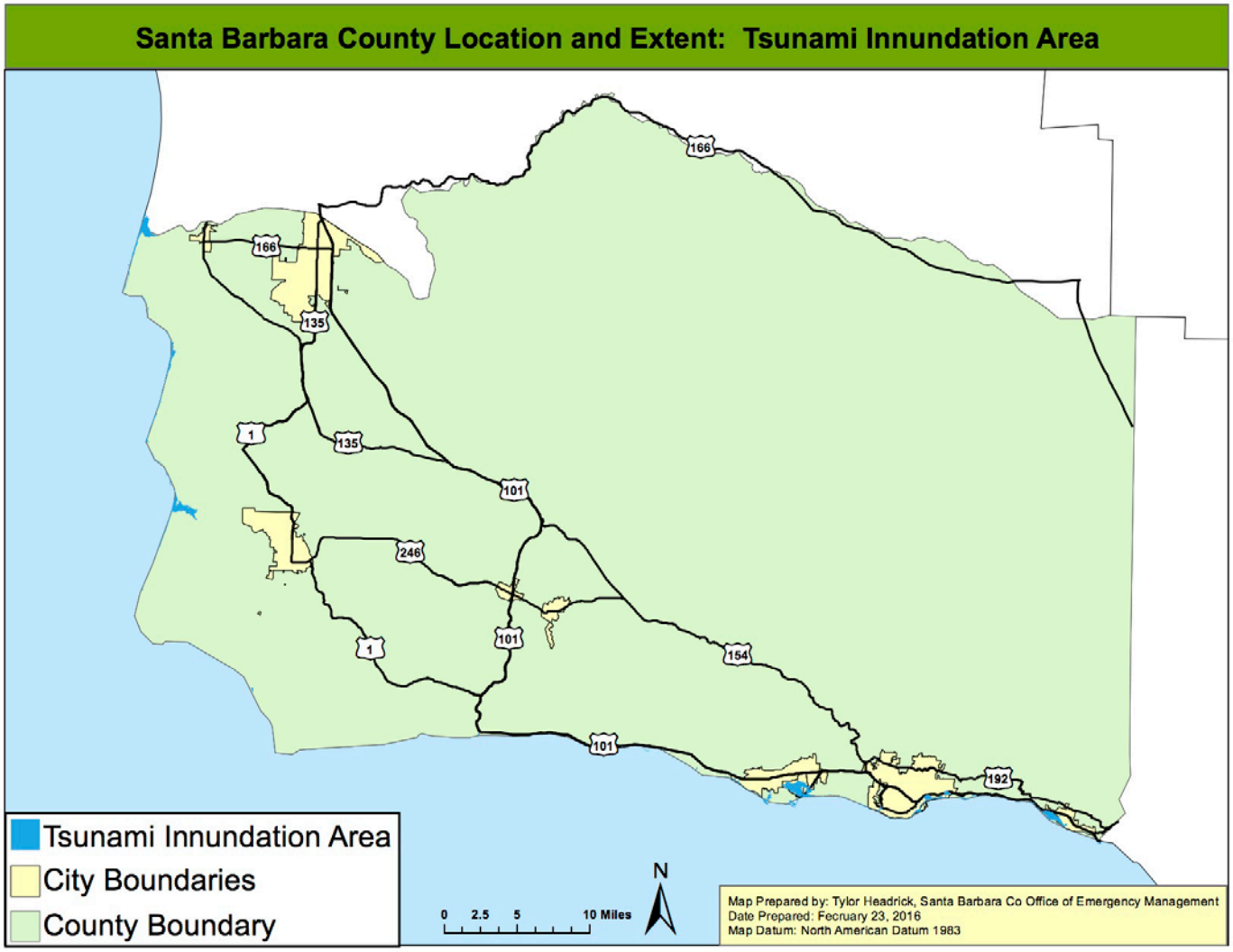
On March 11, 2011, a magnitude 9.0 earthquake occurred off the Pacific coast of Tohoku, Japan. This earthquake devastated many communities in Japan and caused tsunami effects across the ocean in Santa Barbara City. The only significant impact to Santa Barbara City was to the dredging contractor for the City of Santa Barbara harbor. The City harbor operations documented approximately $1,500 of damages (Public Assistance).

5.1.16.7 Probability of Occurrence

The University of Southern California (USC) Tsunami Research Group has modeled areas in Santa Barbara County, which include the City, which could potentially be inundated in the event of a tsunami. This model is based on potential earthquake sources and hypothetical extreme undersea, near-shore landslide sources. The data was mapped by Cal OES for the purpose of Tsunami Evacuation Planning. Extreme tsunami inundation areas were mapped and used to profile maximum potential exposure. The figure below (**Figure 5.24**) shows tsunami run up limits for Santa Barbara County. The tsunami inundation map helps to assist cities and counties in

identifying their tsunami hazard areas. The inundation line represents the maximum considered tsunami run up from a number of extreme, yet realistic, tsunami sources.

Figure 0.25 Tsunami Inundation Area



Based on the tsunami inundation map above, several areas along the coast of Santa Barbara have the potential to be inundated by a tsunami. However, since the probability of an earthquake occurring is rare, the probability of a tsunami is also rare.

5.1.16.8 Climate Change Consideration

Tsunamis are created by earthquakes or other earth movements, to date, no relationship has been made between climate change and the occurrences of earthquakes or other earth movements.

5.1.17 Civil Disturbance

5.1.17.4 Description of Hazards

Civil Disturbance is a term generally used to describe disorderly conduct or a breakdown of orderly society by a large group of people. Civil Disturbance can range from a form protest against major socio-political problems to riots.

5.1.17.5 Location and Extent of Hazard in Santa Barbara

Civil Disturbance can occur in any part of Santa Barbara City; however, it will generally be located within larger metropolitan areas.

5.1.17.6 History of Hazard in Santa Barbara

There is no data in the City of Santa Barbara regarding civil disturbances.

5.1.17.7 Probability of Occurrence

There are no studies that predict the probability of civil disturbance occurrences.

5.1.17.8 Climate Change Consideration

While there is no direct linkage between climate change and civil disturbances, there could be indirect linkages. As climate change impacts are either felt or perceived to be felt it could ignite passions within people to demonstrate against possible causes or enablers.

5.1.18 Marine Invasive Species

5.1.18.4 Description of Hazard

The introduction of non-indigenous species (NIS) into coastal marine and estuarine waters can cause significant and enduring economic, human health, and environmental impacts. In coastal environments, commercial shipping is the most important vector for species introductions. Commercial ships transport organisms through two primary mechanisms (vectors): ballast water and vessel biofouling. Ballast water is taken on and released by a vessel during cargo loading and discharging operations to maintain the vessel's trim and stability. Biofouling organisms are aquatic species attached to or associated with submerged or wetted hard surfaces. Ships transfer organisms to California waters from throughout the world. The transfer of ballast water from "source" to "destination" ports results in the movement of many organisms from one region to the next. Additionally, as vessels move from port to port, biofouling communities are transported along with their "host" structure. Once introduced, invasive species are likely to become a permanent part of an ecosystem and may flourish, creating environmental imbalances, presenting risks to human health, and causing significant economic problems. Examples include the zebra and quagga mussel infestations in the Colorado River Aqueduct System and California waterways, and the propagation of aquatic weeds, such as water hyacinth, in the California Delta.

5.1.18.5 Location and Extent of Hazard in Santa Barbara

All water bodies that are subject to recreational/commercial vessels and/or hydraulically connected to potential sources of infestation.

5.1.18.6 History of Hazard in Santa Barbara

In 2015, the start of crab-fishing was delayed for several month's due to a massive coastal algae bloom fueled by El Nino. The potentially fatal toxin delayed crab-fisheries to begin their trade, which caused several businesses to suffer economic loss.

5.1.18.7 Probability of Occurrence

There is always a potential for threat of indigenous species occurrence that is subject to many factors in the Santa Barbara City's coastal channel.

5.1.18.8 Climate Change Consideration

With the climate change water temperature can rise and fall; causing disruption to the ecosystem of the ocean. This can cause many instances of invasive marine life to cause ecological and economic devastation throughout the City's coastal channel.

SECTION 6 VULNERABILITY ASSESSMENT

6.1 Overview

The purpose of this section is to estimate the potential vulnerability (impacts) of hazards within the county and city on the built environment (residential, non-residential, critical facilities, etc.) and population. To accomplish this, three (3) different approaches will be used: 1) application of scientific loss estimation models; 2) analysis of exposure of critical facilities to hazards; and 3) a qualitative estimate of the impacts to hazards. It is important to note that the first two approaches can only be applied to hazards that have an exposure area (footprint). For those hazards where an exposure layer does not exist, a brief qualitative assessment of the potential vulnerability will be presented. This will be done for hazards that are within the city.

6.1.1 Scientific Loss Estimation Models

The scientific loss estimation modeling efforts will include the utilization of the Federal Emergency Management Agency (FEMA) Hazus-MH 3.0 model. Hazus-MH is a nationally applicable standardized methodology that estimates potential losses from earthquakes, hurricane winds and floods. Hazus-MH uses state-of-the-art Geographic Information Systems (GIS) software to map and display hazard data and the results of damage and economic loss estimates for buildings and infrastructure. It also allows users to estimate the impacts of earthquakes, hurricane winds and floods on populations. Estimating losses is essential to decision-making at all levels of government, providing a basis for developing mitigation plans and policies, emergency preparedness and response and recovery planning. This modeling will be done for Earthquake and Flood hazards only.

Hazus standard configuration allows for "out-of-the-box" regional or community-wide loss assessment using default ("Level 1) building inventory databases, aggregated to the census tract (earthquake) or census block (flood) level. A summary of Hazus default building inventory data for Santa Barbara County, and the unincorporated areas of the County, are given in **Table 6-1** (by general occupancy) and **Table 6-2** (by general building type). The distribution of buildings across the various construction classes given in Table 2 is estimated using Hazus default relationships (e.g., x percent of offices may be built of concrete frame, y% of offices may be built of reinforced masonry, etc.). The actual distribution of building across these construction types may be different. For example, the California Seismic Safety Commission (CSSC) published results of unreinforced masonry building surveys (CSSC, 2006), which indicate that the 23 URM buildings in Unincorporated Santa Barbara County have been retrofitted (vs. 185 URM buildings predicted by the default database).

Table 6-1: Hazus-MH 3.0 Default Building Inventory Data for Santa Barbara County by General Occupancy

Jurisdiction	General Occupancy	Building Replacement Value ($1,000)	Contents Replacement Value ($1,000)	Building Square Footage (1,000 Sq. Ft.)	Building Count
	Residential	$34,724,716	$17,364,871	231,312	116,304

Jurisdiction	General Occupancy	Building Replacement Value ($1,000)	Contents Replacement Value ($1,000)	Building Square Footage (1,000 Sq. Ft.)	Building Count
Santa Barbara County	Commercial	$6,387,442	$6,837,941	38,617	7,325
	Industrial	$1,307,134	$1,815,947	9,609	1,934
	Other	$1,805,563	$1,905,059	11,455	1,810
	TOTAL	**$44,224,855**	**$27,923,818**	**290,993**	**127,373**
City of Santa Barbara	Residential	$8,533,634	$4,267,361	54,637	24,775
	Commercial	$2,361,823	$2,512,267	14,116	2,320
	Industrial	$291,582	$392,884	2,169	580
	Other	$449,423	$479,574	2,582	452
	TOTAL	**$11,636,462**	**$7,652,086**	**73,503**	**28,127**
	%	**33.8%**	**31.9%**	**33.1%**	**35.2%**

Table 6-2: Hazus-MH 3.0 Default Building Inventory Data for Santa Barbara County by General Building Type

Jurisdiction	General Building Type	Building Replacement Value ($1,000)	Building Replacement Value (%)	Estimated Building Count	% of Building Count
Santa Barbara County	Concrete	$2,492,739	5.6%	2,396	2%
	Manufactured Housing	$415,023	0.9%	7,669	6%
	Precast Concrete	$1,556,413	3.5%	2,005	2%
	Reinforced Masonry	$3,088,459	7.0%	3,858	3%
	Steel	$2,461,502	5.6%	2,614	2%
	Unreinforced Masonry	$614,394	1.4%	727	1%
	Wood Frame (Other)	$1,733,790	3.9%	2,001	2%
	Wood Frame (Single-family)	$31,862,522	72.0%	106,108	83%
	TOTAL	**$44,224,842**		**127,378**	
City of Santa Barbara	Concrete	$796,670	6.8%	755	3%
	Manufactured Housing	$29,950	0.3%	492	2%
	Precast Concrete	$481,237	4.1%	613	2%
	Reinforced Masonry	$987,969	8.5%	1,108	4%
	Steel	$723,963	6.2%	796	3%

Jurisdiction	General Building Type	Building Replacement Value ($1,000)	Building Replacement Value (%)	Estimated Building Count	% of Building Count
	Unreinforced Masonry	$212,342	1.8%	232	1%
	Wood Frame (Other)	$659,422	5.7%	637	2%
	Wood Frame (Single-family)	$7,744,911	66.6%	23,489	84%
	TOTAL	**$11,636,464**		**28,122**	
	%	**33.8%**		**35.2%**	

Table 6-3 provides a summary of the Hazus-MH essential facilities default data (police stations and public schools) for anta Barbara County, and the unincorporated County Areas. The Hazus-MH essential facilities default data for fire station was augmented to account for a significant number of missing facilities for Santa Barbara County. Table 6-3 also indicates the construction type and design level assumed by Hazus-MH for these facilities; all are assumed to be wood frame of either High or Moderate code design level. A more accurate risk assessment could be conducted if additional facility information was collected, such as structural system, number of stories, year of construction/seismic code used for design, building square footage, building replacement value, and content replacement value. It should be noted that the Hazus-MH default database represents each school campus with a single building record of an assumed construction type. In reality, most public schools are multi-building campuses, built over a period of years (i.e., buildings may be designed to different seismic codes). To improve the risk assessment for public schools, information on each individual building would need to be collected.

Notes:
1) Totals may not match due to rounding
2) The distribution of buildings across the various construction classes is estimated using Hazus' default relationships. The actual distribution may be different. For example, the California Seismic Safety Commission published results of unreinforced masonry building surveys (2006), which indicated that there are 263 URM buildings in Santa Barbara (100% retrofitted) vs. 232 predicted by the default database.

Table 6-3: Hazus-MH 3.0 Default Essential Facilities Data for Santa Barbara County

Essential Facility Type	HAZUS-MH Default Structural Class and Design Level	Santa Barbara County	City of Santa Barbara
Fire Stations*	W1 (Wood Frame ≤ 5,000Sq.Ft.), Moderate Code Design Level	41	8
Police Stations	W1 (Wood Frame ≤ 5,000Sq.Ft.), Moderate Code Design Level	16	1

Public Schools	W1 (Wood Frame ≤ 5,000Sq.Ft.), High Code Design Level	123	13

* For the current assessment, the default fire station data has been revised to include missing stations.

The lifeline inventory within HAZUS-MH is divided between transportation and utility lifeline systems. There are seven transportation systems that include highways, railways, light rail, buses, ports, ferries and airports; and six utility systems that include potable water, wastewater, natural gas, crude & refined oil, electric power, and communications. The lifeline inventory data are provided in **Tables 6-4** and **Table 6-5**.

Table 6-4: Transportation System Lifeline Inventory

System	Component	# Locations/ # Segments	Replacement value (millions of dollars)
Highway	*Bridges*	*360*	***407.90***
	Segments	*270*	***3,299.40***
	Tunnels	*1*	***1.70***
		Subtotal	**3,709.10**
Railway	*Bridges*	*6*	***0.60***
	Facilities	*5*	***13.30***
	Segments	*157*	***263.90***
	Tunnels	*0*	***0.00***
		Subtotal	**277.80**
Light Rail	*Bridges*	*0*	***0.00***
	Facilities	*0*	***0.00***
	Segments	*0*	***0.00***
	Tunnels	*0*	***0.00***
		Subtotal	**0.00**
Bus	*Facilities*	*5*	***6.40***
		Subtotal	**6.40**
Ferry	*Facilities*	*3*	***4.00***
		Subtotal	**4.00**
Port	*Facilities*	*0*	***0.00***
		Subtotal	**0.00**
Airport	*Facilities*	*5*	***53.30***
	Runways	*8*	***303.70***
		Subtotal	**357.00**
		TOTAL	**4,354.30**

Table 6-5: Utility System Lifeline Inventory

System	Component	# Locations / Segments	Replacement value (millions of dollars)
Potable Water	*Distribution Lines*	*NA*	***323.20***
	Facilities	*0*	***0.00***
	Pipelines	*0*	***0.00***
		Subtotal	**323.20**
Waste Water	*Distribution Lines*	*NA*	***193.90***
	Facilities	*8*	***628.70***
	Pipelines	*0*	***0.00***
		Subtotal	**822.60**
Natural Gas	*Distribution Lines*	*NA*	***129.30***
	Facilities	*0*	***0.00***
	Pipelines	*0*	***0.00***
		Subtotal	**129.30**
Oil Systems	*Facilities*	*2*	***0.20***
	Pipelines	*0*	***0.00***
		Subtotal	**0.20**
Electrical Power	*Facilities*	*4*	***519.20***
		Subtotal	**519.20**
Communication	*Facilities*	*42*	***5.00***
		Subtotal	**5.00**
		TOTAL	**1,799.50**

6.1.2 Analysis of Exposure of Critical Facilities to Hazards

The City's Local Hazard Mitigation Planning Team (LHMP) reviewed its list of critical facilities and generated a summary of the facilities by major categories: Law, Fire, Public Works, Health and Human Services, Administrative, Communications, and Other (**Table 6-6**). This list of critical facilities presents the buildings and structures that are the City's primary concern for ensuring resiliency; they include City owned or operated facilities. Information for City owned or operated facilities (building replacement cost) were reviewed and updated as needed. However, available

information for the privately owned or operated facilities will be a Mitigation Project for the LHMP Team.

Using Geographic Information Systems (GIS) software, each critical facilities was geolocated on maps to illustrate the geographic location of each facility. Based on each facility's geolocation, GIS software was then used to identify facilities within the hazard exposure area (footprint). The results were a map and a table summarizing the total number of exposed critical facilities by the major categories; and a total of the building replacement cost and building content costs for county owned or operated facilities. This approach was done for Wildfire, Dam Failure, Tsunami, Landslides/Earth Movements, and Climate-related (some).

Table 6-6 Critical Facilities in Santa Barbara County

Category of Facility	Total Structures	Total Worth	
Law	1	$8,339,233	
Fire	8	$6,291,348	
Public Works	8	$93,105,465	
Airport	3	55,245,587	
Administrative	1	$14,562,625	
Waterfront (does not include marina)	2	$548,754	
Total Value	**32**	**$460,213,034**	

6.1.3 Qualitative Estimate of Impacts

The approach used to complete this effort involves utilizing readily available data (i.e., Census) to extrapolate and estimate potential vulnerability. In some cases, the estimation will build upon historic events but it may also include projecting worst case potentials. The MAC and the LHMP Team summarized the remaining hazards which the City is vulnerable and assessed the amount and type of damage that could be expected. This approach was done for Droughts/Water Shortage, Energy Shortage, , Hazardous Material Release, Terrorism, Aircraft Crashes, Civil Disturbance, Climate-related (some) Oil Spill, Epidemic/Pandemic, Radiological Incident, Cyber Threat, Train Accident, , and Marine Invasive Species.

6.2 Scientific Loss Estimation Analysis

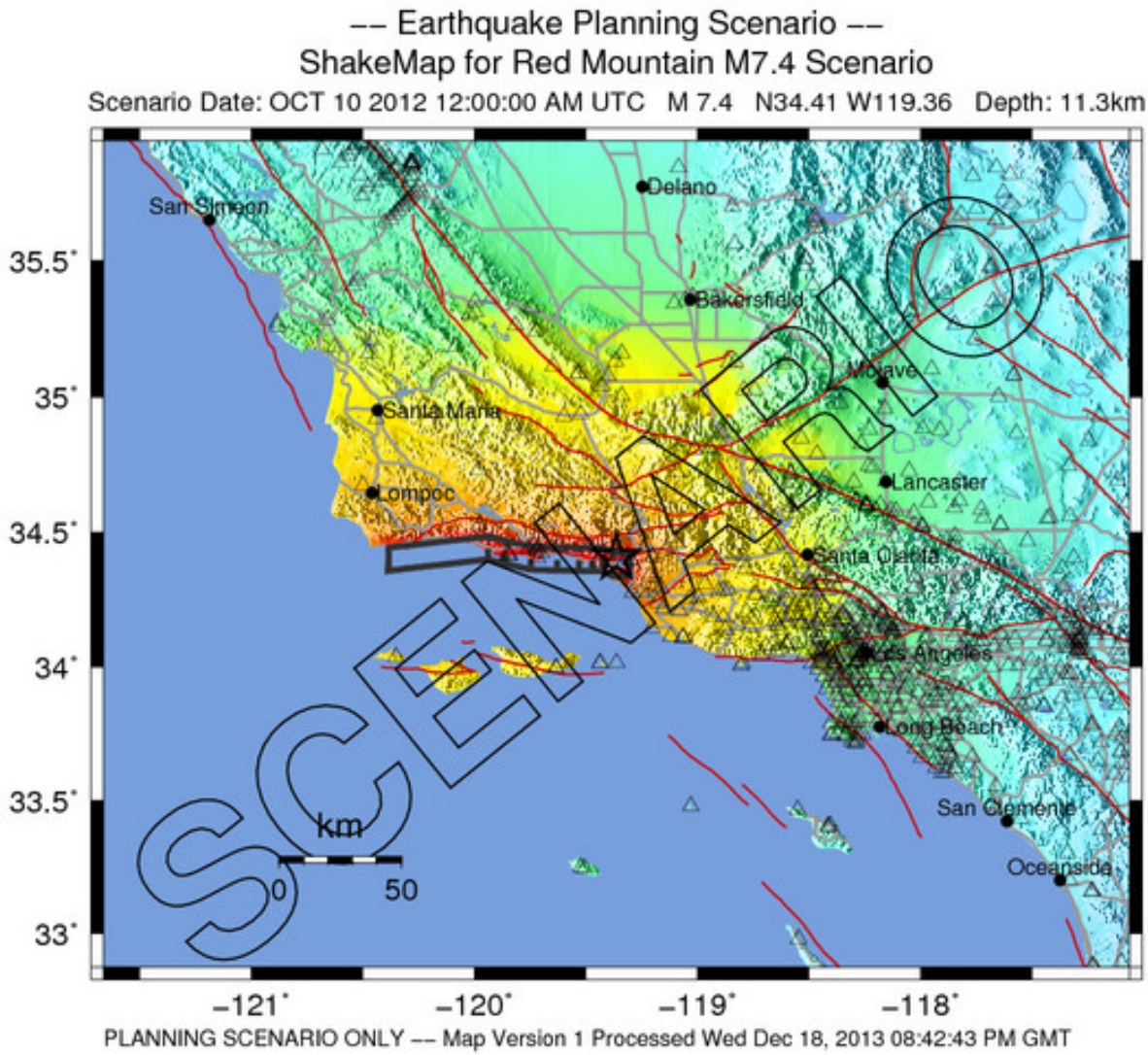
6.2.1 Earthquake and Liquefaction (High Impact/Medium Probability)

The entire geography of Santa Barbara County is exposed to some risk of shaking from an earthquake. The many fault lines, soil types, and construction types lead to a complicated assessment of vulnerability to earthquake. However, most of the land-based faults are either inactive or potentially active. Nearly all of the seismicity has been in the Santa Barbara Channel.

6.2.1.4 HAZUS-MH Earthquake Risk Assessment

Two earthquake scenarios developed by the United States Geological Survey (USGS), as shown in **Figure 6.1** and **Figure 6.2**, were selected to assess the range of impacts across the city. County-level maps of ground shaking for the same scenarios are shown in **Figure 6.3** and **Figure 6.4**.

Figure 6.1: Scenario 1 – M7.4 Earthquake on the Red Mountain Fault



PERCEIVED SHAKING	Not felt	Weak	Light	Moderate	Strong	Very strong	Severe	Violent	Extreme
POTENTIAL DAMAGE	none	none	none	Very light	Light	Moderate	Mod./Heavy	Heavy	Very Heavy
PEAK ACC.(%g)	<0.1	0.5	2.4	6.7	13	24	44	83	>156
PEAK VEL.(cm/s)	<0.07	0.4	1.9	5.8	11	22	43	83	>160
INSTRUMENTAL INTENSITY	I	II–III	IV	V	VI	VII	VIII	IX	X+

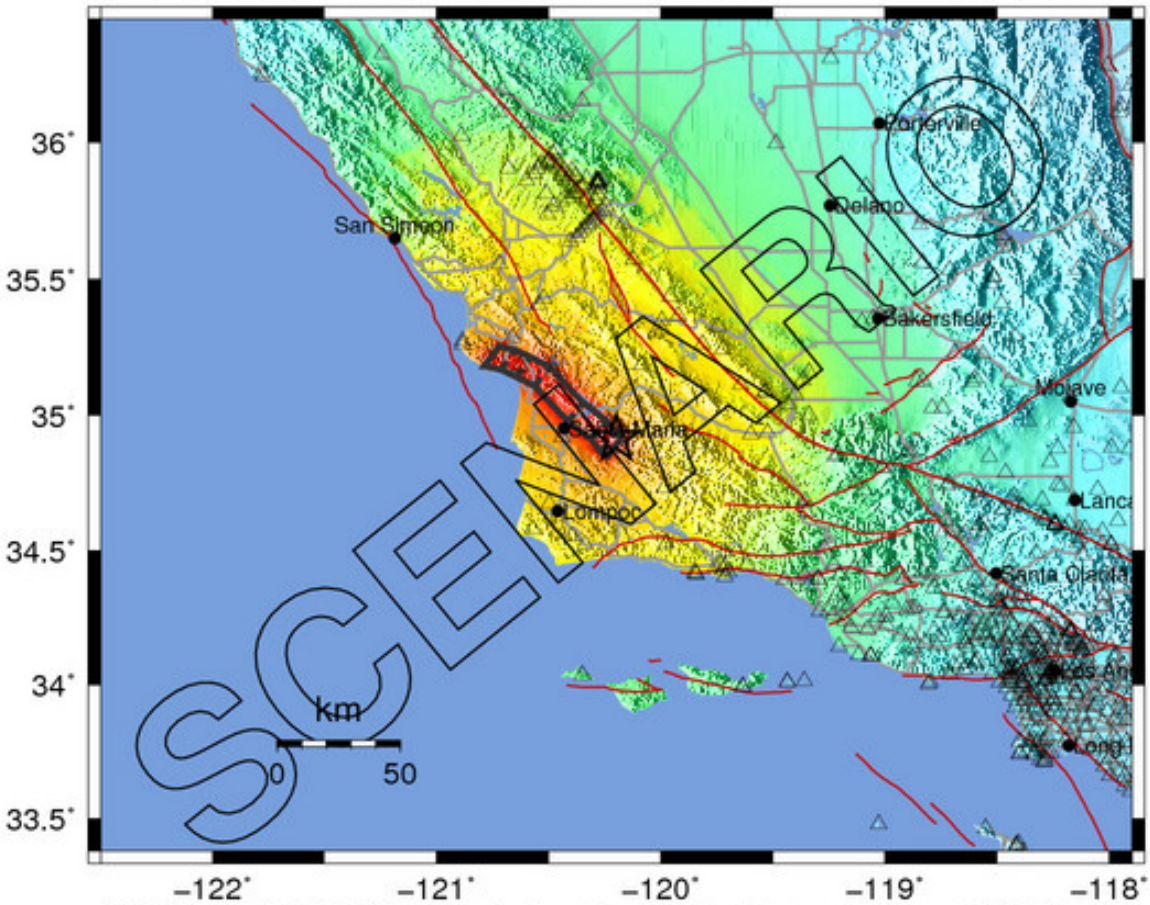
Scale based upon Wald, et al.; 1999

Figure 6-2 Scenario 2 M7.2 Earthquake on the San Luis Range Fault, South Margin

-- Earthquake Planning Scenario --

ShakeMap for San Luis Range So Margin M7.2 Scenario

Scenario Date: OCT 10 2012 12:00:00 AM UTC M 7.2 N34.91 W120.20 Depth: 7.9km



PLANNING SCENARIO ONLY -- Map Version 1 Processed Tue Dec 31, 2013 04:34:30 PM GMT

PERCEIVED SHAKING	Not felt	Weak	Light	Moderate	Strong	Very strong	Severe	Violent	Extreme
POTENTIAL DAMAGE	none	none	none	Very light	Light	Moderate	Mod./Heavy	Heavy	Very Heavy
PEAK ACC.(%g)	*<0.1*	*0.5*	*2.4*	*6.7*	*13*	24	44	83	>156
PEAK VEL.(cm/s)	<0.07	0.4	1.9	5.8	*11*	*22*	*43*	*83*	*>160*
INSTRUMENTAL INTENSITY	I	II–III	IV	V	VI	VII	VIII	IX	X+

Scale based upon Wald, et al.; 1999

Figure 6.3: USGS ShakeMap Ground Motions for Santa Barbara County for a M7.4 Earthquake on the Red Mountain Fault (Scenario 1) 1

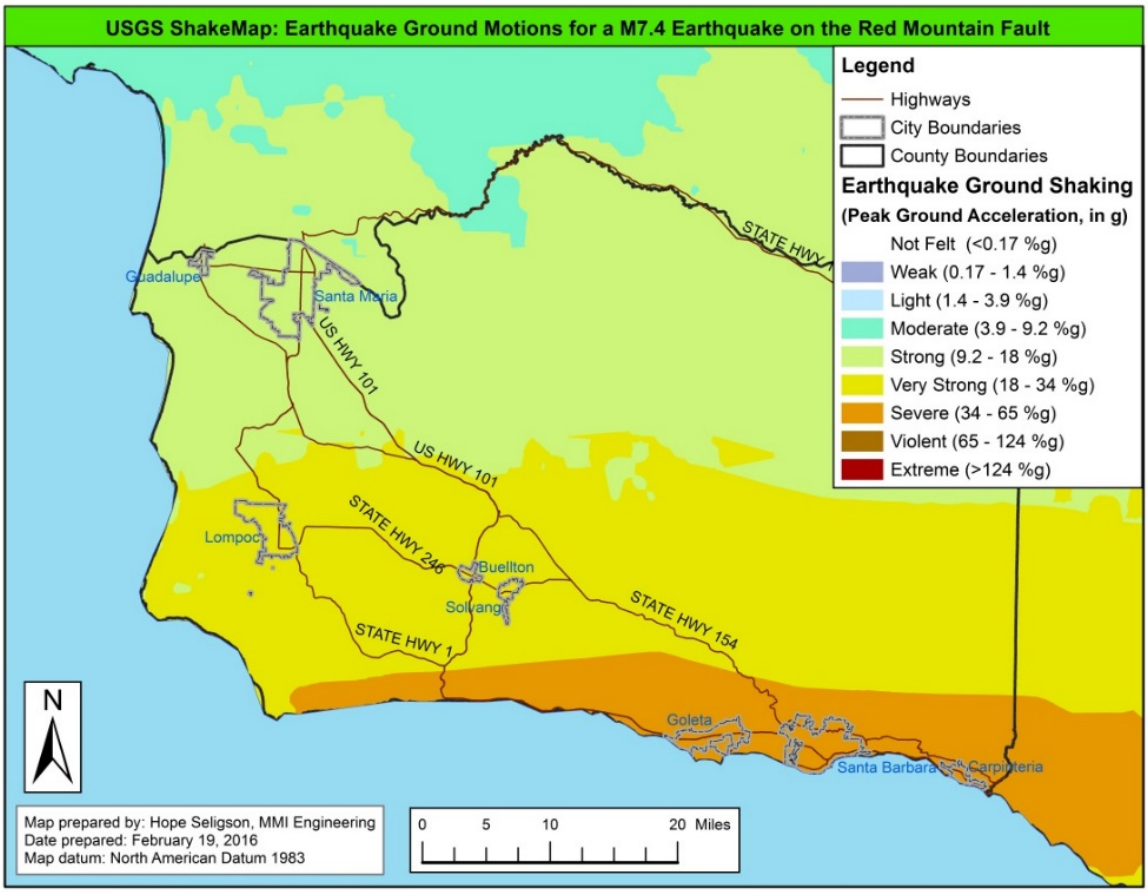
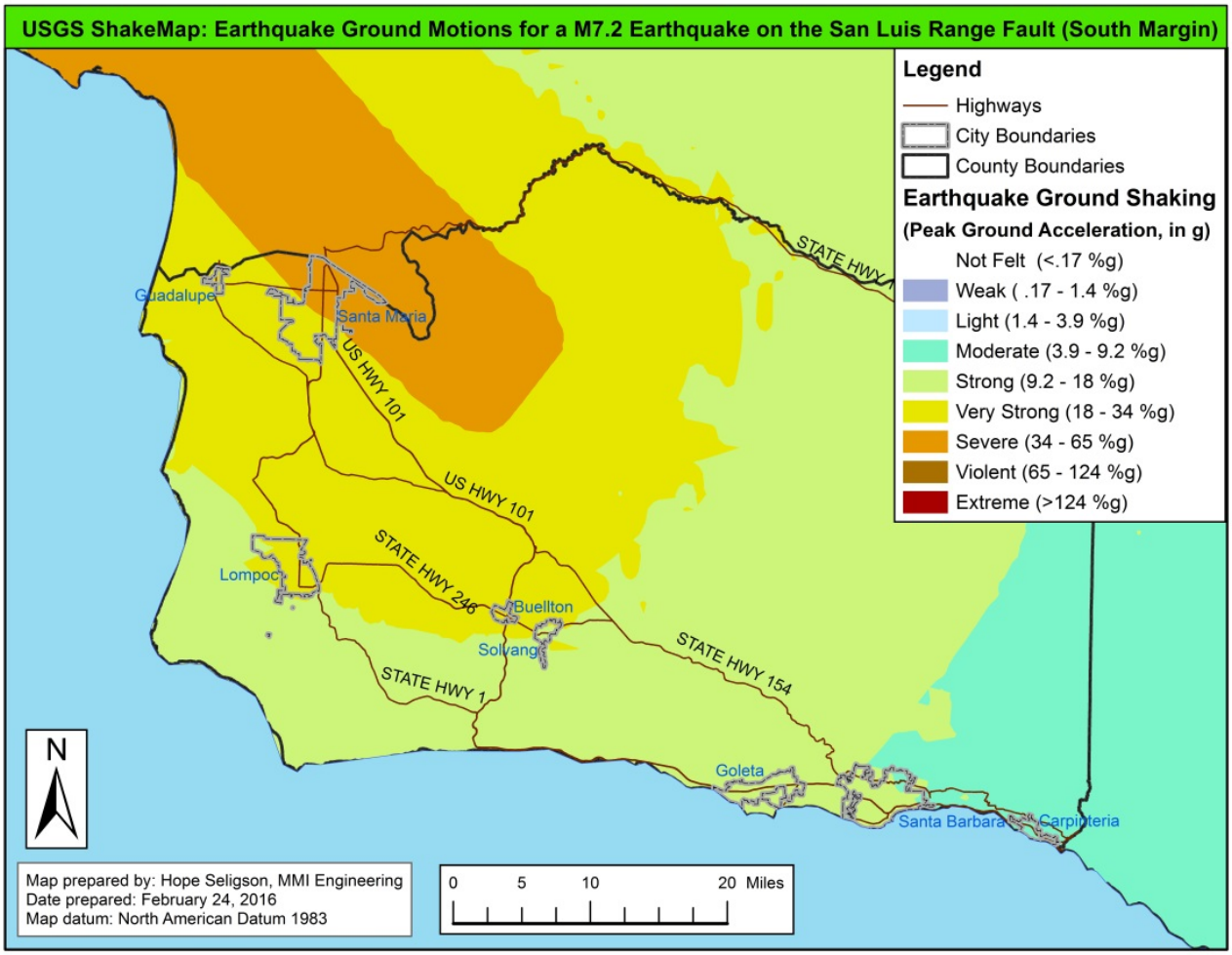


Figure 6.4: USGS Shake Map Ground Motions for Santa Barbara County for a M7.2 Earthquake on the San Luis Range Fault, South Margin (Scenario 2)



As noted above, the latest version of Hazus (Hazus 3.0, released in November, 2015) was used to conduct county-wide earthquake risk assessments. The Hazus results, computed at the census tract level, were aggregated to produce city-level impact summaries. An overview of the city-wide results for both scenarios is provided in **Table 6.7**, along with the sub-set of results that represent the unincorporated county areas. As shown, the M7.4 Red Mountain Fault earthquake scenario (which impacts the southern part of the county) generates more building damage and loss in the County and in the unincorporated county areas, than the M7.2 San Luis Range Fault earthquake scenario (which impacts the northern part of the County).

Table 6.8 provides a breakdown of estimated building damage (building count by Hazus damage state) by general building type, allowing for an understanding of the distribution of predicted damage in the modeled scenarios.

Functionality of essential facilities included in the Hazus default database (with additional fire station facilities added) in the two scenario earthquakes is summarized in **Table 6.9** for Santa Barbara County and the unincorporated county areas.

Table 6-7: Estimated Impacts for Two Earthquake Scenario Events Affecting the City of Santa Barbara

		Earthquake Scenario	
		M7.4 Red Mountain Scenario	**M7.2 San Luis Range South Margin Scenario**
Direct Economic Losses for Buildings ($1,000)			
	Total Building Exposure Value	**11,636,462**	
Capital Stock Losses	Cost of Structural Damage	218,144	750
	Cost of Non-Structural Damage	883,301	11,024
	Total Building Damage (Str. + Non-Str.)	**1,101,445**	**11,775**
	Building Loss Ratio %	9.5%	0.1%
	Cost of Contents Damage	334,401	5,887
	Inventory Loss	6,814	124
Income Losses	Relocation Loss	100,633	115
	Capital-Related Loss	78,502	106
	Rental Income Loss	69,218	193
	Wage Losses	96,347	126
	Total Direct Economic Loss	**1,787,360**	**18,325**
	% Of Countywide Loss	**50.9%**	**2.2%**
Casualties			
Day Casualties	**Casualties - 2 pm**		
	Level 1 - minor injuries, basic first aid	568	1
	Level 2 - hospital treat & release	150	0
	Level 3 - injuries requiring hospitalization	24	0
	Level 4 - fatalities	**45**	**0**
	Total Casualties	**787**	**1**
Night Casualties	**Casualties - 2 am**		
	Level 1 - minor injuries, basic first aid	193	1
	Level 2 - hospital treat & release	42	0
	Level 3 - injuries requiring hospitalization	6	0
	Level 4 - fatalities	**11**	**0**
	Total Casualties	**252**	**1**
Shelter			
Shelter	Number of Displaced Households	1,456	0
	Number of People Requiring Short-term Shelter	893	0
Debris (thousands of tons)			
Debris	Brick, Wood & Other (Light) Debris	112.5	0.6
	Concrete & Steel (Heavy) Debris	320.4	0.3

		Earthquake Scenario	
		M7.4 Red Mountain Scenario	**M7.2 San Luis Range South Margin Scenario**
	Total Debris	**432.9**	**0.9**

Table 6-8: Estimated Building Damage (Building Count by General Building type, by Damage State) for Two Earthquake Scenario Events Affecting the City Santa Barbara

		Earthquake Scenario	
		M7.4 Red Mountain Scenario	**M7.2 San Luis Range South Margin Scenario**
Concrete	None	73	740
	Slight	213	13
	Moderate	245	1
	Extensive	143	0
	Complete	80	0
	TOTAL	**754**	**754**
Manuf. Housing	None	0	439
	Slight	1	49
	Moderate	71	6
	Extensive	286	0
	Complete	136	0
	TOTAL	**494**	**494**
Precast Concrete	None	27	590
	Slight	113	18
	Moderate	273	2
	Extensive	148	0
	Complete	49	0
	TOTAL	**610**	**610**
Reinforced Masonry	None	165	1101
	Slight	301	9
	Moderate	420	1
	Extensive	166	0
	Complete	60	0
	TOTAL	**1,112**	**1,111**
Steel	None	26	776
	Slight	87	21
	Moderate	278	3

	Extensive	305	0
	Complete	103	0
	TOTAL	**799**	**800**
Unreinforced Masonry	None	5	220
	Slight	31	12
	Moderate	77	1
	Extensive	66	0
	Complete	53	0
	TOTAL	**232**	**233**
Wood Frame (Other)	None	64	627
	Slight	238	9
	Moderate	229	0
	Extensive	84	0
	Complete	21	0
	TOTAL	**636**	**636**
Wood Frame (Single family)	None	5410	23260
	Slight	14555	228
	Moderate	3490	1
	Extensive	34	0
	Complete	0	0
	TOTAL	**23,489**	**23,489**
ALL BUILDING TYPES	None	5,770	27,753
	Slight	15,539	359
	Moderate	5,083	15
	Extensive	1,232	0
	Complete	502	0
	TOTAL	**28,126**	**28,127**

Notes:

1) Totals may not match due to rounding

Table 6-9: Predicted Essential Facility Functionality in Two Earthquake Scenario Events Affecting The City of Santa Barbara

		Earthquake Scenario	
	FACILITY TYPE	**M7.4 Red Mountain Scenario**	**M7.2 San Luis Range South Margin Scenario**
Fire Stations	**Santa Barbara Fire Department**		
	Total Number of Facilities in Hazus Default Database*	**8 (Stations 1-8)**	
	Default Structural Class and Design Level	**W1 (Wood Frame ≤ 5,000 SqFt), Moderate Code Design Level**	
	Damage:		
	# Facilities with >50% Probability of Moderate or Greater Damage	0	0

	# Facilities with >50% Probability of Complete Damage	0	0
	Functionality:		
	Functionality < 50 % on Day 1	8	0
	Functionality 50 - 75% on Day 1	0	0
	Functionality >75% Day 1	0	8
Police Stations	**Santa Barbara Police Department**		
	Total Number of Facilities in Hazus Default Database	**1**	
	Default Structural Class and Design Level	**W1 (Wood Frame ≤ 5,000 SqFt), Moderate Code Design Level**	
	Damage:		
	# Facilities with >50% Probability of Moderate or Greater Damage	0	0
	# Facilities with >50% Probability of Complete Damage	0	0
	Functionality:		
	Functionality < 50 % on Day 1	1	0
	Functionality 50 - 75% on Day 1	0	0
	Functionality >75% Day 1	0	1
Schools	**Santa Barbara Unified School District**		
	Total Number of Facilities in Hazus Default Database	**26 Schools ****	
	Default Structural Class and Design Level	**W1 (Wood Frame ≤ 5,000 SqFt), High Code Design Level**	
	Damage:		
	# Facilities with >50% Probability of Moderate or Greater Damage	0	0
	# Facilities with >50% Probability of Complete Damage	0	0
	Functionality:		
	Functionality < 50 % on Day 1	26	0
	Functionality 50 - 75% on Day 1	0	0
	Functionality >75% Day 1	0	26

** Note: The default fire station database was revised to include missing stations*

*** The Hazus default database includes 26 schools, but review of California Department of Education data indicate that 3 may be closed.*

Critical Facility	Potential Groundwater/ Liquefaction Severity
Public Works Buildings	Moderate/High
Public Yards	Moderate/High
Ortega treatment Well	Moderate/High
Main Desalination Plant	High/High
El Estero Wastewater Treatment Plan	High/High
Stearns Wharf	High/High
Airport Administration	High/High
Airport Terminal Museum	High/High

Critical Facility	Potential Groundwater/ Liquefaction Severity
New Airline Terminal	High/High
Harbor Patrol	High/High
Waterfront Operations	High/High
Marina 1	High/High
Marina 2	High/High
Marina 3	High/High
Marina 4	High/High
Navy Pier	High/High
City Hall	Moderate/High
Community Development	Moderate/High
Fire Station 3	Moderate/Moderate
Fire Station 2	Moderate/High
Fire Station 8	Moderate/Moderate
Police Department Headquarters	Moderate/High
Lower Westside Community Center	Moderate/Moderate
Franklin Community Center	Moderate/Moderate

6.2.2 Flood and Coastal Storm Surge (Medium Impact/High Probability)

Hazus 3.0 was used to develop a flood depth grid for the 1-percent annual chance (100-year) flood, using Hazus 3.0 built-in, basic (i.e., Level 1) flood depth estimation methodology. The Hazus 3.0 flood hazard assessment methodology uses available information and local river and floodplain characteristics, such as frequency, discharge and ground elevation to estimate flood elevation, and ultimately flood depth. Digital elevation model (DEM) data with 30-meter resolution, available from the USGS' National Elevation Dataset (see: http://nationalmap.gov/elevation.html) has been utilized in the current assessment.

It should be noted that the flood depth grid generated by Hazus 3.0 ***is not*** equivalent to regulatory floodplain data contained in FEMA's Digital Flood Insurance Rate Maps (DFIRMs), which are the result of extensive, detailed engineering study. The Hazus-generated flood depth grid is a hypothetical representation of a potential flooding scenario, intended for non-regulatory uses. Further, it should also be noted that the DEM data used in the default analysis do not reflect the presence of channels and levees. A more detailed assessment would utilize higher resolution DEM data, such as LIDAR-based DEM data, and/or would require GIS-based revisions to the DEM to better reflect local flood control structures. Given that the Hazus 3.0 Level 1 approach does not consider the presence of levees, Hazus 3.0 loss and damage estimates produced for areas with levees (e.g., along the Santa Maria River) should be considered "worst-case" flood losses, reflecting potential flood damage that could occur in the event that the levees fail. Hazus-estimated flood depths across Santa Barbara County are provided in **Figure 6.5**.

An overview of the county-wide Hazus results for the 100-year flood scenario is provided in **Table 6.10**, along with the sub-set of results that represent the unincorporated county areas. **Table 6.11**

provides a breakdown of estimated building damage (building count by percent damage range) by general occupancy. As shown, most of the flood-damaged buildings are single family homes. Functionality of essential facilities included in the Hazus default database (with additional fire station facilities added) in the flood scenario is summarized in **Table 6.12** for Santa Barbara County.

Figure 6.5: Hazus-Estimated Flood Depths for a 1-percent Annual Chance (100-year) Flood

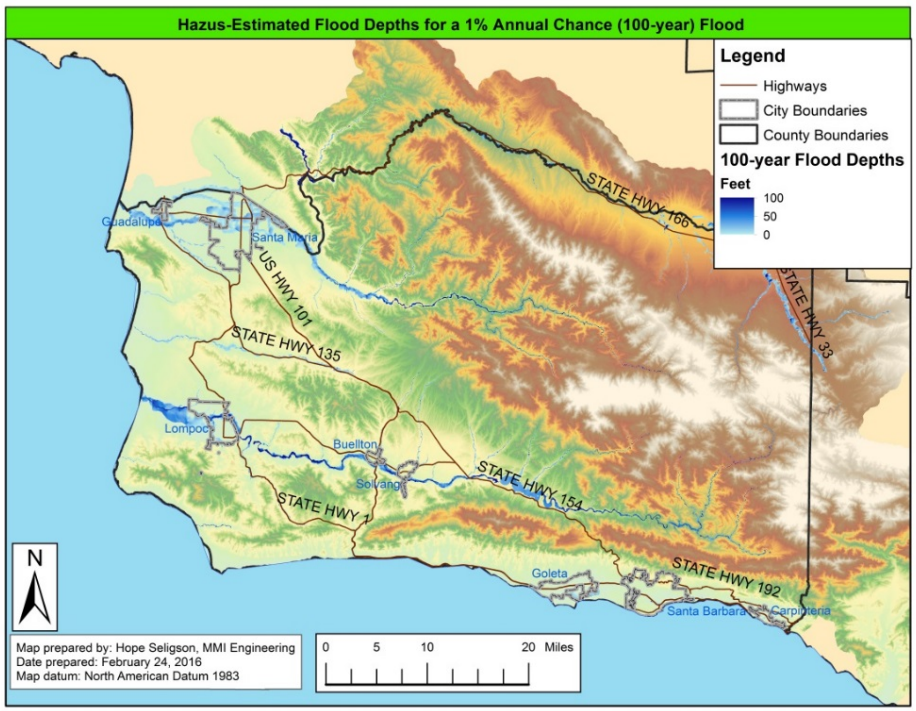


Table 6-10: Hazus -Estimated Impacts for the 1-Percent Annual Chance (100-Year) Flood Scenario Affecting the City of Santa Barbara

		Flood Scenario
		1-percent chance annual flood (100-year flood)
Direct Economic Losses for Buildings ($1,000)		
	Total Building Exposure Value	**11,636,462**
Capital Stock Losses	Total Building Damage	11,149
	Building Loss Ratio %	0.1%
	Cost of Contents Damage	7,790
	Inventory Loss	24
Income Losses	Relocation Loss	79
	Capital-Related Loss	268
	Rental Income Loss	50

		Flood Scenario
		1-percent chance annual flood (100-year flood)
	Wage Losses	158
	Total Direct Economic Loss	**19,518**
	% Of Countywide Loss	1.7%
Shelter		
Shelter	Number of Displaced Households	2,099
	Number of People Requiring Short-term Shelter	1,964
Debris (thousands of tons)		
Debris	Finishes	1.1
	Structures	0.4
	Foundations	0.4
	Total Debris	**2.0**

Table 6-11 Estimated Building Damage (Building Count by General Occupancy, by Percent Damage Range) for a 1-percent Annual Chance (100-year) Flood Scenario Affecting the City of Santa Barbara

		Flood Scenario
		1-percent chance annual flood (100-year flood)
Single Family Homes	None	106
	1 - 10%	37
	11 - 20%	33
	21 - 30%	2
	31 - 40%	3
	41 - 50%	1
	Substantial Damage	4
	TOTAL	**186**
Manufactured Housing	None	0
	1 - 10%	0
	11 - 20%	0
	21 - 30%	0
	31 - 40%	0
	41 - 50%	0

	Substantial Damage	0
	TOTAL	**0**
Other Residential	None	10
	1 - 10%	0
	11 - 20%	2
	21 - 30%	0
	31 - 40%	0
	41 - 50%	0
	Substantial Damage	0
	TOTAL	**12**
Commercial	None	6
	1 - 10%	1
	11 - 20%	0
	21 - 30%	0
	31 - 40%	0
	41 - 50%	0
	Substantial Damage	0
	TOTAL	**7**
Industrial	None	0
	1 - 10%	0
	11 - 20%	0
	21 - 30%	0
	31 - 40%	0
	41 - 50%	0
	Substantial Damage	0
	TOTAL	**0**
Other Occupancies	None	0
	1 - 10%	0
	11 - 20%	0
	21 - 30%	0
	31 - 40%	0
	41 - 50%	0
	Substantial Damage	0
	TOTAL	**0**
ALL OCCUPANCIES	None	122
	1 - 10%	38
	11 - 20%	35
	21 - 30%	2
	31 - 40%	3
	41 - 50%	1
	Substantial Damage	4
	TOTAL	**205**

Table 6-12 Predicted Essential Facility Functionality for a 1-percent Annual Chance (100-year) Flood Scenario Affecting the City of Santa Barbara

		Flood Scenario
	FACILITY TYPE	**1-percent chance annual flood (100-year flood)**
Fire Stations	**Santa Barbara Fire Department**	
	Total Number of Facilities in Hazus Default Database*	**8 (Stations 1-8)**
	Flood Exposure	
	# facilities located within flooded areas	0
	Damage:	
	# Facilities with Moderate or Greater Damage	0
	# Facilities with Substantial Damage	0
	Functionality:	
	# facilities expected to be non-functional on Day 1	0
Police Stations	**Santa Barbara Police Department**	
	Total Number of Facilities in Hazus Default Database	**1**
	Flood Exposure	
	# facilities located within flooded areas	0
	Damage:	
	# Facilities with Moderate or Greater Damage	0
	# Facilities with Substantial Damage	0
	Functionality:	
	# facilities expected to be non-functional on Day 1	0
Schools	**Santa Barbara Unified School District**	
	Total Number of Facilities in Hazus Default Database	**26 Schools ****
	Flood Exposure	
	# facilities located within flooded areas	0
	Damage:	
	# Facilities with Moderate or Greater Damage	0
	# Facilities with Substantial Damage	0
	Functionality:	
	# facilities expected to be non-functional on Day 1	0

** Note: The default fire station database was revised to include missing stations*

*** The Hazus default database includes 26 schools, but review of California Department of Education data indicate that 3 may be closed.*

6.3 Critical Facilities Analysis

6.3.1 Flood and Coastal Storm Surge (Medium Impact/High Probability)

Although Flood and Coastal Surge damage was well delineated in the previous section (Scientific Loss Estimation modeling), the County Planning Team and the MAC wanted to include additional vulnerability e data for the Critical Facilities. The exposure of the critical facilities to flood zones is summarized in **Table 6.13** and depicted on **Figure 6.6**.

Table 6-13 Critical Facilities by Category in Flood Zones

Critical Facilities
Public Works Yanonali Yard
Public Works Communications
Stearns Wharf
Airport Administration
Airport Runways
Airport Terminal Museum
New Airline Terminal
Stearns Wharf
Waterfront/Harbor Patrol
All Waterfront Marinas
Fire Station 2
Parks & Recreation Administration
Parks & Recreation Maintenance Yard
Ortega Well
El Estero Water Treatment Plant

Figure 6.6 Critical Facilities in 100 Year Flood Zone

MISSING FIGURE

6.3.2 Wildfire *(Medium Impact/High Probability)*

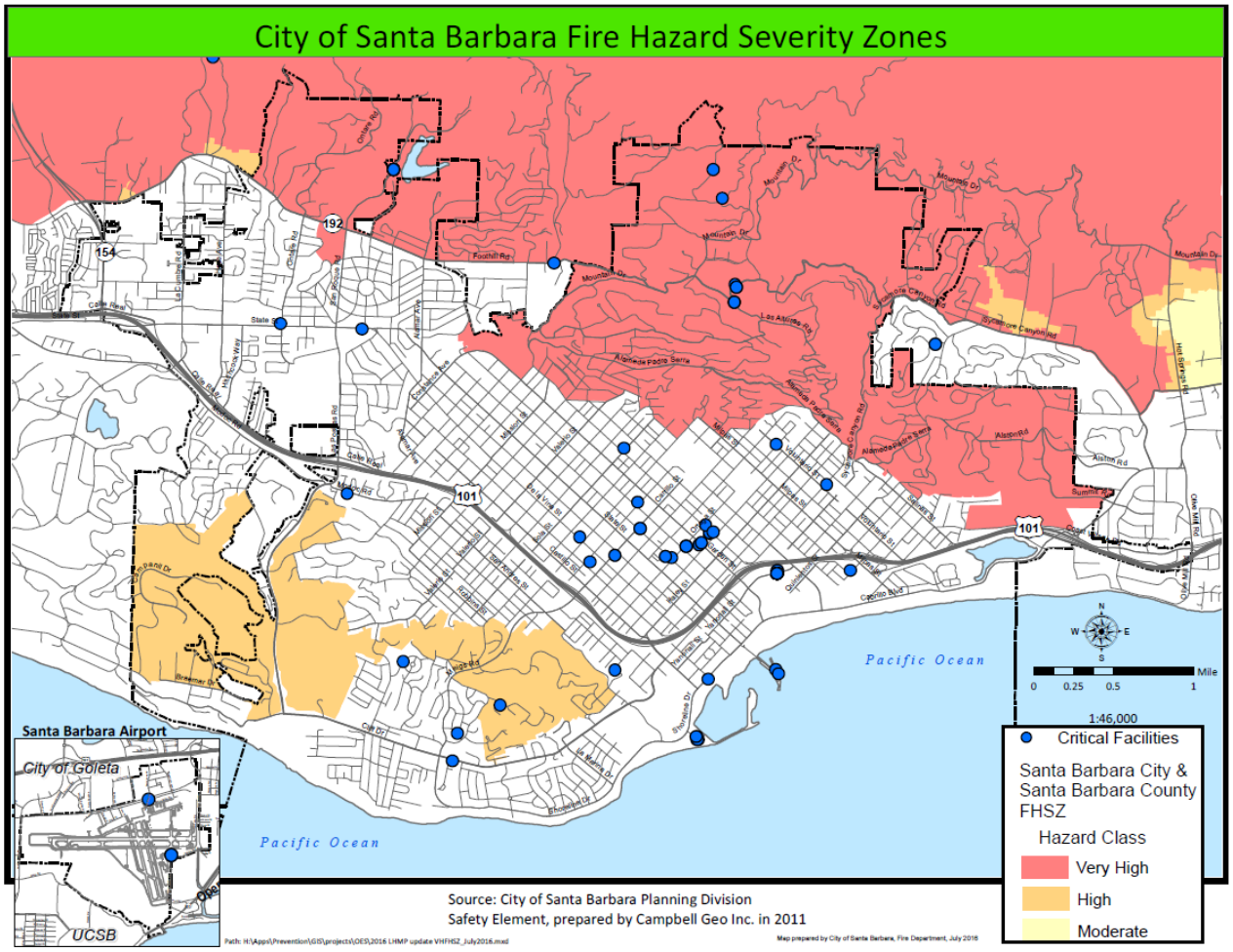
In looking at critical facilities' vulnerability to wildfire, there were three measures that were evaluated. The first is whether a critical facility is within the Fire Severity Zone (FSZ). The FSZ is mapped by the CA Department of Forestry and Fire Protection. It shows the geographic extents for areas of significant fire hazards based on fuels, terrain, weather, and other relevant factors. The second measure for vulnerability is the Wildland Urban Interface which is the potential treatment zone where projects could be conducted to reduce wildland fire threats to people. For the purposes of this analysis, "within the WUI" represents those critical facilities that are in the geographical area where the three factors of "threat to people", "communities at risk",

and “distance to developed areas” intersect. The final measure is that of “Fire Threat”. Fire Threat is a combination of the factors of fire frequency and potential fire behavior. The two factors are combined to create five (5) threat classes ranging from “Little or No Threat” to “Extreme”. The exposure of the critical facilities to these three measures is indicated in the tables (**Table 6.14**, **Table 6.15**, and **Table 6.16**) and figures (**Figure 6.7**. **Figure 6.8**, and **Figure 6.9**) below. It is worth noting that all critical facilities have at least some threat from one or more of the three measures. Because of this, the exposure has been color coded low too high in a yellow, orange, red scheme to make it easier for the reader to discern the different designations.

Table 6-14 Critical Facilities by Name in Fire Hazard Severity Zone

Critical Facility within the Wildland Urban interface Zone
Public Works Yard
Cater Treatment Plant
Sheffield Treatment Plant
Tunnell Reservoir
El Cielito
Hope Reservoir
Escondido Pump Station
Skofield Pump Station
Bothin Pump Station
Skofield Park
Fire Station 7
Fire Station 6
Franklin Community Center
Ortega Well
Franchesci Park – Communication Building

Figure 6.7 Critical Facilities in Fire Hazard Severity Zone



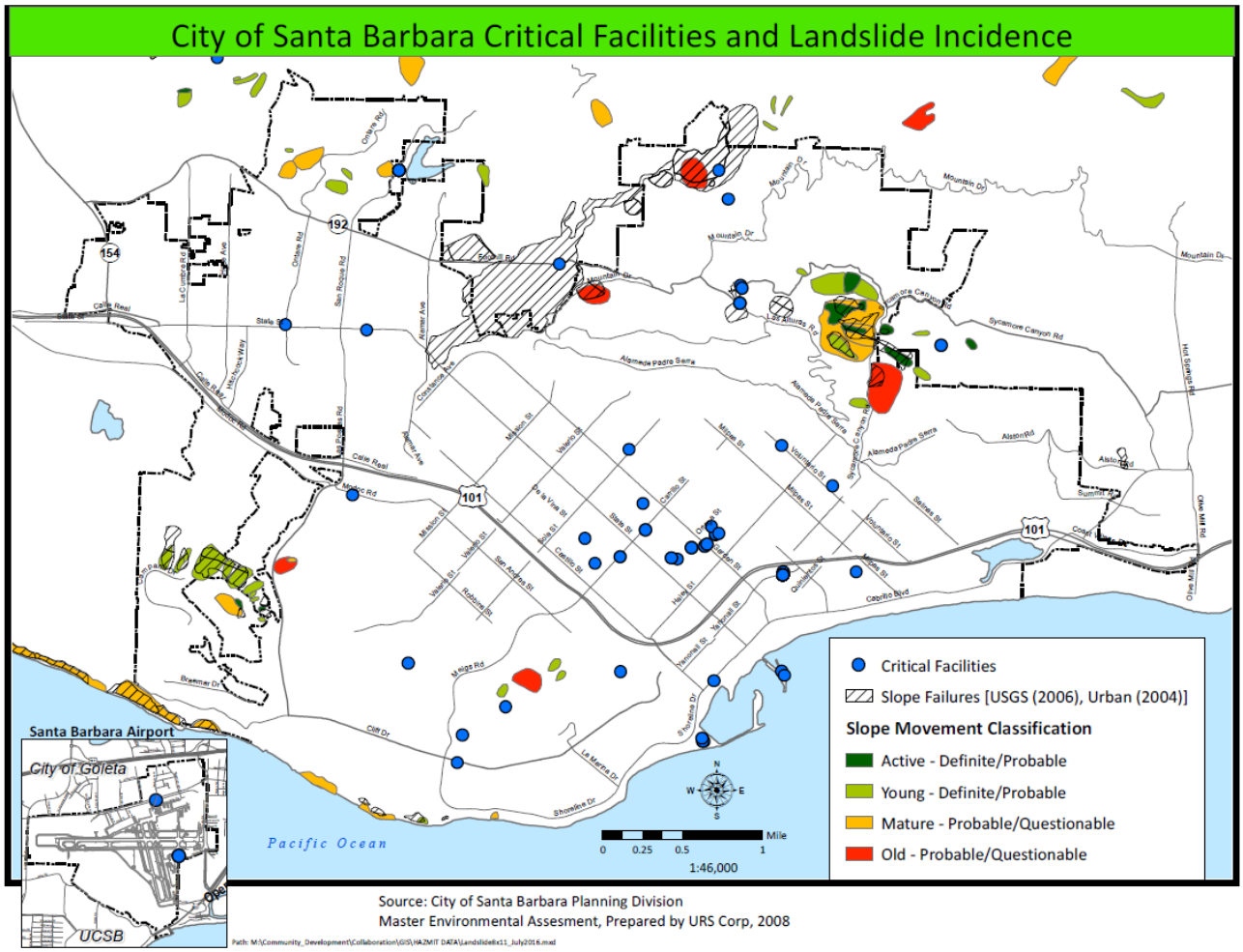
6.3.3 Landslide and other Earth Movement *(Medium Impact/High Probability)*

In an effort to assess vulnerability for landslides, data was collected from the United States Geological Survey (USGS) that represents landslide incidence and susceptibility. The geographies impacted are categorized into low, moderate, and high zones. These layers were intersected with the critical facilities to estimate exposure and show that there is approximately $14.4 million in structure value and just under $4 million in contents with at least moderate risk to landslides. The table below (**Table 6-17**) summarizes the total exposure and **Figure 6-10** depicts the location of those facilities that fall into a moderate risk. None of the County's critical facilities have a high risk of landslide vulnerability. All facilities not shown fall into the low risk category.

Table 6-17 Critical Facilities by Category in Landslide Zones

Currently in the Santa Barbara City there are no impacts to critical facilities in the landslide areas identified. The City continues to assess its vulnerabilities with the continued collection of data. This will assist in improving the City's risk assessment process in order to direct planning and mitigation decisions.

Figure 6.10 Critical Facilities and Landslide Incidence



6.3.4 Sea Level Rise, Coastal Storm Surge and Erosion *(Medium Impact/High Probability)*

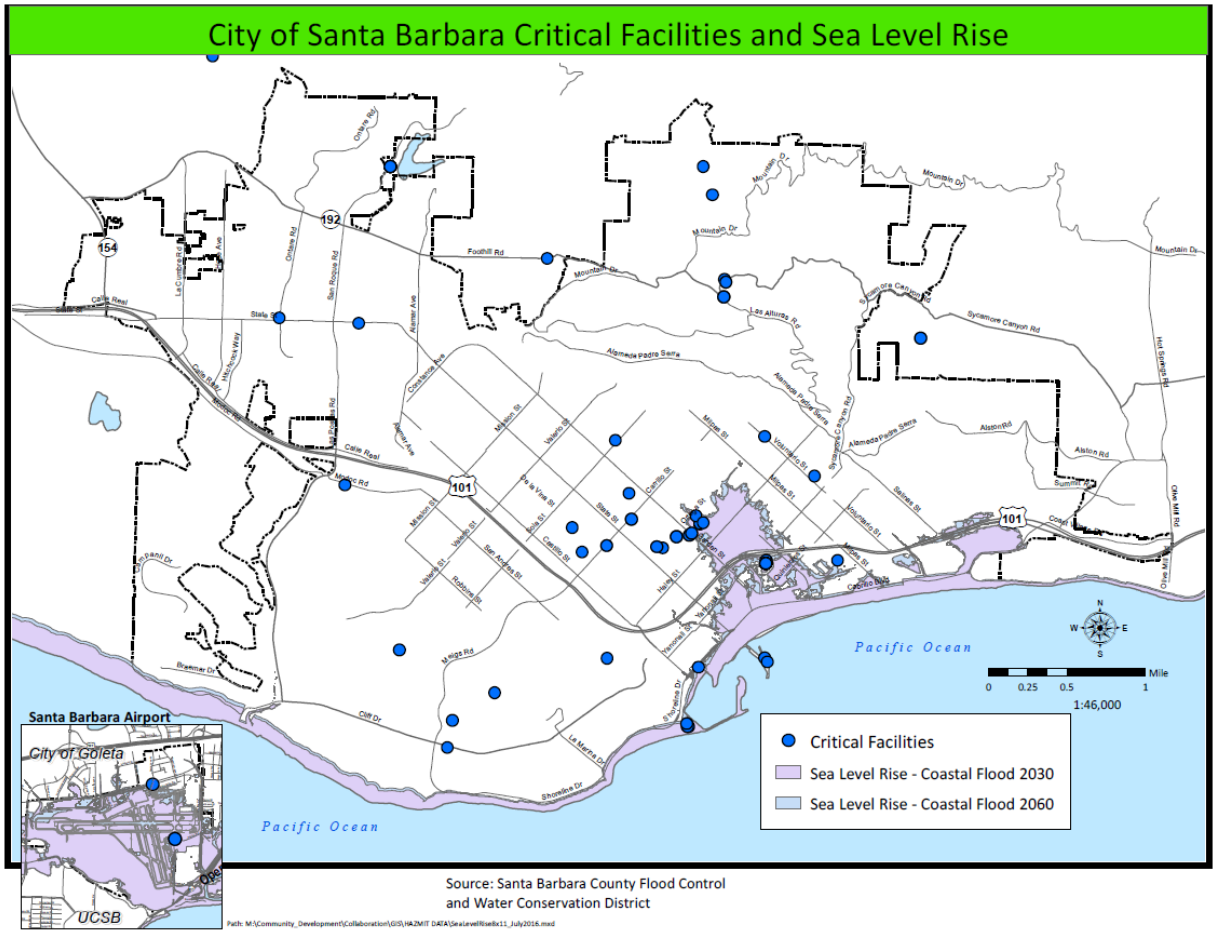
Santa Barbara County will be vulnerable to Sea Level Rise (SLR) along its 110 mile long coastline. SLR coupled with increased frequency, severity, and duration of high tide and storm events related to climate change will result in more frequent and severe extreme events along the coast. These events could expose the coast to severe flooding and erosion, damage to coastal Critical Facilities and real estate, and salinity intrusion into delta areas and coastal aquifers (Projecting Future Sea Level, A Report from the California Climate Change Center, 2006).

Table 6-18 illustrates the potential impact to Critical Facilitates from SLR, while **Figure 6.11** illustrates the vulnerability of the County's Critical Facilities to Sea Level Rise over the next 30 years.

Table 6-18 Critical Facilities by Category in SLR Zones

Currently, the City of Santa Barbara is continuing to assess data to develop policies for planning and mitigation. No critical facilities have been identified.

Figure 6-11 Critical Facilities and Sea Level Rise



6.3.5 Dam Failure *(High Impact/Low Probability)*

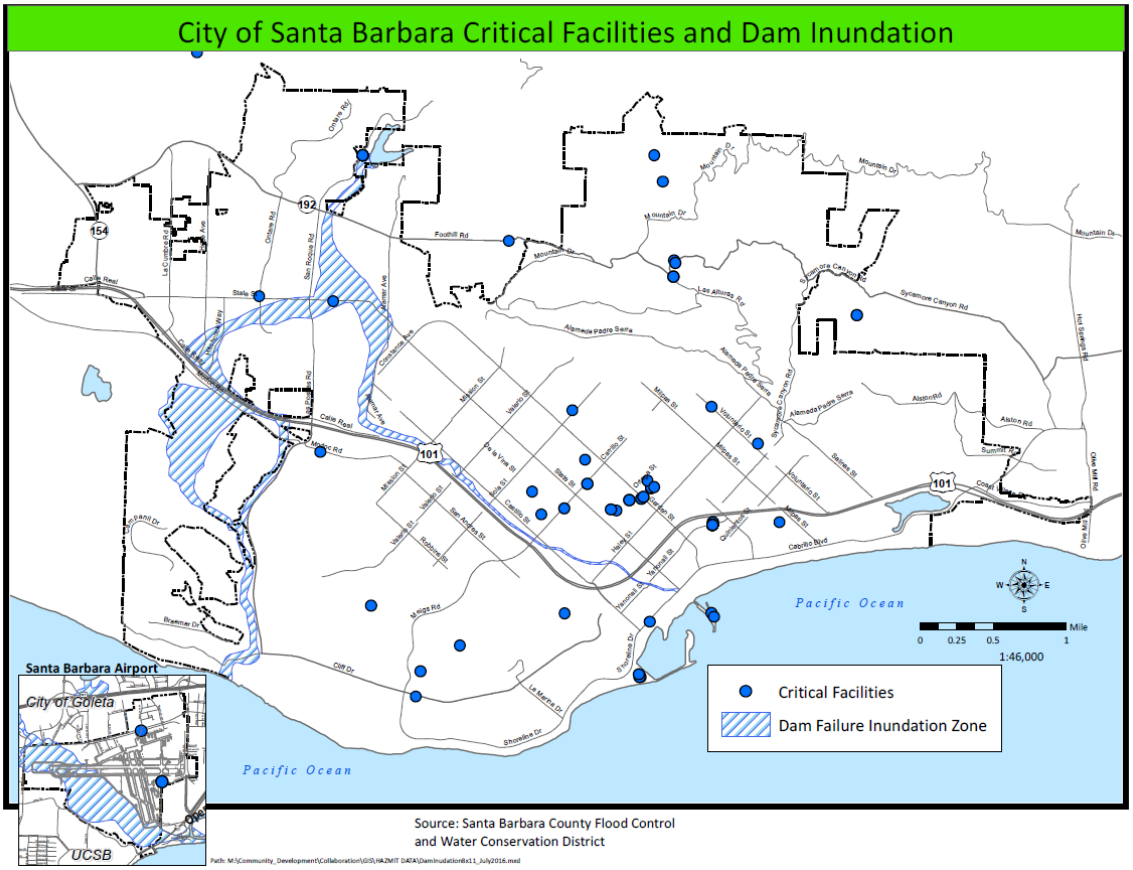
There are nine major dams in the County: Alisal Creek, Bradbury, Dos Pueblos, Gibraltar, Glen Anne, Juncal, Ortega, Rancho Del Ciervo, and Twitchell. Bradbury dam has the largest concern of failure because floodwaters from this dam would affect Cachuma Village, Solvang, Buellton, Lompoc City, Lompoc Valley, and south Vandenberg AFB. A failure of the remaining eight (8) dams would affect portions of populated cities and communities, forest and agricultural lands, roads, and highways. The dam failure vulnerability is simply a look at those critical facilities exposed to risk as indicated by whether they fall into a geographic region that represents a dam inundation zone. There are 39 County critical facilities within the dam inundation zones. The 39 critical facilities represent approximately $XX million in building value and almost $XX million in contents exposed to the risk (**Table 6-19**); however, over half of the critical facilities, nineteen

(19) of the 39 at risk facilities, did not have any dollar information available. **Figure 6-12** depicts the location of the critical facilities in relation to the dam failure inundation zones.

Table 6-19 Critical Facilities by Category in Dam Inundation Zones

Currently, there are no critical facilities within the path of a dam failure. However, the City continues to assess its vulnerabilities with the continued collection of data. This will assist in improving the City's risk assessment process in order to direct planning and mitigation decisions.

Figure 6-12 Critical Facilities and Dam Failure Inundation Areas



6.3.6 Tsunami *(Medium Impact/Low Probability)*

Tsunami waves travel at speeds averaging 450 to 600 miles per hour. As a tsunami nears the coastline, its speed diminishes, its wavelength decreases, and its height increases. Depending on the type of event that creates the tsunami, as well the remoteness of the event, the tsunami could reach land within a few minutes or after several hours. Low-lying areas could experience severe inland inundation of water and deposition of debris more than 3,000 feet inland.

The University Of Southern California Tsunami Research Group has modeled areas in Santa Barbara County that could potentially be inundated in the event of a tsunami. This model is based on potential earthquake sources and hypothetical extreme undersea, near-shore landslide sources were mapped and used to profile maximum potential exposure.

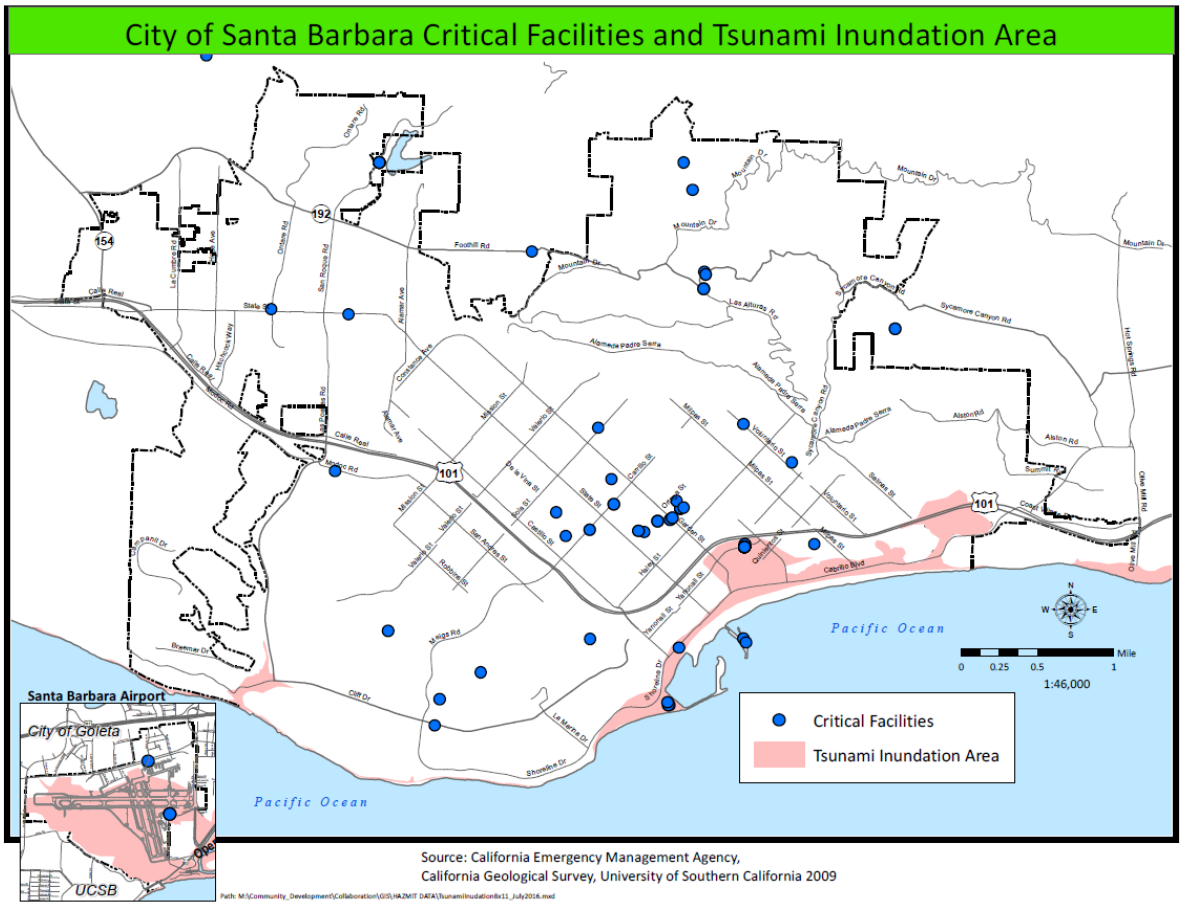
Critical facilities provided by the City were compared against the extreme tsunami inundation zone overlay to see whether they fell within the geographic extent of the hazard. (**Table 6-21**). **Figure 6-14** depicts the critical facilities in relation to the extreme tsunami inundation zone.

Table 6-21 Critical Facilities by Category in Extreme Tsunami Inundation Zone

It is worth noting that a majority of the Santa Barbara City critical facilities evaluated could be moderately impacted by a Tsunami event. The City continues to assess its vulnerabilities with the continued collection of data. This will assist in improving the City's risk assessment process in order to direct planning and mitigation decisions. Below is a table of critical facilities that are within the Tsunami Inundation Map develop in 2009.

Critical Facility
El Estero Wastewater Treatment Plan
Stearns Wharf
Airport Terminal Museum
New Airline Terminal
Waterfront/Harbor Patrol
All Harbor Marinas

Figure 6-14 Critical Facilities and Tsunami Inundation Areas



6.4 Qualitative Estimate of Impacts Analysis

6.4.1 Drought and Water Shortage *(Medium Impact/High Probability)*

A drought is present when a region receives below-average precipitation, resulting in prolonged shortages in its water supply, whether atmospheric, surface, or ground water. A drought can last for months or years, or may be declared after as few as 15 days. The effects of the drought are most visible in Santa Barbara County; including the City of Santa Barbara, when looking at the current capacity and maximum storage of the two main water reservoirs in the county, Lake Cachuma and Twitchell. On February 16, 2016, Cachuma was reported to be at 14.9% capacity, and Twitchell was at 0.2% capacity.

Climate change has the potential to make drought events more common in California, including Santa Barbara. Extreme heat creates conditions more conducive for evaporation of moisture from the ground, increasing the possibility of drought. A warming planet could lead to earlier melting of winter snow packs, leaving lower stream flows and drier conditions in the late spring and summer. Snow packs in northern California are important for water storage and ensuring adequate supply in the summer months when water is most needed. Changing precipitation distribution and intensity have the potential to cause more of the fallen precipitation run-off rather than be stored. The result is an increased potential for more frequent and more severe periods of drought.

Past experience with Santa Barbara droughts tells us that drought impacts are felt first by those most dependent on or affected by annual rainfall – fire departments, ranchers engaged in dryland grazing, rural residents relying on wells in low-yield rock formations, or other small water systems lacking a reliable water source. Drought and water shortage can happen countywide; and have significant impacts on the populations and the economy. Significant economic impacts on Santa Barbara's agriculture industry can occur as a result of short- and long-term drought conditions; these include hardships to farmers, farm workers, packers, and shippers of agricultural products. In some cases, droughts can also cause significant increases in food prices to the consumer due to shortages. Drought can also result in lack of water and subsequent feed available to grazing livestock, potentially leading to risk of livestock death and resulting in losses to the Santa Barbara's agricultural economy.

Drought can have secondary impacts. For example, drought is a major determinant of wildfire hazard, in that it creates greater propensity for fire starts and larger, more prolonged conflagrations fueled by excessively dry vegetation, along with reduced water supply for firefighting purposes.

*6.4.2 Severe Weather (*Medium Impact/High Probability)

6.4.2.4 *Extreme Heat*

Extreme heat can have significant impacts on the populations, lifeline infrastructure, and the economy. Heat events also highlight the importance of thoughtful social vulnerability analyses, consideration for socially isolate elderly populations, and illustrate how seemingly unrelated phenomena combine to create disaster, such as when increased use of air conditioners during heat waves can lead to power outages, which makes the events even more deadly.

The California Climate Adaptation Strategy (CAS), citing a California Energy Commission study, states that "over the past 15 years, heat waves have claimed more lives in California than all other declared disaster events combined." For example, the 1989 Loma Prieta Earthquake resulted in 63 deaths, the 1992 Northridge Earthquake was responsible for the loss of 55 lives, and the 2003 Southern California Firestorms resulted in 24 deaths; however, the worst single heat wave event in California occurred in Southern California in 1955, when an eight-day heat wave is said to have resulted in 946 deaths. The July 2006 heat wave in California caused the deaths of about 140 people over a 13-day period.

Because of this, the following groups could be considered vulnerable or at greater risk in a heat emergency:

- People with developmental/intellectual disabilities - refers to a severe and chronic disability that is attributable to a mental or physical impairment that begins before an individual reaches adulthood. These disabilities include cerebral palsy, epilepsy, mobility and autism.
- Blind/low vision
- Deaf/Hard of hearing
- Mobility Injuries: from auto accidents, falls, sports, and or war. These injuries can cause damage to the brain, spinal cord, hearing, sight and mobility
- Chronic Conditions: Diabetes, Arthritis, dialysis, asthma and epilepsy
- Older adults: Have age-related limitations. (move slower, sight and sound limitations, etc.)

- Children: Challenges include dependency not only for care, but decision-making, processing information and trauma differently than adults, they may be unable to articulate their needs, may decompensate faster than adults, and are generally more susceptible to thirst, hunger, temperature, etc. than adults.
- Animals, including domestic pets, livestock, and poultry are also susceptible to extreme heat. For example, dogs and cats are in danger of heat stroke in temperatures of 110°F. The heat wave of 2006 resulted in 15 reported pet deaths and more than 25,000 cattle, and 700,000 fowl heat- related deaths. Heat wave impacts to livestock can lead to financial losses in California's agricultural economy.

The Spatial Hazard Events and Loss Data for the United States (SHELDUS), estimates that approximately 47 heat events occurred in California between the years 1960 and 2008. Adjusted to 2008 dollars, SHELDUS reports that severe heat events in California caused roughly $1.8 million in property damage and $531.7 million in crop damage.

6.4.2.5 Freeze

Sustained temperatures below freezing in Santa Barbara's generally mild weather regions can cause life loss and health risks to vulnerable populations; and have significant impacts on the lifeline infrastructure and the economy. Similar to Extreme Heat events, the same populations, lifeline infrastructure, and parts of the economy are vulnerable to and could be impacted by Freeze events.

Although infrequent, freezes can severely affect Santa Barbara agriculture. Freezing temperatures occurring during winter and spring growing seasons can cause extensive crop damage. Secondary impacts of freeze disasters can include major economic impacts on farmers, farm workers, packers, and shippers of agricultural products. Freezes can also cause significant increases in food prices to the consumer due to shortages. Freezing spells are likely to become less frequent as climate temperatures increase; if emissions follow higher pathways, freezing events could occur only once per decade in a sizable portion of the state by the second half of the 21st century. While fewer freezing spells would decrease cold-related health effects, too few freezes could lead to increased incidence of disease as vectors and pathogens do not die off.

6.4.2.6 *Hailstorm*

Although ranked as part of the Serve Weather, hailstorms are rare in Santa Barbara County and as such represent a relatively low risk for most areas, compared to areas in the Midwest and southern United States where risk exposure is severe and many lives and millions of dollars are lost annually due to this hazard. In the event of a large hailstorm event, it is not expected to have significant impact on the population, built environment, lifeline infrastructure, or the economy.

6.4.2.7 Windstorm

Also ranked as part of the Serve Weather. Santa Barbara County is predominately known to have damaging hot winds known as Sundowners. These winds can reach up to 80 mph and fuel raging wildfires on the south coast. In the north county, the winds can damage agriculture if they are

severe enough. In the unlikelihood of a significant event, windstorms could have a considerable impact on the population, built environment, lifeline infrastructure, and the economy.

6.4.3 Energy Shortage and Energy Resilience *(Medium Impact/High Probability)*

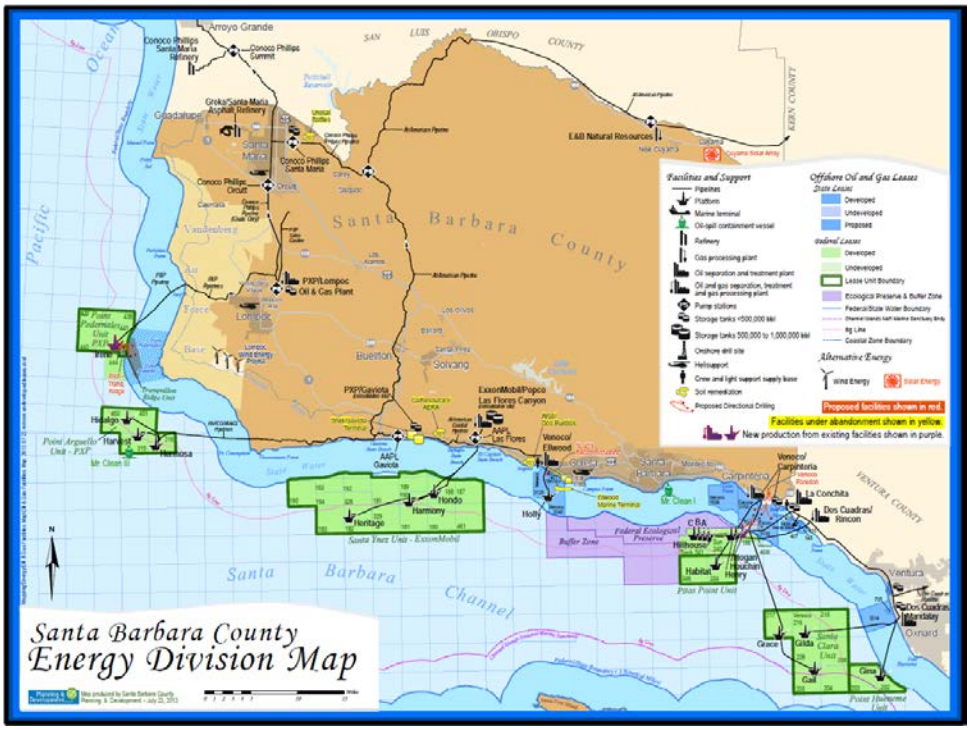
Energy disruptions are considered a form of lifeline system failure. Disruptions can be the consequence of another hazard, or can be a primary hazard, absent of an outside trigger. Santa Barbara County has two power providers. Pacific Gas and Electric provides electricity in the northern part of the county, with termination of services north of the Gaviota area. Southern California Edison provides power to the Southern part of the county, with service terminating in Gaviota. The two systems are not connected. Thus, if there is a major interruption of service in the Santa Barbara area, then all service is denied west of the outage to Gaviota. Likewise, if there is a major interruption of service coming from the north, power south to Gaviota from the outage may be affected.

Santa Barbara continues to experience both population growth and weather cycles that contribute to a heavy demand for power. Predicted increases in heat waves as well as increasingly severe winter storms will put ever greater strain on Santa Barbara's two electricity providers and the Southern California Gas Company. In the event of a significant energy shortage it will have a significant impact on the population, built environment, lifeline infrastructure, and the economy.

6.4.4 Oil Spill *(Medium Impact/High Probability)*

In the event of a significant oil spill it will have a significant impact on the environment and the economy. The environmental impacts contribute to short- and long-term impacts on economic activities in areas affected by oil spills. Moratoriums may be temporarily imposed on fisheries, and tourism may decline in beach communities, resulting in economic hardship on individuals dependent on those industries for their livelihood and on the economic health of the community as well. Currently, there are 11 Oil Platforms off of the Santa Barbara County Coast and nearly (NEED NUMBER) oil and gas wells in Santa Barbara County. **Figure 6.12** show the Oil Platforms and their proximity to Santa Barbara.

Figure 6.12 Oil Platform Map of Santa Barbara Coast



6.4.5 Agricultural Pests and Disease *(Low Impact/High Probability)*

In the event of a significant agricultural pest or disease event it will have a significant impact on the environment and the economy. The actual acreage of agriculture exposed to pests and disease, as well as other hazards, is 546,512.61 acres including 138,723.18 acres of crop land.

6.4.6 Epidemic/Pandemic/Vector Borne Disease *(Low Impact/Medium Probability)*

The county, as well as the state and country, has been subject recent increases in epidemic/pandemic/vector borne diseases. While a significant epidemic/pandemic/vector borne disease event can have a considerable impact on the population, environment, and economy, the epidemic/pandemic/vector borne disease response plan, developed through the coordination efforts of 75 county employees and partner agencies, establishes a solid foundation for improved coordination and intervention by all participants not only in response to a pandemic but for the prevention as well. Implementation of this plan will enable County Department's to fulfill their significant roles and responsibilities for a coordinated strategy aimed at protecting the public's health and minimizing the impact of the pandemic influenza in Santa Barbara County.

6.4.7 Hazardous Materials Release *(Medium Impact/Medium Probability)*

The release of hazardous materials into the environment can cause a multitude of problems for the population, built environment, lifeline infrastructure, environment, and the economy. Although these incidents can happen almost anywhere, certain areas of the County are at higher risk, such as near roadways that are frequently used to transport hazardous materials and locations with

industrial facilities that use, store, and/or dispose of such materials. Aras crossed by railways, waterways, airways, and pipelines also have increased potential for mishaps.

Incidences can occur during production, storage, transportation, use or disposal of hazardous materials. Communities can be at risk if a chemical is used unsafely or released in harmful amounts into the environment. Hazardous materials can cause death, serious injury, long lasting health effects, and damage to buildings, the environment, homes, and other property.

The locations and identity of facilities that store hazardous materials are reported to local and federal governments. Security measures at these facilities can be heightened. Many facilities have their own hazardous materials guides and response plans, including transportation companies who transport hazardous materials.

6.4.8 Radiological Incident *(High Impact/Low Probability)*

Minor radiological accidents are possible at several facilities in Santa Barbara County that utilize some form of uranium including UCSB and area hospitals; however, a major concern for residents of Santa Barbara County is the Diablo Canyon Power Plant (DCPP). A significant radiological incident will have significant impacts on the population, built environment, lifeline infrastructure, environment, and the economy.

6.4.9 Terrorism *(Medium Impact/Medium Probability)*

In the unlikelihood of a significant terrorism event, there could be considerable impact on the population, built environment, lifeline infrastructure, environment, and the economy.

As of this date, there have been no know terrorist incidents in the City.

6.4.10 Cyber Threat *(Low Impact/Medium Probability)*

In the unlikelihood of a significant cyber event, there could be considerable impact on the population, built environment, lifeline infrastructure, environment, and the economy.

A cyber threat can infiltrate many institutions including banking, medical, education, government, military, and communication and infrastructure systems. The majority of effective malicious cyber-activity has become web-based. Recent trends indicate that hackers are targeting users to steal personal information and moving away from targeting computers by causing system failure. The duration of a cyber-attack is dependent on the complexity of the attack, how widespread it is, how quickly the attack is detected, and the resources available to aid in restoring the system. A cyber-attack could be geared toward one organization, one type of infrastructure and/or a specific geographical area. The affected area could range from small to large scale. Cyber-attacks generated toward large corporations can negatively affect the economy. A 2014 report from the MacAfee Corporation stated that the annual global loss to the global economy is between $375B and $500B. Attacks geared toward critical infrastructure and hospitals can result in the loss of life and the loss of basic needs, such as power and water, to the general public. Cyber-attacks can lead to the loss of operational capacity.

Most jurisdictions have several levels of security in place, dependent upon security levels of individuals and the geographical locations (onsite or remote). Redundant dispatch centers with separate systems that can function if the primary center isn't functioning are desirable.

Humans are the weakest link in a chain of cyber security. It remains difficult to continuously monitor and manage human/operator vulnerability. However, to address this weakness it is suggested the all jurisdictions in the Santa Barbara County continue, or develop a security training program which all employees are required to complete or renew annually.

6.4.11 Aircraft Crash *(Low Impact/Medium Probability)*

In the unlikelihood of a significant aircraft crash, depending on the location, there could be considerable impact on the population and the built environment.

The City of Santa Barbara has one airport with commercial flights are available. In addition to flights in and out of the municipal airport, commercial and private air traffic passes over the county. Military aircraft utilize Vandenberg Air Force Base. The City's airport maintains an emergency response plan that is tested at regular intervals with local government response agencies in accordance with FAA regulations.

A major air accident that occurs in a heavily populated residential area can result in considerable loss of life and property. Damage assessment and disaster relief efforts associated with an air accident will require support from other local governments, private organizations, and in certain instances, from the State and Federal governments.

It is anticipated that the mental health needs of survivors and surrounding residents will have to be addressed resulting from the trauma associated with the accident. A coordinated response team, comprised of mental health professionals, should take a proactive approach meeting the mental health needs from any traumatic disaster.

6.4.12 Train Accident *(Low Impact/High Probability)*

In the unlikelihood of a significant train accident there could be considerable impact on the population, economy, and the environment.

Trains running through Santa Barbara County, and in close proximity to U.S. Highway 101 in some areas, carry commuters and all other types of commodities including hazardous materials, fuel (including oil), agriculture, meats, and non-consumables. A hazardous material incident on rails or roadway has the potential to shut down both rail and highway transportation routes where the rail line and Highway101 are in close proximity.

This was the case in the 1991 Seacliff Incident, in neighboring Ventura County where a train accident released 440 gallons of aqueous hydrazine. The accident required the evacuation of the nearby Seacliff community along with the shutting down of Highway 101, and took 5 days to cleanup.

6.4.13 Natural Gas Pipeline/Storage Facility Accidents *(Medium Impact/Low Probability)*

In the unlikelihood of a significant natural gas pipeline or storage facility accident there could be considerable impact on the population, built environment, lifeline infrastructure, economy, and the environment.

Natural gas transported via the interstate pipelines, and some of the California-produced natural gas, is delivered into the Pacific Gas & Electric (PG&E) and Southern California Gas (SoCal Gas) intrastate natural gas transmission pipeline systems (commonly referred to as California's "backbone" natural gas pipeline system). Natural gas on the utilities' backbone pipeline systems is then delivered into the local transmission and distribution pipeline systems, or to natural gas storage fields. PG&E and SoCal Gas own and operate several natural gas storage fields that are located in Northern and Southern California.

Generally speaking, transmission lines are large-diameter steel pipes carrying natural gas at high pressure and compressed to provide higher carrying capacity. Transmission lines are both interstate and intrastate, with the latter connecting to smaller distribution lines delivering gas directly to homes and businesses.

6.4.14 Civil Disturbance *(Medium Impact/Low Probability)*

In the unlikelihood of a civil disturbance, depending on the cause and effect, there could be considerable impact on the population, built environment, lifeline infrastructure, economy, and the environment.

While Santa Barbara County does not have a history of riots there is no record of Civil Unrest in the City.

6.4.15 Marine Invasive Species *(Medium Impact/Low Probability)*

The introduction of non-indigenous species (NIS) into Santa Barbara County coastal marine, estuarine and lake waters can cause significant and enduring economic, human health, and environmental impacts. Ships transfer organisms to California waters from throughout the world. The transfer of ballast water from “source” to “destination” ports results in the movement of many organisms from one region to the next.

The Santa Barbara Coast and Lake Cachuma are vulnerable to Marine Invasive Species and close monitoring of marine and lake vessels as well as water dropping (snorkeling) aircraft is needed.

SECTION 7 MITIGATION STRATEGY

In preparation of the 2016 update of this plan, the City's Local Hazard Mitigation Planning (LHMP) Team made no revisions to the countywide goals and objectives due to the fact that they continue to reflect the needs of the City. This section contains the City's updated and most current mitigation strategy as of March 2016.

Mitigation Priorities

The City's LHMP Team accepted and agreed to the following Goals and Objectives.

Goal 1: Promote disaster-resistant future development.
Objective 1.A: Facilitate the development (or updating) of the Comprehensive Plan, City's General Plans and zoning ordinances to limit (or ensure safe) development in hazard areas.
Objective 1.B: Facilitate the incorporation and adoption of building codes and development regulations that encourage disaster resistant design.
Objective 1.C: Facilitate consistent implementation of plans, zoning ordinances, and building and fire codes.
Goal 2: Building support capacity and commitment for existing assets, including people, critical facilities/infrastructure, and public facilities, to become less vulnerable to hazards.
Objective 2.A: Mitigate vulnerability structures and public infrastructure including facilities, roadways, and utilities
Objective 2.B: Mitigate vulnerable populations
Objective 2.C: Support a coordinated permitting processes and consistent enforcement
Goal 3: Enhance hazard mitigation coordination and communication.
Objective 3.A: Address data limitations identified in Hazard Profiling and Risk Assessment
Objective3.B: Increase awareness and knowledge of hazard mitigation principles and practice among local government officials
Objective 3.C: Provide technical assistance to implement mitigation plans
Objective 3.D: Educate the public to increase awareness of hazards, potential impacts and opportunities for mitigation actions
Objective 3.E: Monitor and publicize the effectiveness of mitigation actions implemented within the City
Objectives 3.F: Educate the professional community on design and construction techniques that will minimize damage from the identified hazard
Objective 3.G: Participate in initiative that have mutual hazard mitigation benefits County-wide

Objective 3.H: Encourage other organizations, within the public, private, and no-profit sectors, to incorporate hazard mitigation activities into their existing programs and plans
Objective 3.I: Continue partnership between the state, county, local and tribal governments to identify, prioritize and implement mitigation actions
Objective 3.J: continuously improve the County's capability and efficiency at administering pre- and post-disaster mitigation programs, including providing technical support to the special districts within the City

Mitigation Progress

The City's Local Hazard Mitigation Planning (LHMP) Team reviewed the mitigation actions listed in the 2011 plan to determine the status of each action. Once reviewed, deferred projects from 2011 were renumbered to reflect 2016 updates. NOTE: All projects deferred from 2011 are due to lack of funding. All projects from 2011 have been deferred to 2016.

Mitigation Approach

The following table presents mitigation actions identified in the 2011 plan that were deferred and those that have been added to this plan by the LHMP Team in March 2016. The projects that were deferred were given new action numbers in the format of 2016 - # to allow all the current actions to be numbered. Projects deferred from 2011 are identified in the Comments Section. As actions are added in future updates they will be numbered in similar format to allow for tracking the year each action was added, deferred or deleted to the list (e.g. 2016 - #). The actions below and their status will be tracked and updated annual by the City's Office of Emergency Services, the Emergency Managers Task Team and LHMP Team.

Table Mitigation Projects

2016 Mitigation Action #	Mitigation Action Description -	Status	Comments
2016-1	Pedregosa Storm Drain	Deferred	Previously from 2011 – construction will significantly reduce flooding in the Mission Creek area around Pedregosa
2016-2	Replacement Storm Drain Outfall (Airport)	Deferred	Previously from 2011 – This project is planned but not budgeted. Will significantly reduction flooding on Hollister Avenue.
2016-3	Flood Wall Construction (Airport)	Deferred	Flood Wall Construction - Around buildings 223, 304, 314, and 315 to protect these structures from flooding. Eliminate frequent water intrusion into buildings subsequent clean-up costs due to storm events, many of which are less than10 year events.
2016-4	Honda Valley Hillside Stabilization in location of High Pressure Gas Line Serving City	Deferred	Previously from 2011- High pressure gas line serving the City is located in an areas of Honda Valley where stabilization of soil is needed.

Table Mitigation Projects			
2016 Mitigation Action #	**Mitigation Action Description**	**Status**	**Comments**
2016-5	Hidden Valley Park Slope Stability	Deferred	Previously from 2011 – To reduce risk to life and property from slides and flooding.
2016-6	Stevens Park Eastern Access Erosion Remediation	Deferred	Previously from 2011 – Benefit to secure life and property and the preservation of an effective and ecologically sound creek system.
2016-7	Francheschi Park/Mission Ridge Hillside geotechnical stabilization of retaining wall	Deferred	Previously moved from in-progress to defer in 2011 due to lack of funding – retaining wall is crucial to evacuation and emergency response.
2016-8	Bluff Retreat Management at Shoreline Park	Deferred	Previously moved from in-progress to deferred in 2011 due to lack of funding – This project is on-going due to continuous bluff erosion.
2016-9	Rebuild 1000 Steps	Deferred	Previously moved from In-Progress in 2011 to Deferred in 2016 due to lack of funding – coastal erosion to beach access.
2016-10	Police Department Remodel	Deferred	Previously New in 2011 now Deferred due to lack of funding.
2016-11	High Fire Area Roadways	Deferred	Previously from 2011 - Erosions and landslides due to steep slopes and unreinforced retaining walls will hamper evacuation and emergency response.
2016-12	Laguna Pump Station	Deferred	Previously from 2011 - If the pump station is not replaced and/or repaired there will be massive closures in the downtown area.
2016-13	Replace deluge system on Stearns Wharf	Deferred	Previously from 2011 – Continues to be an on-going maintenance Project to promote firefighting on Stearns Wharf, which is an historical site in the Waterfront area.
2016-14	Backup generator for Waterfront Department Operating Center.	Deferred	Previously from 2011 - Upgraded power needed for Harbor Patrol and Waterfront DOC.
2016-15	Current Harbor facilities are old early 60s type construction – seismic renovation needed for safety	Deferred	Previously from 2011 - Current Harbor facilities are early 60s' type construction that would not withstand a large earthquake.
2016-16	Mesa Lane Coastal Access	Deferred	Previously from 2011 - Coastal erosion has already damaged a good portion of this coastal access.
2016-17	Salsipuedes Street Storm Drain Improvement	NEW	Potential improvements include connection of storm drain inlets on Micheltorena Street to existing storm drain on Salsipuedes Street and the construction of a new storm drain pipe along Salsipuedes and Victoria Streets

Table Mitigation Projects			
2016 Mitigation Action #	**Mitigation Action Description**	**Status**	**Comments**
2016 -18	Corrugated Metal Pipe Repairs	NEW	Repair through slip lining or to completely replace the highest priority corrugated metal pipe drain lines annually.
2016-19	Guiterrez Storm Drain Improvements	NEW	Construct additional storm drains to reduce the duration and severity of flooding when the upstream storm drain system is overwhelmed. The project is intended to improve the ability to remove runoff from the area by providing increased inlet capacity and by providing larger conduits between the street inlets and the box culverts under Hwy 101.
2016-20	Goleta Slough Mouth Management	NEW	Project will control the water level in the Goleta Slough to minimize flood hazard, mosquito population blooms, and waterfowl attractants that pose a greater bird-strike risk. The project will be designed to minimize adverse effects to the Federally-endangered tidewater goby and steelhead trout, while avoiding significant flood and bird-strike hazards such as those experienced in November 2012, May 2013 and February 2014.
2016-21	Hollister Drainage Improvement	NEW	The project includes establishing new swales to connect to an existing culvert emptying to Carneros Creek. To preserve the wetland habitat within the project site, the swales will be "eco-channels" which are constructed to allow a certain depth of water to still fill the wetlands, but now allow the water to overflow into Hollister Avenue. There will be a significant component of wetland enhancement/planting to offset any detrimental impacts of the project to the wetland habitat.
2016-22	Sea Level Rise Adaptation Plan	NEW	Develop a comprehensive Sea Level Rise Adaptation Plan for the low-lying coastal area from Ledbetter Point to the coastal bluffs at the eastern City limits to identify, manage, and reduce sea level rise effects on coastal resources and critical City facilities.
2016-23	Review/Revise the City's Critical Facilities List	NEW	Develop a more comprehensive list of Critical Facilities that would include hospitals, skilled nursing facilities and private companies; as applicable.

Implementation Plan

Mitigation Action # 2016 – 1 Deferred from 2011		
Project Description: Pedregosa Storm Drain This is a cooperatively funded project of the County Flood Control and the City to solve drainage problem along Pedregosa Avenue to De la Vina Street. This is scheduled to be constructed next year. The affected area is from Mission Creek to Sheridan Avenue vicinity.		
Applicable Hazards		
High	**Medium**	**Low**
☐ Earthquake ☒ Flooding ☐ Wildfire ☐ Sea Level Rise ☐ Drought	☐ Agricultural Pests / Disease ☐ Epidemic/Pandemic ☐ HazMat Release ☐ Oil Spills ☐ Landslide/Coastal Erosion	☐ Tsunami ☐ Dam Failure ☐ Commercial Aircraft ☐ Terrorism ☐ Cyber Threat
Existing and Potential Resources: Santa Barbara County Flood Control District Benefits Assessments/Streets Capital Fund – estimated cost of project $700,000		
Responsible Department: Santa Barbara County Flood Control - Tom Fayram, Deputy Public Works Director		
Target Completion Date: Undetermined due to funding		
Additional Comments / Status Report: Construction will significantly reduce flooding.		
Generating Department/Division: Public Works – Streets Division		

Mitigation Action # 2016 – 2	Deferred from 2011	
Project Description: Replacement Storm Drain Outfall Replace steel pipe culvert at Carneros Creek and improve associated drainage channels. As recommended in Santa Barbara Airport "Master Drainage Plan". This will assist in eliminating over bank flooding along Hollister Ave near Carneros Way up to a 10 year storm event		
Applicable Hazards		
High	**Medium**	**Low**
☐ Earthquake ☒ Flooding ☐ Wildfire ☐ Sea Level Rise ☐ Drought	☐ Agricultural Pests / Disease ☐ Epidemic/Pandemic ☐ HazMat Release ☐ Oil Spills ☐ Landslide/Coastal Erosion	☐ Tsunami ☐ Dam Failure ☐ Commercial Aircraft ☐ Terrorism ☐ Cyber Threat
Existing and Potential Resources: Federal Aviation Administration Grant Funds, FEMA, and Airport Revenue. Design approximately $15,000, Construction approximately $95,000.		
Responsible Department: Owen Thomas Supervising Engineer City of Santa Barbara Airport Department		
Target Completion Date: 2021		
Additional Comments / Status Report: This Project is planned but not budgeted. Targeted to complete in 5 Years Planning/Permitting and Design approximately 9 months. Construction time estimated at approximately 60 days. Significant reduction in flooding of Hollister Ave (main through fare) eliminating this traffic hazard for up to 10-year storm event and traffic.		
Generating Department/Division: Airport Engineering		

Mitigation Action # 2016 – 3	Deferred from 2011	
Project Description: Flood Wall Construction - Around buildings 223, 304, 314, and 315 to protect these structures from flooding.		
Applicable Hazards		
High	**Medium**	**Low**
☐ Earthquake ☒ Flooding ☐ Wildfire ☐ Sea Level Rise ☐ Drought	☐ Agricultural Pests / Disease ☐ Epidemic/Pandemic ☐ HazMat Release ☐ Oil Spills ☐ Landslide/Coastal Erosion	☐ Tsunami ☐ Dam Failure ☐ Commercial Aircraft ☐ Terrorism ☐ Cyber Threat
Existing and Potential Resources: Airport revenue and/or FEMA funds. Design and Construction cost of Storm walls - approximately $120,000		
Responsible Department: Owen Thomas Supervising Engineer City of Santa Barbara Airport Department		
Target Completion Date: Undetermined due to funding		
Additional Comments / Status Report: Eliminate frequent water intrusion into buildings subsequent clean-up costs due to storm events, many of which are less than10 year events.		
Generating Department/Division: Airport Engineering		

Mitigation Action # 2016 – 4	Deferred from 2011

Project Description: Honda Valley Hillside Stabilization in location of High Pressure Gas line Serving the City

An area near a roadway and private property where high pressure gas lines are buried erodes frequently due to runoff and the steepness of the slope. This necessitates stabilization of the continually eroding hillside containing the gas line. An engineering consultant would prepare plans for slope stabilization and native revegetation, and infrastructure relocation if necessary.

- Identify Funding
- Prepare scope of work
- Hire consultation firm to design job
- Acquire all necessary permits.
- Write Specifications
- Bid construction
- Construct project

Applicable Hazards

High	**Medium**	**Low**
☐ Earthquake	☐ Agricultural Pests / Disease	☐ Tsunami
☒ Flooding	☐ Epidemic/Pandemic	☐ Dam Failure
☐ Wildfire	☐ HazMat Release	☐ Commercial Aircraft
☐ Sea Level Rise	☐ Oil Spills	☐ Terrorism
☐ Drought	☒ Landslide/Coastal Erosion	☐ Cyber Threat

Existing and Potential Resources: Funding has not been specified

Responsible Department: City of Santa Barbara Parks and Recreation Department working with City of Santa Barbara Public Works and the Gas Company

Target Completion Date: Undetermined due to funding

Additional Comments / Status Report: The benefits of public safety and a secure utility delivery would outweigh the likely fiscal costs of planning and implementation of a slope stabilization project.

Generating Department/Division: Parks & Recreation – Parks Division

Mitigation Action # 2016 – 5	Deferred from 2011

Project Description: Hidden Valley Park Slope Stability

At numerous locations throughout the park, slope stability problems are reoccurring along steep creek banks causing public safety hazards from slides and flooding, as well as stability issues on private and public property that lines the park. Potential hazards to park users and public and private economic losses would be reduces if the slopes were stabilized.

- Identify Funding
- Hire consultation firm to design job
- Acquire all necessary permits.
- Write Specifications
- Bid construction
- Construct project

Applicable Hazards

High	**Medium**	**Low**
☐ Earthquake	☐ Agricultural Pests / Disease	☐ Tsunami
☒ Flooding	☐ Epidemic/Pandemic	☐ Dam Failure
☐ Wildfire	☐ HazMat Release	☐ Commercial Aircraft
☐ Sea Level Rise	☐ Oil Spills	☐ Terrorism
☐ Drought	☒ Landslide/Coastal Erosion	☐ Cyber Threat

Existing and Potential Resources: Funding has not been specified

Responsible Department: City of Santa Barbara Parks and Recreation working with County of Santa Barbara Flood Control, and City of Santa Barbara Creeks Division.

Target Completion Date: Undetermined due to funding.

Additional Comments / Status Report: Reduced risk to life and property from slides and flooding would outweigh likely fiscal costs.

Generating Department/Division: Parks & Recreation – Parks Division

Mitigation Action # 2016 – 6	Deferred from 2011

Project Description: Stevens Park Eastern Access Erosion Remediation

The sole emergency access point to the majority of Stevens Park is subject to severe erosion, undercutting, potential slope failure and substantial sedimentation into San Rogue Creek from storm damage and poor drainage. In order to reduce the hazard to life and property from slides and flooding and to maintain a functional flood control system the area must be repaired by means of bank stabilization, revegetation, and appropriate drainage control.

- Identify Funding
- Prepare scope of work
- Hire consultation firm to design job
- Acquire all necessary permits.
- Write Specifications
- Bid construction
- Construct project

Applicable Hazards

High	**Medium**	**Low**
☐ Earthquake	☐ Agricultural Pests / Disease	☐ Tsunami
☒ Flooding	☐ Epidemic/Pandemic	☐ Dam Failure
☐ Wildfire	☐ HazMat Release	☐ Commercial Aircraft
☐ Sea Level Rise	☐ Oil Spills	☐ Terrorism
☐ Drought	☒ Landslide/Coastal Erosion	☐ Cyber Threat

Existing and Potential Resources: Funding has not been specified

Responsible Department: City of Santa Barbara Parks and Recreation Department

Target Completion Date: Undetermined due to funding.

Additional Comments / Status Report: The benefit of secure life and property and the preservation of an effective and ecologically sound creek system would outweigh the likely fiscal costs.

Generating Department/Division: Parks & Recreation – Parks Division

Mitigation Action # 2016 – 7	Deferred from 2011	
Project Description: Francheschi Park/Mission Ridge Hillside geotechnical stabilization of retaining wall Improve storm drain infrastructure improvements.		
Applicable Hazards		
High	**Medium**	**Low**
☐ Earthquake ☒ Flooding ☐ Wildfire ☐ Sea Level Rise ☐ Drought	☐ Agricultural Pests / Disease ☐ Epidemic/Pandemic ☐ HazMat Release ☐ Oil Spills ☒ Landslide/Coastal Erosion	☐ Tsunami ☐ Dam Failure ☐ Commercial Aircraft ☐ Terrorism ☐ Cyber Threat
Existing and Potential Resources: No current funding sources.		
Responsible Department: Parks & Recreation and Community Development		
Target Completion Date: Undetermined due to funding.		
Additional Comments / Status Report: Retaining wall is crucial to ingress and egress in the area; especially for evacuation and emergency response		
Generating Department/Division: Parks & Recreation – Parks Division and Community Development - Planning		

Mitigation Action # 2016 – 8	Deferred from 2011

Project Description: Bluff Retreat Management at Shoreline Park

Since the late 90's the Park's bluff has been subject to numerous slides. Management of sidewalks and parkway needs to be continually addressed.

Applicable Hazards

High	**Medium**	**Low**
☐ Earthquake	☐ Agricultural Pests / Disease	☐ Tsunami
☒ Flooding	☐ Epidemic/Pandemic	☐ Dam Failure
☐ Wildfire	☐ HazMat Release	☐ Commercial Aircraft
☐ Sea Level Rise	☐ Oil Spills	☐ Terrorism
☐ Drought	☒ Landslide/Coastal Erosion	☐ Cyber Threat

Existing and Potential Resources: Currently an unfunded project

Responsible Department: Parks & Recreation

Target Completion Date: Undetermined due to funding.

Additional Comments / Status Report:

Currently the erosion to the park continues and will continue into the future. Keeping the management of sidewalks and vegetation in the area is an on-going issue.

Generating Department/Division: Park & Recreation – Parks Division and Public Works - Engineering

Mitigation Action # 2016 – 9	Deferred from 2011

Project Description: Rebuild 1000 Steps

Coastal erosion to the access on the beach has been on-going. The steps need to be rebuilt for safety of coastal access.

Applicable Hazards

High	**Medium**	**Low**
☐ Earthquake	☐ Agricultural Pests / Disease	☒ Tsunami
☒ Flooding	☐ Epidemic/Pandemic	☐ Dam Failure
☐ Wildfire	☐ HazMat Release	☐ Commercial Aircraft
☐ Sea Level Rise	☐ Oil Spills	☐ Terrorism
☐ Drought	☒ Landslide/Coastal Erosion	☐ Cyber Threat

Existing and Potential Resources: Currently an unfunded project

Responsible Department: Parks & Recreation and Public Works

Target Completion Date: Undetermined due to funding.

Additional Comments / Status Report:

Generating Department/Division: Parks & Recreation – Parks Division and Public Works – Engineering Division

Mitigation Action # 2016 – 10	Deferred from 2011

Project Description: Police Department

Police Building has been assessed by outside architectural firm and has been determined that the building needs seismic renovation.

Applicable Hazards

High	**Medium**	**Low**
☒ Earthquake	☐ Agricultural Pests / Disease	☐ Tsunami
☐ Flooding	☐ Epidemic/Pandemic	☐ Dam Failure
☐ Wildfire	☐ HazMat Release	☐ Commercial Aircraft
☐ Sea Level Rise	☐ Oil Spills	☐ Terrorism
☐ Drought	☐ Landslide/Coastal Erosion	☐ Cyber Threat

Existing and Potential Resources: No current funding potential

Responsible Department: Police Department and Community Development

Target Completion Date: Undetermined due to funding.

Additional Comments / Status Report:

Concept designs have been submitted. The Communication Center, housed on the first floor (basement) of the Police Department has been relocated to another facility off site due to the safety issues. Completion date for the building is dependent on securing funding.

Generating Department/Division: Police Department and Community Development – Planning Division

Mitigation Action # 2016 – 11	Deferred from 2011

Project Description: High Fire Area Road

- Many steep slopes in the high fire areas are subject to erosion and has already failed in areas in past flooding events
- Gravity/unreinforced retaining walls subject to land slide and earthquake

Applicable Hazards

High	**Medium**	**Low**
☐ Earthquake	☐ Agricultural Pests / Disease	☐ Tsunami
☒ Flooding	☐ Epidemic/Pandemic	☐ Dam Failure
☒ Wildfire	☐ HazMat Release	☐ Commercial Aircraft
☐ Sea Level Rise	☐ Oil Spills	☐ Terrorism
☐ Drought	☒ Landslide/Coastal Erosion	☐ Cyber Threat

Existing and Potential Resources: Currently an unfunded project

Responsible Department: Public Works

Target Completion Date: Undetermined due to funding.

Additional Comments / Status Report:

Erosions and landslides will hamper emergency responders from access these high fire areas and will drastically slow down calls times if these roads are hampered.

Generating Department/Division: Public Works – Engineering and Fire Department – Fire Prevention Bureau, Wildland Fire Specialist

Mitigation Action # 2016 – 12	Deferred from 2011

Project Description: Laguna Pump Station

Replace and repair pump station.

Applicable Hazards

High	**Medium**	**Low**
☒ Earthquake	☐ Agricultural Pests / Disease	☐ Tsunami
☒ Flooding	☐ Epidemic/Pandemic	☐ Dam Failure
☐ Wildfire	☒ HazMat Release	☐ Commercial Aircraft
☐ Sea Level Rise	☐ Oil Spills	☐ Terrorism
☐ Drought	☒ Landslide/Coastal Erosion	☐ Cyber Threat

Existing and Potential Resources: Currently an unfunded project

Responsible Department: Public Works

Target Completion Date: Undetermined due to funding.

Additional Comments / Status Report:

If pump station goes out, the downtown area will have massive closure between Anacapa and Quenientos Street and Ortega and Canon Perdido Street. It will also cause upstream flooding and coastal erosion.

Generating Department/Division: Public Works – Water Resources and Engineering Divisions

Mitigation Action # 2016 – 13	Deferred from 2011

Project Description: Replace deluge system on Stearns Wharf

In the past Stearns Wharf, which is an historical site, has suffered three massive fires. The current deluge system is not adequate if there is another fire.

Applicable Hazards

High	**Medium**	**Low**
☐ Earthquake	☐ Agricultural Pests / Disease	☐ Tsunami
☐ Flooding	☐ Epidemic/Pandemic	☐ Dam Failure
☒ Fire	☐ HazMat Release	☐ Commercial Aircraft
☐ Sea Level Rise	☐ Oil Spills	☐ Terrorism
☐ Drought	☐ Landslide/Coastal Erosion	☐ Cyber Threat

Existing and Potential Resources: Currently an unfunded project; however is part of the City's Capital Improvement Project (CIP)

Responsible Department: Waterfront

Target Completion Date: Undetermined due to funding.

Additional Comments / Status Report:

This is life essential equipment for the wharf

Generating Department/Division: Waterfront – Operations Division

Mitigation Action # 2016 – 14	Deferred from 2011

Project Description: Backup generator for Waterfront Department Operating Center (DOC)

Upgrade power for Harbor Patrol and Department's DOC

Applicable Hazards

High	**Medium**	**Low**
☒ Earthquake	☐ Agricultural Pests / Disease	☒ Tsunami
☒ Flooding	☐ Epidemic/Pandemic	☐ Dam Failure
☐ Wildfire	☐ HazMat Release	☐ Commercial Aircraft
☐ Sea Level Rise	☐ Oil Spills	☐ Terrorism
☐ Drought	☐ Landslide/Coastal Erosion	☐ Cyber Threat

Existing and Potential Resources: Currently no funding sources

Responsible Department: Waterfront

Target Completion Date: Undetermined due to funding.

Additional Comments / Status Report:

Planning design work is currently being generated.

Generating Department/Division: Waterfront – Operations Division

Mitigation Action # 2016 – 15	Deferred from 2011

Project Description: Seismic Upgrades to City Facilities in the Harbor

Current Harbor facilities are old early 60s type construction – seismic renovation needed for safety

Applicable Hazards

High	**Medium**	**Low**
☒ Earthquake	☐ Agricultural Pests / Disease	☐ Tsunami
☐ Flooding	☐ Epidemic/Pandemic	☐ Dam Failure
☐ Wildfire	☐ HazMat Release	☐ Commercial Aircraft
☐ Sea Level Rise	☐ Oil Spills	☐ Terrorism
☐ Drought	☐ Landslide/Coastal Erosion	☐ Cyber Threat

Existing and Potential Resources: Currently an unfunded project

Responsible Department: Waterfront

Target Completion Date: Undetermined due to funding.

Additional Comments / Status Report:

Generating Department/Division: Waterfront – Operations Division and Public Works – Engineering Division

Mitigation Action # 2016 – 16	Deferred from 2011

Project Description: Mesa Lane Coastal Access

Coastal Erosion has damaged a good portion of the access to the beach.

-

Applicable Hazards

High	**Medium**	**Low**
☐ Earthquake	☐ Agricultural Pests / Disease	☒ Tsunami
☒ Flooding	☐ Epidemic/Pandemic	☐ Dam Failure
☐ Wildfire	☐ HazMat Release	☐ Commercial Aircraft
☐ Sea Level Rise	☐ Oil Spills	☐ Terrorism
☐ Drought	☒ Landslide/Coastal Erosion	☐ Cyber Threat

Existing and Potential Resources: Currently an unfunded project

Responsible Department: Parks & Recreation

Target Completion Date: Undetermined due to funding.

Additional Comments / Status Report:

A significant storms could element this beach access

Generating Department/Division: Parks & Recreation – Parks Division

Mitigation Action # 2016 – 17		**NEW**
Project Description: Salsipuedes Street Storm Drain Improvements The project first involves the study of existing public and private storm drain facilities beginning on Salsipuedes Street at Micheltorena Street and continuing south to Victoria Street. Potential improvements include connection of storm drain inlets on Micheltorena Street to an existing storm drain on Salsipuedes Street and the construction of a new storm drain pipe along Salsipuedes and Victoria Streets.		
Applicable Hazards		
High	**Medium**	**Low**
☐ Earthquake ☒ Flooding ☐ Wildfire ☐ Sea Level Rise ☐ Drought	☐ Agricultural Pests / Disease ☐ Epidemic/Pandemic ☐ HazMat Release ☐ Oil Spills ☐ Landslide/Coastal Erosion	☐ Tsunami ☐ Dam Failure ☐ Commercial Aircraft ☐ Terrorism ☐ Cyber Threat
Existing and Potential Resources: No current funding sources		
Responsible Department: City of Santa Barbara Public Works Department		
Target Completion Date: Undetermined due to funding.		
Additional Comments / Status Report: Public Works will pursue completion of an initial study and design for this project in the event that grant funding or a cost sharing agreement with County Flood Control can be secured to cover 50% of the cost for construction.		
Generating Department/Division: Public Works- Engineering Division		

Mitigation Action # 2016 – 18		**NEW**
Project Description: Corrugated Metal Pipe Repairs Studies done in the several areas within the City noted many corrugated metal pipes will need to be replaced. This project would seek to repair through slip lining or to completely replace the highest priority corrugated metal pipe drain lines annually.		
Applicable Hazards		
High	**Medium**	**Low**
☐ Earthquake ☒ Flooding ☐ Wildfire ☐ Sea Level Rise ☐ Drought	☐ Agricultural Pests / Disease ☐ Epidemic/Pandemic ☐ HazMat Release ☐ Oil Spills ☐ Landslide/Coastal Erosion	☐ Tsunami ☐ Dam Failure ☐ Commercial Aircraft ☐ Terrorism ☐ Cyber Threat
Existing and Potential Resources: To be determined		
Responsible Department: City of Santa Barbara Public Works Department		
Target Completion Date: Undetermined		
Additional Comments / Status Report: Many of the City owned corrugated metal pipes were installed over 50 years ago and may require replacement. Due to lack of funding for this project, repairs are typically only completed as emergency maintenance projects in response to failures evident at the street level (typically as sinkholes following rain events).		
Generating Department/Division: Public Works – Engineering Division		

Mitigation Action # 2016 – 19 NEW

Project Description: Gutierrez Storm Drain Improvements

The project would construct additional storm drains to reduce the duration and severity of flooding when the upstream storm drain system is overwhelmed. The project is intended to improve the ability to remove runoff from the area by providing increased inlet capacity and by providing larger conduits between the street inlets and the box culverts under Hwy 101.

Applicable Hazards

High	**Medium**	**Low**
☐ Earthquake	☐ Agricultural Pests / Disease	☐ Tsunami
☒ Flooding	☐ Epidemic/Pandemic	☐ Dam Failure
☐ Wildfire	☐ HazMat Release	☐ Commercial Aircraft
☐ Sea Level Rise	☐ Oil Spills	☐ Terrorism
☐ Drought	☐ Landslide/Coastal Erosion	☐ Cyber Threat

Existing and Potential Resources: To be determined

Responsible Department: City of Santa Barbara Public Works Department

Target Completion Date: Undetermined

Additional Comments / Status Report:

The area north of Hwy 101 within the Laguna Channel watershed is within the 100-year flood plain. During flooding events where the City's storm drain system is unable to transport peak runoff, the overflow travels overland to the area along Gutierrez Street between Rose Avenue and Olive Street. The local storm drain system in this area is inadequate to handle these overflow events and local flooding occurs.

Generating Department/Division: Public Works – Engineering Division

Mitigation Action # 2016 – 20	**NEW**

Project Description: Goleta Slough Mouth Management
Narrative: This project will control the water level in the Goleta Slough to minimize flood hazard, mosquito population blooms, and waterfowl attractants that pose a greater bird-strike risk. This project will be designed to minimize adverse effects to the Federally-endangered tidewater goby and steelhead trout, while avoiding significant flood and bird-strike hazards such as those experienced in November 2012, May 2013 and February 2014.

Applicable Hazards

High	**Medium**	**Low**
☐ Earthquake	☒ Agricultural Pests / Disease	☐ Tsunami
☒ Flooding	☐ Epidemic/Pandemic	☐ Dam Failure
☐ Wildfire	☐ HazMat Release	☒ Commercial Aircraft
☐ Sea Level Rise	☐ Oil Spills	☐ Terrorism
☐ Drought	☐ Landslide/Coastal Erosion	☐ Cyber Threat

Existing and Potential Resources: Project formulation and biological assessment are underway and are expected to be finalized in May 2015. Funding sources include funding from FAA and the Airport.

Responsible Department: Airport Department

Target Completion Date: 2021

Additional Comments / Status Report: The Federal Aviation Administration (FAA) requires that wildlife strike risk be avoided to the maximum extent feasible within environmental constraints. The Santa Barbara County Flood Control District completed an Environmental Impact Report for their maintenance activities, including slough mouth management in 2011.

Generating Department/Division: Public Works - Engineering Division and Airport – Operations Division

Mitigation Action # 2016 – 21	**NEW**

Project Description: Hollister Drainage Improvement
Narrative: The project includes establishing new swales to connect to an existing culvert emptying to Carneros Creek. To preserve the wetland habitat within the project site, the swales will be "eco-channels" which are constructed to allow a certain depth of water to still fill the wetlands, but now allow the water to overflow into Hollister Avenue. There will be a significant component of wetland enhancement/planting to offset any detrimental impacts of the project to the wetland habitat.

Applicable Hazards

High	**Medium**	**Low**
☐ Earthquake	☐ Agricultural Pests / Disease	☐ Tsunami
☒ Flooding	☐ Epidemic/Pandemic	☐ Dam Failure
☐ Wildfire	☐ HazMat Release	☐ Commercial Aircraft
☐ Sea Level Rise	☐ Oil Spills	☐ Terrorism
☐ Drought	☐ Landslide/Coastal Erosion	☐ Cyber Threat

Existing and Potential Resources:

Responsible Department: Airport Department

Target Completion Date: 2021

Additional Comments / Status Report: The area south of Hollister Avenue and east and west of Los Carneros Way is twelve acre moisture of upland and wetland habitats. The area is drained by several poorly defined swales which have not been maintained for many years. In moderate storm event (3-5 year storms) the swales, which are severely choked by bulrush, back up with storm runoff and flood over Hollister Avenue. The depth of water on Hollister Avenue is as much as 12 inches and the road has to be closed for safety reasons. Hollister Avenue is an important access route to the Airport and needs to remain as safe and dependable route to the Airport in moderate and heavy rains. The project is consistent with Public Works Engineering standards that require roads to be adequately drained during a 10-year storm.

Generating Department/Division: Airport – Operations Division

Mitigation Action # 2016 – 22	**NEW**

Project Description: Sea Level Rise Adaptation Plan**.**
Develop a comprehensive Sea Level Rise Adaptation Plan for the low-lying coastal area from Ledbetter Point to the coastal bluffs at the eastern City limits to identify, manage, and reduce sea level rise effects on coastal resources and critical City facilities.

Applicable Hazards

High	**Medium**	**Low**
☐ Earthquake	☐ Agricultural Pests / Disease	☐ Tsunami
☐ Flooding	☐ Epidemic/Pandemic	☐ Dam Failure
☐ Wildfire	☐ HazMat Release	☐ Commercial Aircraft
☒ Sea Level Rise	☐ Oil Spills	☐ Terrorism
☐ Drought	☒ Landslide/Coastal Erosion	☐ Cyber Threat

Existing and Potential Resources: Currently an unfunded project. Grant sources are being sought.

Responsible Department: Community Development Department

Target Completion Date: Undetermined

Additional Comments / Status Report: Sea level rise modeling has shown that erosion, wave uprush, and coastal flooding threatens City facilities along the shoreline and downtown area in the 2060-2100 timeframe for medium and high sea level rise scenarios. This could worsen if tidal inundation were compounded with high groundwater, local surface runoff, and fluvial flooding. Adaptation planning is needed to reduce risks to critical City facilities. Policy direction for this project is found in the 2013 Safety Element.

Submitted by:
Generating Department/Division: Community Development Department, Long Range Planning Division

Mitigation Action # 2016 – 23		**NEW**
Project Description: Review/Revise the City's Critical Facilities List Develop a more comprehensive list of Critical Facilities that would include hospitals, skilled nursing facilities and private companies; as applicable.		
Applicable Hazards		
High	**Medium**	**Low**
☐ Earthquake ☐ Flooding ☐ Wildfire ☐ Sea Level Rise ☐ Drought	☐ Agricultural Pests / Disease ☐ Epidemic/Pandemic ☐ HazMat Release ☐ Oil Spills ☐ Landslide/Coastal Erosion	☐ Tsunami ☐ Dam Failure ☐ Commercial Aircraft ☐ Terrorism ☐ Cyber Threat
Existing and Potential Resources: Cost of in-kind staff cost.		
Responsible Department: Finance – Risk Management		
Target Completion Date: 2020		
Additional Comments / Status Report: In order to have a comprehensive Hazard Mitigation Plan, the City will need to develop a critical infrastructure list that includes outside agencies and businesses, such; hospitals, skilled nursing facilities, dialysis clinics, etc.		
Submitted by: **Generating Department/Division:** Fire/Office of Emergency Services		

SECTION 8 PLAN MAINTENANCE

This section of the Plan describes the formal process that will ensure that the Plan remains an active and pertinent document. The plan process includes a schedule for monitoring and evaluating the Plan annually, which will produce a plan revision every five (5) years.

This section will describe how the City will integrate public participation throughout the plan maintenance process.

Plan Monitoring

The City of Santa Barbara Office of Emergency Services (OES) will be responsible to ensure that the City's Local Hazard Mitigation Planning Team monitoring the overall Plan for updates on an annual basis.

Plan Evaluation

City OES will call the Local Hazard Mitigation Planning (LHMP) team together on an annual basis to evaluate the Plan and Mitigation Actions set forth in this plan and discuss effectiveness of the Plan. The LHMP team will develop a list of items to be updated, added, or removed in revisions of this Plan.

City OES will report the outcomes of the annual meeting to the County Office of Emergency Management (OEM) and the City's Disaster Council.

The Plan will also be a work item on the City's Emergency Managers Task Team (EMTT) agenda annually. Department heads and other emergency preparedness staff who serve in the City's Emergency Operations Center (EOC) will focus on evaluating the Plan in light of technological, budgetary, political changes, or other significant events that may occur during the year.

Plan Updates

Since the plan's first adoption in 2005, the LHMP Planning Team has participated in an annual review. The Planning Team reviewed all aspects of the plan and mitigation actions that were either deferred, begun, continued or completed during that year.

After FEMA approval and City Council adoption, the 2011 HMP was integrated into the Safety Element of the City of Santa Barbara's Comprehensive Plan by City Council Resolution 12-004. City planning efforts and Capital Projects directed by the City were influenced by the information taken from the 2011 HMP. The 2011 HMP was also utilized and referenced to update the 2013 City Emergency Operations Plan, City's General Plan, Tsunami Response Guidelines, and Watershed Response Guidelines.

The review process has been effective in identifying gaps and shortfalls in funding, support, and other resources. It has also allowed the re-prioritization of specific actions as circumstances change. It allows the City to maintain the plan as a living document.

All Planning Team members will continue to be responsible to provide City OES with updates annually. City OES will be responsible to take all revisions to the County Mitigation Advisory Committee (MAC) annually. However, major disasters affecting the City, legal changes, and/or other events may trigger a meeting of the LHMP team before the annual meeting. The Planning

Team will be responsible for determining the revisions to the plan after any activation due to an emergency or disaster.

Continued Public Involvement

The City and all stakeholders continue to be dedicated to involving the public directly in the review process and updates of the Plan. The Planning Team is responsible for monitoring, evaluating, and updating the Plan as described above. During all phases of plan maintenance the public will have the opportunity to provide feedback.

A copy of the Plan will be available for review on the City's OES website and Facebook page. In addition, hard copies will be available at City Hall, the main library at the reference desk, and the City's Office of Emergency Services (OES). In addition, to facilitate public comments, the OES website will contain an email address for the public's use which is monitored on a daily basis by the City's Emergency Services Manager or designee. Any questions or comments received on this website will be forwarded to the appropriate Planning Team member or Department for review and response.

A press release requesting public comments will also be used for each update and after each evaluation. City OES will also use social media (Facebook, Twitter, etc.) to notify the public of any changes they should be aware of. Coupled with the dedicated email address for comments, this provides the public a simple and easily accessible to allow them to express their concerns, opinions, or ideas about any updates/changes that are proposed to the Plan. The City will continue to be responsible for publicizing any changes to the Plan and maintaining public involvement.

The City will also make reference to the Plan at all community events and training, e.g. Community Emergency Response Team (CERT), Community Disaster Education (CDE), Listos (class for the Hispanic Community), etc.

Point of Contact

Comments or suggestions regarding this plan may be submitted at any time to Yolanda McGlinchey, City Emergency Services Manager using the following information:

Yolanda McGlinchey
City of Santa Barbara Fire Department
Office of Emergency Services
925 Chapala Street
Santa Barbara, CA 93101
YMcGlinchey@SantaBarbaraCA.gov
805-564-5711

2017

City of Santa Maria Hazard Mitigation Plan

An Annex to the Santa Barbara County Operational Area Hazard Mitigation Plan

City of Santa Maria

7/10/2017

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SECTION 15 CITY OF SANTA MARIA

15.1 INTRODUCTION

Across the United States, natural and manmade disasters have led to increasing levels of death, injury, property damage, and interruption of business and government services. The impact on families and individuals can be immense and damages to businesses can result in regional economic consequences. The time, money and effort to respond to and recover from these disasters divert public resources and attention from other important programs and problems. The City of Santa Maria (City) within Santa Barbara County, California recognizes the consequences of disasters and the need to reduce the impacts of all hazards. The elected and appointed officials of the City also know that with careful selection, mitigation actions in the form of projects and programs can become a long-term, cost effective means for reducing the impact of these hazards. This updated document serves as a hazard mitigation plan for the City of Santa Maria. While it may be read as a complete plan, it is intended as part of the Santa Barbara County Operational Area Hazard Mitigation Plan.

This plan is intended to document the continual process that the City of Santa Maria (City) uses to improve its disaster resiliency and to meet regulatory requirements, including the Disaster Mitigation Act of 2000 (DMA 2000) its amendments and regulatory implementation as well as potential eligibility for Pre-Disaster Mitigation Grants (PDM), Flood Mitigation Assistance Program (FMA) and the Hazard Mitigation Grant Program (HGMP) funds should they be required.

The City participated in the Mitigation Advisory Committee (MAC) of the Santa Barbara County Operational Area in 2015-2016 as documented in table 3.2 in the Santa Barbara County 2016 Multi-Jurisdictional Hazard Mitigation Plan.

15.2 PLAN PURPOSE AND AUTHORITY

Authority to create this plan is derived from the Robert T. Stafford Relief and Emergency Assistance Act (Public Law 93-288), as amended by the Disaster Mitigation Act of 2000 (DMA 2000). The requirement and procedures for mitigation plans are found in the Code of Federal Regulations (CFR) at Title 44, Chapter 1, Part 201 and the associated Interim Final Rule changes. The Federal law and associated rule changes and regulations establish planning and funding criteria for states and local communities.

- *Enhance Public Awareness and Understanding* – to help residents of the City better understand the hazards that threaten safety and welfare; economic vitality; and the operational capability of critical infrastructure;
- *Create a Decision Tool for Management* – to provide information that managers and leaders of local government, business and industry, community associations, and other key institutions and organizations need to take action to address vulnerabilities to future disasters;

- *Promote Compliance with State and Federal Program Requirements* – to ensure that the City can take full advantage of State and Federal grant programs, policies, and regulations that encourage or mandate that local governments develop comprehensive hazard mitigation plans;
- *Enhance Local Policies for Hazard Mitigation Capability* – to provide the policy basis for mitigation actions that should be promulgated to create a more disaster-resistant future; and
- *Provide Inter-Jurisdictional Coordination of Mitigation-Related Programming* – to ensure that proposals for mitigation initiatives are reviewed and coordinated among the participating jurisdictions within the County.
- *Achieve Regulatory Compliance* – To qualify for certain forms of Federal aid for pre- and post-disaster funding, local jurisdictions must comply with the Federal DMA 2000 and its implementing regulations (44 CFR Section 201.6). DMA 2000 intends for hazard mitigation plans to remain relevant and current. Therefore, Local plans are updated every five years. This means that the Hazard Mitigation Plan for Santa Maria and the Santa Barbara County Operational Area uses a "five-year planning horizon." It is designed to carry the City through the next five years, after which its assumptions, goals, and objectives will be revisited and the Plan resubmitted for approval. Section 7 details specific goals and objectives about implementing mitigation activities over the life of this Plan. In Section 8, the City has outlined a more aggressive approach to ensuring that the Plan is implemented, evaluated, monitored and updated.

15.2.1 City Council Resolution Adopting this Hazard Mitigation Plan

RESOLUTION NO. 2017- 109

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF SANTA MARIA, CALIFORNIA, ADOPTING THE 2017 CITY OF SANTA MARIA HAZARD MITIGATION PLAN AND INCORPORATING IT INTO THE CITY'S SAFETY ELEMENT OF THE GENERAL PLAN

WHEREAS, the Federal Emergency Management Agency (FEMA) requires local governments to provide and maintain a hazard mitigation plan as described in 44 CFR 201.6(c)(5); and

WHEREAS, City staff developed a draft plan identifying hazards unique to Santa Maria, mitigation efforts, and methods to limit the impacts; and

WHEREAS, in mid-2016 the City's draft hazard mitigation plan was made available for public review and comment; and

WHEREAS, the 2017 City of Santa Maria Hazard Mitigation Plan (HMP) is an annex to the Santa Barbara County Multi-Jurisdictional Hazard Mitigation Plan (MJHP); and

WHEREAS, the HMP, as an annex to the MJHP, was reviewed by and received endorsement from the California Office of Emergency Services; and

WHEREAS, in July 2017, the HMP received tentative approval from FEMA pending adoption by the City Council; and

WHEREAS, adopting the HMP, enables the City of Santa Maria to qualify for additional mitigation funding after a disaster; and

WHEREAS, the State of California states that the HMP may be referenced in the Safety Element of the General Plan per Government Code §65302.6(a).

NOW, THEREFORE, IT IS HEREBY RESOLVED by the City Council of the City of Santa Maria, California, as follows:

1. The HMP is adopted as an annex to the MJHP; and
2. The HMP has been found to have no significant effect on the environment, and is therefore exempt from the provisions of CEQA, General Rule Section 15061(b)(3); and
3. City staff is directed to incorporate the HMP into the Safety Element of the City's General Plan as permitted by Government Code §65302.6(a); and

4. The Chief Deputy City Clerk is hereby authorized to make minor changes herein to address clerical errors, so long as substantial conformance of the intent of this document is maintained. In doing so, the Chief Deputy City Clerk shall consult with the City Manager and City Attorney concerning any changes deemed necessary.

PASSED AND ADOPTED at a regular meeting of the City Council of the City of Santa Maria, California, held this 19th day of September 2017.

/s/ ALICE M. PATINO

Mayor

ATTEST:

/s/ RHONDA M. GARIETZ, CMC

Chief Deputy City Clerk

APPROVED AS TO FORM:

City Attorney

APPROVED AS TO CONTENT:

Department Head

City Manager

STATE OF CALIFORNIA)
COUNTY OF SANTA BARBARA) ss.
CITY OF SANTA MARIA)

I, RHONDA M. GARIETZ, CMC, Chief Deputy City Clerk of the City of Santa Maria and ex officio Clerk of the City Council DO HEREBY CERTIFY that the foregoing is a full, true and correct copy of Resolution No. 2017-109 which was duly and regularly introduced and adopted by said City Council at a regular meeting held September 19, 2017, and carried on the following vote:

AYES:	Councilmembers Boysen, Cordero, Moats, Waterfield, and Mayor Patino.
NOES:	None.
ABSENT:	None.
ABSTAINED:	None.

Chief Deputy City Clerk
of the City of Santa Maria and
ex officio Clerk of the City Council

15.3 PLANNING PROCESS

The planning process presented in this section details the process undertaken for the City of Santa Maria. While the Hazard Mitigation Plan update process was during 2016, the City regularly addresses hazards and their mitigations through regulatory and permit processes.

The City of Santa Maria regularly participates in Santa Barbara County Operational Area meetings and trainings as well as San Luis Obispo County partner agencies to coordinate City programs and processes with neighboring areas. City departments such as Utilities, Community Development, Public Works, Police, Fire, City Manager's Office, Recreation and Parks, and the Library meet regularly with regional partners and engage in programs and policies that enhance the resiliency of our local communities. Interdepartmental and interagency meetings are convened yearly and as needed to address emergent issues such as flood and drought and to develop and implement mitigation programs and activities. Regional development trends are analyzed by City departments with regional partners on a regular basis. The City Manager's Office assists the Departments in regional planning programs and opportunities.

The City of Santa Maria participated in the Operational Area MAC meetings documented in the Santa Barbara County Operational Area Hazard Mitigation Plan in section 3.2. Guidance for each section from the meetings was then incorporated into the local plan or informed additional work required. The City of Santa Maria (City) GIS staff participated in additional meetings and communications with other GIS staff in the Operational Area to develop and produce map coverages for the identified hazards. The City has not had a formal mitigation group, but incorporates hazard mitigation into its regular planning and budget processes, informed by previous hazard mitigation plans, building codes, environmental impact reports, staff and public recommendations, and coordination with State and Operational Area partners. The Emergency Services Specialist, who participated on the Operational Area MAC group, had individual conversations with City department representatives to understand the current processes and status of mitigation programs in the City. The City also participates in regional coordination meetings with Community, Local, County, State, and Federal partners that address planning, training, operational coordination and hazard mitigation on a continual basis. It is part of the "fabric" of civil governance and planning.

The City identified a need to operationalize disaster planning (for example: Mitigation, Operations, Continuity, and Recovery) by creating an interdepartmental working group to facilitate coordination with existing planning and operations within the City. With the concurrence of the Interim Fire Chief and the City Manager, a Disaster Planning Group was authorized and established starting in the 2016-2017 fiscal year. The Disaster Planning Group will meet monthly with the goal to operationalize the various planning processes to maintain the Hazard Mitigation Plan, Emergency Operations Plan, and other plans and to ensure that these plans are integrated into and reflect City plans, processes and procedures. Meetings will be documented. The Hazard Mitigation Plan will be updated as emerging hazards or relevant mitigation strategies are identified.

Table 15-1 lists the City of Santa Maria Local Planning Team for the Multi-Hazard Mitigation Plan update. These individuals collaborated to identify the City's critical facilities, provide

relevant plans, report on progress of City mitigation actions and provide suggestions for new mitigation actions.

Table 15-1 City of Santa Maria Local Planning Team 2016

Name	Title	Department
Roy Dugger	Emergency Services Specialist	Fire, Emergency Services
Mike Cardona	Building Division Manager (Community Development Representative)	Community Development
Larry Appel	Director (Retired)	Community Development
Mark van de Kamp	Management Analyst II, PIO	City Manager's Office
Angie Hernandez	Revenue Technician	Finance Department
Ryan Cornell	Accounting and Budget Manager	Finance Department
Michelle Heath	GIS Technician	City Manager's Office/GIS
Teri Maa	Information Technology Manager	City Manager's Office, IT
Kristine Mollenkopf	Assistant City Attorney	City Attorney's Office
David Beas	Principal Civil Engineer	Public Works
Helen Joyce Fischer	Librarian II	Public Library
Jim Davis	Parks Services Manager	Recreation and Parks
Ryan Heath	Recreation Supervisor	Recreation and Parks
Mellissa Guerrero	Recreation Supervisor	Recreation and Parks
(promoted, still participating)	Management Analyst I	Human Resources
Terry Flaa	Training Sgt.	Police
Christina Alvarez	Management Analyst I	Police
Jeffrey Clarin	Deputy Director	Utilities

After FEMA approval and City Council adoption, the 2011 HMP was integrated into the Safety Element of the Santa Maria General Plan by City Resolution. City planning efforts and Capital Projects directed by the City were influenced by the information taken from the 2011 HMP. The

2011 HMP was also utilized and referenced to update the 2016 Integrated Regional Multi-Hazard Emergency Response Plan, the City General Plan, and the recent 2016 THIRA.

15.3.1 Regional Coordination, City Local Planning Team Meetings and Outcomes

The City began initial coordination with the Operational Area before the formation of the Disaster Planning Group (which serves as the Local Planning Team (LPT)). Key participation was provided by City GIS staff and Risk Management staff in the Operational Area MAC subcommittees as appropriate, especially in the generation of data and mapping for the Hazard and Vulnerability assessments.

The LPT met to discuss data needs and organize data collection specific to the City of Santa Maria. A table summarizing the meetings is below. Agendas and participants can be found in the Appendix, section 15.9.1. Following an initial meeting on July 21st, several more internal meetings were held at which staff discussed issues and researched appropriate documents for this project. Follow up meetings occurred on August 25th and October 6th. Individual follow up and department meetings occurred to update and gather necessary information for this document after each meeting.

The City participates in various regional meetings and initiatives on a regular basis that facilitate coordination, identification of hazards, and mitigative efforts on a regular basis. Some are informal or hazard specific such as El Niño planning, seasonal wildfire, flooding, and severe weather predictions and mitigations. Others are to ensure periodic engagement to ensure coordination of a broad range of activities, often including mitigation efforts, such as the Operational Area Emergency Managers group, Operational Area Emergency Coordinators Group, its sub committees and task groups, Santa Barbara County Firesafe Council, Emergency Public Information Comunicators (EPIC) group, etc.

Table 15-2 City of Santa Maria Local Planning Team Meetings 2016

Date	Purpose	Outcome
21-July-2016	Initial meeting of Disaster Planning Group. Assignment of review of Hazard Mitigation Plan and Request Edits.	Establishment of working group. Begin departmental review of draft HMP. Recommended updates to the plan based on accomplishments and changes in associated plans, policies and procedures since 2011 HMP.
25-Aug-2106	Overview of edits as submitted. Community feedback survey.	Review of plan edits. Creation of a Community Feedback Survey targeting Santa Maria Area residents to supplement a similar survey done by the Operational Area. Discussion on additional disaster planning

		related topics including required ICS/SEMS/NIMS training, exercises, Shakeout 2016, and Active Shooter training and potential mitigations.
6-Oct-2016	Results of community feedback survey. Comments and edits submitted.	Reviewed results of Community Feedback survey. Additional comments for inclusion in the plan. Plan circulated for peer review within City, Operational Area partners and consultant. Recap of status of other preparedness activities from the 25-Aug-2016 meeting.
17-Nov-2016	Address additional input. Identify additional impacts, validate new hazard/risk analysis, and propose additional hazard mitigation projects.	Reviewed hazard profile and provided feedback on hazards and perceived risk. Discussed potential mitigation projects.
27-Mar-2017	Follow up on comments from State on Mitigation Projects	Identified new mitigation projects.

15.3.2 Public Involvement

In July 2015, Santa Barbara County Office of Emergency Management issued a press release (in Spanish and English) announcing the commencement of the hazard mitigation planning process. This announcement invited the public to notify the County of their interest to participate in the planning process or submit comments.

Additionally, as part of the Public Outreach effort, Santa Barbara County Office of Emergency Management participated in a Radio interview and held two workshops to present the updates and solicit input from the public. Final drafts of the Santa Barbara County Multijurisdictional Hazard Mitigation Plan were also made available to the public through the Aware and Prepare Website and hard copies were available in select Public Libraries. Input from the public was presented to both the MAC and Santa Barbara County Local Planning Team for consideration of incorporation into the HMP.

The City of Santa Maria has not had a separate process for engaging the community in the Hazard Mitigation process and relied on the County wide outreach provided by the Santa Barbara County Office of Emergency Management. Rather, the City regularly engages with the public in a variety of preparedness activities which include mitigation. The City is committed to a whole community approach, and to that end, meets with community partners to assist in preparedness planning, training, and potential hazard mitigations. Examples of whole community engagement include ongoing preparedness with Independent Living Resource Center, Good Samaritan Services, the Salvation Army, and a wide variety of faith based organizations. Mitigation discussions are an

active component of our outreach efforts, both in formal classroom settings and in community engagement opportunities such as fairs and festivals.

Drought preparedness outreach has been a continuing process with our Utilities Department using a variety of outreach and engagement opportunities including media stories, flyers, public forums, web resources, and personal dialogue.

There is as an active disaster public education program, teaching CERT (Community Emergency Response Training), Listos, and various topic specific workshops in English and Spanish as well as public education tables at fairs and events. CERT is a FEMA standard course while Listos is a Santa Barbara County Aware and Prepare program that is offered in Santa Maria in Spanish and English. More information on these programs can be found at the following web sites:

CERT: https://www.fema.gov/community-emergency-response-teams

Listos: http://listos.org/ and http://www.cafsti.org/programs/alertar-y-preparar-and-listos/

Hazard information from previous hazard mitigation plans, plus emergent hazards (drought, H1N1 influenza, Zika Virus, Active Shooter, etc.) are incorporated into the classes and outreach as well as addressing concerns of the public.

The City's Emergency Services Specialist is available to the public to answer questions about preparedness and coordinates with Santa Barbara County Operational Area, San Luis Obispo Operational Area, California Office of Emergency Services, United States Fire Administration (USFA), National Fire Protection Association (NFPA), Federal Emergency Management Agency and other private sector and government safety education partners.

An online survey developed by the City, but similar to the Santa Barbara County Operational Area survey, was undertaken August 19 to October 3, 2016 (45 days) to solicit public input regarding the concern for risk to natural hazard events and suggestions for how local government could minimize the risk. The City notified residents and businesses of the opportunity to participate in the survey through issuing a news release and posting it on the City's website, www.cityofsantamaria.org.

Additional information on materials used, programs and a copy of the survey is included in Appendix 15.9.2.

Public Review Period

The City advertised a one week public review period from December 12th through December 19th 2016 through local media outlets. The Hazard Mitigation Plan was published on the City website as well as hardcopies available for review at the Santa Maria Public Library (Main Library) and at Fire Department Administration. No comments were received.

Any comments received after the adoption of this annex will be catalogued for consideration in future updates to this annex. Copies of the website posting, newspaper article, and press release, are included in Section 15.9.2, Santa Maria Attachment 2: Outreach Materials.

Continuing Public Engagement

The City Emergency Services Program has established a goal to host a Community Organizations Active in Disaster (COAD) specific to the Santa Maria Valley as a subset of the existing Santa

Barbara County Operational Area Voluntary Organizations Active in Disaster (VOAD). The goals of the COAD are to enhance and operationalize the whole community planning process on a continuing basis that meet the needs of the local community. Hazard mitigation will be a component of this program. Needs and mitigation strategies identified in the COAD or from other public engagement will be incorporated in the planning and community resiliency process.

15.4 CAPABILITY ASSESSMENT

The City identified current capabilities and mechanisms available for implementing hazard mitigation activities. This section presents a discussion of the roles of key departments, administrative and technical capacity, fiscal resources, and summaries of relevant planning mechanisms, codes, and ordinances.

15.4.1 Development Trends and Demographics

The City of Santa Maria encompasses 22.76 square miles, located approximately 250 miles south of San Francisco and 170 miles north of Los Angeles in Santa Barbara County. It lies within the Santa Maria River Valley, surrounded by rolling hills on three sides and the Pacific Ocean 13 miles to the west.

Map 1: Location Map, City of Santa Maria

As of January 1, 2016, the City's estimated population reached 104,404. Seventy three percent identify as Hispanic or Latino and thirty four percent of the total population were born outside of the United States. The City population grew 27 percent from 2000 to 2010 compared to 10 percent for all of California. The City's median household income is $53,066. Census data placed 21.3 percent of the population living in poverty.

Agriculture has always played an important role in the City's economy, however, other important sectors of the local economy are retail, education, medical, the aerospace industry; communications; high-technology research and development; petroleum production; military operations; and various manufacturing industries.

The City of Santa Maria has consistently been the fastest growing city in Santa Barbara County over the last two decades. From Census 2000 to Census 2010, 90 percent of the County's population growth occurred in the City of Santa Maria. It is anticipated that the City will continue its current rate of growth through 2040 as Santa Maria continues to be the hub for Northern Santa Barbara County (*Santa Barbara County Association of Governments, Regional Growth Forecast, 2010-2040, December 2012:*
http://www.sbcag.org/uploads/2/4/5/4/24540302/regional_growth_forecast_2010-2040.pdf)

Santa Maria aggressively works toward increasing the supply of housing to meet local demands. Because the City sits within commuting distances between Santa Barbara and San Luis Obispo, two areas with higher housing costs, the City became positioned as an affordable location for first time home buyers and others looking for good housing values.

Large housing developments are continuously being incorporated within the City's jurisdiction as agricultural property is converted into housing in an "infill" process, as agriculture and other industrial facilities find themselves surrounded by housing development requiring re-zoning to accommodate compatible land uses within the City. Environmental Impact plans and City building codes require mitigation of hazard impacts such as; increased runoff, earthquake resiliency, fire safety, drought resistance/water conservation, and weather resistance/energy efficiency.

Residential care facilities have also found Santa Maria to be an attractive location to accommodate the needs of our ageing population. The additional impacts of population growth as well as access and functional needs sub-population in relation to that growth have necessitated the addition of one and the relocation of another fire station to maintain service integrity since the 2011 Hazard Mitigation Plan. A new police station/headquarters has been built to accommodate the needed growth of the Police Department, meet California Essential Services Buildings Seismic Safety and Dept. of Justice standards and to be nearer the new geographic center of the City.

15.4.2 Key Departments

The City utilizes the council-manager form of local governance, which includes both elected officials and an appointed City Manager. Santa Maria has four council members and a Mayor elected at large, which means that members represent the entire City, rather than specific districts.

The City Council is Santa Maria's legislative body, setting policy, approving budgets, and setting tax rates. Members also hire the City Manager, who is responsible for the day-to-day

administration of the City, and serves as the Council's chief advisor. The City Manager prepares a recommended budget, and carries out the council's policies. While the City Manager may recommend policy decisions, he or she is ultimately bound by the actions of the Council. The Council appoints one additional staff member — the City Attorney. City Departments involved in activities related to Hazard Mitigation include:

City Manager's Office

- Provide overall direction and coordination of City operations to ensure that the City Council's adopted service objectives are met or exceeded and that costs do not exceed budget restrictions.
- Continually evaluate organizational structure of the City to provide the most effective, efficient, and economical public service possible.
- Improve the operational capabilities of the City through the development of high quality human resources.
- Direct employee relations, including negotiating and administering contracts with represented groups.
- Continually monitor and evaluate services, programs and activities of the City to ensure they continue to be relevant to community needs and are administered in an equitable manner.
- Through the Records/City Clerk Division, maintain accurate records of City Council activities and other official City files and ensure municipal elections are conducted in compliance with applicable laws and guidelines.
- Serves as the City's Emergency Services Director.

Information Technology Division

- Provide comprehensive computer services that include defining informational needs and translating them into technology standards and computer policies.
- Ensure the security and integrity of data stored on the City's computer equipment.
- Provide appropriate services to internal customers to keep computers and associated equipment and software operating as designed.
- Administer and manage contracts for all computer hardware/software, telephone, and radio equipment.
- Ensure that technologies related to emergency services are maintained operational 24/7.
- Participates as part of the City's Emergency Management Team and the City's EOC Team.

Finance Department

Finance Division

- Analyze the City's financial position and develop short and long range plans to ensure financial viability.

- Provide high quality financial reporting and budget presentations
- Advise City management on business factors affecting the City's fiscal environment.
- Ensure the security and proper disbursement of funds through effective appropriation management.
- Administer the business license and occupancy tax ordinances including annual renewals, new licenses, complaints, and coordination with State agencies.
- Develop and update effective administrative policies to maintain internal controls.
- Ensure City departments obtain materials and services needed, within budget, and in compliance with procurement policies.
- Maximize investment earnings while safeguarding public funds as established by the City Investment Policy and State law.
- Participates as part of the City's Emergency Management Team and the City's EOC Team.

Utility Billing Division

- Administer the utility billing system to ensure that residents and businesses are paying the appropriate amount for water, sewer, and refuse collection services through the production of accurate bills, collection of all revenues, monitoring and collecting of delinquent accounts.
- Respond to utility customers' service needs in an effective, efficient, and economical manner.
- Participates as part of the City's Emergency Management Team and the City's EOC Team.

Fire Department

Administration

- Develop, implement and monitor policies, procedures, budgets, fees, automatic aid agreements, mutual aid agreements, and liaison with other City departments and outside agencies.
- Serve as the Emergency Services Specialist.

Life and Fire Safety

- Coordinate adoption of codes and ordinances, review site and building plans for fire code compliance, inspect occupancies for compliance with fire and life safety laws and regulations, investigate fire cause and origin, and present community education programs.
- Provide public information to the community on the department's emergency and non-emergency activities.
- Coordinate the City's Disaster Preparedness Program, liaison with all City departments and divisions, as well as other public and private organizations,

develop, coordinate and implement hazard-specific response plans, and maintain the operational readiness of the City's Emergency Management Team, the EOC and other key elements.

- Manage department contracts and agreements.
- Manage the development of new department facilities and existing facility renovation.
- Aware and Prepare Program coordination and administration.

Operations Division

- Maintain the department's personnel, apparatus, equipment and fire stations in a state of readiness to respond to the community's needs for emergency and non-emergency calls for service, develop and implement standard operating procedures for various types of emergency responses, and train and interact with neighboring jurisdictions and regional agencies.
- Long-range planning.

Community Development Department

Building Division

- Coordinate adoption of building, plumbing, electrical, and mechanical codes. Develop building ordinances.
- Review site and building plans for compliance with building codes and ordinances.
- Damage assessment of structures from multiple causes to facilitate repair and future occupancy.
- Serves as Floodplain Administrator.
- Reviews architectural and engineering plans to assure compliance with
- Federal, State, and local ordinances on seismic and structural stability.
- Participates as part of the City's Emergency Management Team and the City's EOC Team.

Planning Division

- Develop and maintain the City's General Plan, zoning ordinances and development standards. Oversight of the City development process assuring compliance with zoning and general plan, and including environmental impact reports, design review, historic preservation, landscape review, habitat conservation, floodway prohibitions and floodplain development standards consistent with State and Federal laws and regulations.
- Participates as part of the City's Emergency Management Team and the City's EOC Team.

Public Works Department

Streets & Facilities Division

- Maintains City infrastructure (streets and buildings).
- Responds to City emergencies, including emergency repair of roads and facilities, assisting police and fire departments with hazardous materials clean up, traffic and perimeter control efforts, and evacuation routing.
- Maintains and operates City emergency generator assets.
- Participates as part of the City's Emergency Management Team and the City's EOC Team.

Fleet Services Division

- Maintains City fleet of vehicles and equipment, including all emergency response vehicles and equipment.
- Maintains City fuel supply and dispensary.
- Contracts with local heavy equipment maintenance vendors for essential mechanical maintenance needs.

Engineering Division

- Reviews engineering on private and public grading, floodways, retention basins, transportation infrastructure and structures to assure compliance with Federal, State and local ordinances regarding storm water management and flood control.
- Develops engineering ordinances and policies that help protect and preserve City infrastructure.
- Evaluates all circulation elements for projected traffic impacts.
- Maintains and operates City public transit system, including buses and vans.
- Determines needed infrastructure improvements, including roadways, storm drains, utilities, water systems and wastewater/sewer collection and treatment capabilities.
- Provides response personnel for evaluation of damaged infrastructure and rescue situations.
- Coordinates other response agencies assisting with damage assessment.
- Participates as part of the City's Emergency Management Team and the City's EOC Team.

Utilities Department

- Provides water, wastewater, and storm water services for the City of Santa Maria. These services include water production and distribution, wastewater collection and treatment, and storm drain system maintenance.
- Solid waste services, including the collection of recycling, green waste, and solid waste. Operation of the Santa Maria Regional Landfill with recycling

services and a Household Hazardous Waste collection facility. This includes street sweeping services.

- The Regulatory Compliance Division provides assistance to all department divisions on regulatory issues.
- During and after a disaster, produces and manages the Debris Management Plan.
- Participates as part of the City's Emergency Management Team and the City's EOC Team.

Police Department

Administration

- Develop, implement and monitor policies, procedures, budgets, accounting, purchasing, grants administration, litigation, claims, personnel, automatic aid agreements, mutual aid agreements and liaison with other City departments and outside allied agencies.

Operations Division

- Responds to safety concerns involving threats and/or damage to life or property. Acts as the enforcement entity for violations of State and local laws and ordinances.
- Primary emergency responders to acts of civil disobedience and public disorders and terrorism. Support personnel for emergency rescue and management.
- Develops and implements emergency response plans and policies, focusing on evacuation procedures and traffic control.
- Primary responders to acts of terrorism, focusing on suspect intervention, facility and staff protection.
- Participates as part of the City's Emergency Management Team and the City's EOC Team.

Support Division

- Investigative services for criminal acts that result in personal injury, death and the destruction of property.
- Manage law enforcement services contract with the Santa Maria Public Airport District.
- Manage the department's Homeland Security and Law Enforcement Terrorism Prevention Programs.
- Manage the City's Public Safety Answering Point (PSAP) (aka 9-1-1 Service or Dispatch), receive 9-1-1 calls, dispatch police units, fire apparatus and emergency medical services.

Recreation and Parks Department

Administration

- Writes and manages grants, provides human resource and fiscal management of the Recreation and Parks Department.
- Produces strategic plans to meet the Recreation and Parks needs of the community.
- Coordinates with other City departments and community partners.
- Ensures regulatory compliance of programs and services.
- Participates as part of the City's Emergency Management Team and the City's EOC Team.

Recreation Division

- The Recreation Division provides a variety of programs and services available to all members of the community. Some of the programs offered include; Youth and Adult Sports, Senior Services, Special Olympics, Community Classes, Community Events and Youth Programs.
- Manages Recreation and Parks facilities.
- Manages and provides logistical support for events.
- Participates as part of the City's Emergency Management Team and the City's EOC Team.

Parks Division

- The Parks Division is responsible for ongoing maintenance of the City's 294 acres of landscape and open spaces. The division is also responsible for the maintenance of the City's athletic facilities, sports fields, tennis courts, and outdoor basketball courts. The division is also responsible for the City's Graffiti Removal Program, Shopping Cart Abatement Program, and provides support for hundreds of community events. This division is also responsible for Aquatic Programming, Aquatic Maintenance, and provides Maintenance and Lifeguarding Services to the High School District at their Aquatic Facilities.
- Urban Forest (street and parks) maintenance, with use of a contractor, of 45,000 (+ / -) trees that include; tree trimming, insect and disease control, tree planting. Responds to storm or related issues specific to the urban forest.
- Park Services Officers (i.e. City Rangers) provide public safety, security and law enforcement at City parks and facilities properties.
- Participates as part of the City's Emergency Management Team and the City's EOC Team.

City Attorney

Legal Services

- Provide legal services to the City Council and all departments of the City as needed.
- Participates as part of the City's Emergency Management Team and the City's EOC Team.

Code Compliance Division

- Investigate violations of the Santa Maria Municipal Code within the City limits.
- Initiate administrative, civil, and criminal actions to correct violations of the Santa Maria Municipal Code.
- Participates as part of the City's Emergency Management Team and the City's EOC Team.

Public Library

- Acquires, catalogs and circulates books, print and audio-visual materials to approximately 120,000 customers through the main library in Santa Maria, and branch libraries in Orcutt, Guadalupe, Los Alamos, and Cuyama.
- Acquires and provides access to electronic services such as Internet access, digital and downloadable products, online databases, and personal computers with Microsoft Word, PowerPoint, and Excel software.
- Participates as part of the City's Emergency Management Team and the City's EOC Team.

15.4.3 Administrative and Technical Capacity

The following is a summary of existing departments in the City and their responsibilities related to hazard mitigation planning and implementation, as well as existing planning documents and regulations related to mitigation efforts within the community. The administrative and technical capabilities of Santa Maria, as shown in Table 15-3, provides an identification of the staff, personnel, and department resources available to implement the actions identified in the mitigation section of the Plan. Specific resources reviewed include those involving technical personnel such as planners/engineers with knowledge of land development and land management practices, engineers trained in construction practices related to building and infrastructure, planners and engineers with an understanding of natural or manmade hazards, floodplain administration, surveyors, personnel with GIS skills and scientists familiar with hazards in the community.

Table 15-3 City of Santa Maria: Administrative and Technical Capacity

Staff/Personnel Resources	Y/N	Department/Agency and Position
Planner(s) or engineer(s) with knowledge of land development and land management practices	Y	Community Development Director, Planning and Building Division Managers
Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Y	Director of Public Works/City Engineer, Public Works engineers & Utilities Director, Utilities Managers
Planners or Engineer(s) with an understanding of natural and/or manmade hazards	Y	Community Development Director, Planning and Building Division Managers, City Engineer, & Utilities Director, Utilities Managers, Recreation and Parks Director and Managers, Emergency Services Specialist.
Floodplain Administrator	Y	Director of Community Development
Surveyors	Y	City Engineer and designated staff
Staff with education or expertise to assess the community's vulnerability to hazards	Y	Fire Chief and staff members, Police Chief and command staff, Director of Public Works/City Engineer, Director of Utilities.
Personnel skilled in GIS and/or HAZUS*	Y	City GIS staff, Engineering, Community Development
Scientists familiar with the hazards of the community	Y	Consultants
Emergency Manager	Y	Fire Chief and Police Chief
Grant writers	Y	City Manager - Special Projects, Community Development Department, Recreation and Parks Department

*GIS: Geographic Information Systems software. HAZUS: Hazards United States. A GIS application to model disaster impacts on communities.

15.4.4 Legal and Regulatory Capabilities

The legal and regulatory capabilities of Santa Maria are shown in Table 15-4, which presents the existing ordinances and codes that affect the physical or built environment of Santa Maria.

Examples of legal and/or regulatory capabilities can include: building codes, zoning ordinances, subdivision ordinances, special purpose ordinances, growth management ordinances, site plan review, general plans, capital improvement plans, economic development plans, emergency response plans, and real estate disclosure plans.

The Santa Maria City Council on January 19, 2016 adopted Part I of the 2016 Multi-Hazard Emergency Response Plan, which also includes language that addresses Continuity of Government. The plan clearly delineates the City's procedures and policies when responding to a significant disaster.

Table 15-4 City of Santa Maria: Legal and Regulatory Capability

Regulatory Tools (ordinances, codes, plans)	Local Authority (Y/N)	Does State Prohibit (Y/N)
Building code	Y	N
Zoning ordinance	Y	N
Subdivision ordinance or regulations	Y	N
Special purpose ordinances (floodplain management, storm water management, solid waste management, hillside or steep slope ordinances, wildfire ordinances, hazard setback requirements)	Y	N
Growth management ordinances (also called "smart growth" or anti-sprawl programs)	Y	N
Site plan review requirements	Y	N
General or comprehensive plan	Y	N
A capital improvements plan	Y	N
An economic development plan	Y	N
An emergency response plan	Y	N
A post-disaster recovery plan	N	N
A post-disaster recovery ordinance	N	N
A Hazard Mitigation Plan	Y	N
General Plan, Safety Element	Y	N
Real estate disclosure requirements	Y	N

15.4.5 Fiscal Resources

Table 15-5 shows specific financial and budgetary tools available to Santa Maria such as community development block grants; capital improvements project funding; authority to levy taxes for specific purposes; fees for water, sewer, gas, or electric services; impact fees for homebuyers or developers for new development; ability to incur debt through general obligations bonds; and withholding spending in hazard-prone areas.

Table 15-5 City of Santa Maria: Fiscal Capability

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

15.4.6 Relevant Plans, Policies, and Ordinances

The City has a range of guidance documents and plans for each of its departments. These include a general plan, public works and public utilities plans, capital improvement plans, and emergency management plans. The City uses building codes, zoning ordinances, subdivision ordinances, and various planning strategies to address how and where development occurs. The City is in the process of adopting the 2016 State of California Building Standards Code (Title 24) and the 2016 California Fire Code (Title 24, Part 9.) These codes will be adopted within the first quarter of 2017.

City Plans, Municipal Code, specific plans, and ordinances can be found here:

http://www.cityofsantamaria.org/city-government/departments/community-development/planning-division/planning-policies-and-regulations

City policies are also articulated in City Administrative Memos (CAMS) which are updated and maintained by the City Manager's Office. This list is constantly being reviewed and updated. The

Hazard Mitigation Plan is used to determine if existing codes and plans require expansion and improvement. If so, standard regulatory processes are used to recommend or make changes as necessary. For specific questions, the reader is referred to the City Manager's Office.

It is important to note that during the LHMP update planning process these plans, programs, codes, and policies were evaluated to determine their effectiveness in risk education and reduction efforts, as well as their usefulness to implement mitigation measures. Any shortfalls or areas where the plans, programs, codes, and policies could be improved or expanded were identified and captured under annual review, the annual planning process and Mitigation Actions chapter of this plan. If no mitigation actions were identified, then it can be assumed that the planning team determined that no shortfalls or areas for improvement are needed.

One of the essential ways the City guides its future is through policies laid out in the General Plan.

15.4.6.1 The General Plan

The General Plan for the City consists of seven general areas of information.

- Circulation Element
- Housing Element
- Land Use Element
- Noise Element
- Resources Management Element-Conservation Element-Open Space Element-Public Infrastructure, Recreation and Parks Element
- Safety Element
- Economic Development Element

The various elements listed above have been reviewed and updated between 1991 and 2016. The City's General Plan is available for review on the City's website at http://www.cityofsantamaria.org/city-government/departments/community-development/planning-division/planning-policies-and-regulations/general-plan

15.4.6.2 The General Plan - Safety Element

The Safety Element is a long-range planning document which sets forth goals, policies, objectives, and implementation programs to protect Santa Maria from risks associated with the following hazards: seismically and geologically induced hazards, flooding, wildland and urban fires, electromagnetic fields, oil wells/sumps, landfill gas migration, safe drinking water, aircraft safety, and hazardous materials. This portion of the General Plan also describes the emergency response capabilities of the various disaster service agencies within Santa Maria.

Geologic and Seismic Hazards

Santa Maria City Council adopted an unreinforced masonry (URM) implementation ordinance in 1989. The ordinance adopted standard and a time schedule for reinforcing URM buildings based on the type of building and its occupancy load. The City has identified 28 URM buildings within

the City. Approximately 20 property owners complied with the January 1, 1993 date to submit rehabilitation plans for their URM building.

To mitigate this hazard, the City has already:

- Adopted an Unreinforced Masonry Ordinance that contains a compliance schedule.
- Adopted the most recent editions of the Uniform Building Code, the Uniform Fire Code, the Uniform Housing Code, the Uniform Plumbing Code, the National Electrical Code, and the Hazardous Building Code.
- Implemented public education programs in English and Spanish through the Aware and Prepare *Ready!* Program, CERT (Community Emergency Response Training) program, participation in California Shake Out program and National Emergency Preparedness month.

Flooding

The Santa Maria River Levee, built by the U.S. Army Corp of Engineers, is designed to protect the City from a "100 year" flood event. The Santa Barbara County Flood Control District patrols the levee any time there is more than a few hundred cubic feet per second flowing in the river. Levee erosion has been experienced and if the levee ruptured, it could cause flooding south of the Levee.

To mitigate this hazard, the City has already:

- Successfully lobbied for Federally-funded rehabilitation of 7 miles of the levee; rehabilitation work began in January 2009 and was substantially complete as of April 2014.
- Participation in the National Flood Insurance Program.
- Developments adjacent to the Santa Maria River have dedicated 60-foot-wide buffer zones next to the levee.
- New developments in the 100-year floodplain have complied with the requirement that finish floor elevations be at least 2 feet above the 100-year flood plain elevation.

Fire

Aging structures, non-permitted renovations or changes in occupancy, weeds and abandoned structures are some of the many hazards that can increase fire risk in a community. To reduce the risk of urban fires, fire codes, building codes, various City codes and building setback restrictions are enforced.

To mitigate this hazard, the City has already:

- Developed an ongoing weed abatement program.
- Adopted the most recent edition of the Uniform Fire Code.
- A proactive code enforcement program with uniformed officers.

- Fire Prevention staff and programs.

Electromagnetic Fields (EMF)
The California Public Utilities Commission (CPUC) encourages utilities to take no-cost and low-cost measures to reduce exposure from new or upgraded utility facilities. It directs that no-cost mitigation measures be undertaken, and that low-cost options be implemented through a CPUC project certification process. Four percent of total budgeted costs is the benchmark in developing EMF mitigation guidelines, and mitigation measures should achieve some noticeable reductions. Some mitigation measures include siting new facilities in alternative locations, increasing right-of-way widths, altering line or tower geometry, using higher voltages to reduce current levels, and underground utilities.

To mitigate this hazard, the City has already:

- Collected a compilation of data regarding the recent studies associated with EMFs.
- Participated in regional planning with Pacific Gas and Electric on routing and upgrading of power distribution system.

Oil Wells and Oil Sumps
The source for local oil regulations is the Santa Barbara County Petroleum Ordinance. The City's Municipal Code adopts the County ordinance as the petroleum ordinance of Santa Maria. New facilities (wells, tanks, etc.) must follow applicable regulations, including the Uniform Fire Code, and require permits from the County Petroleum Department and/or the California Division of Oil, Gas, and Geothermal Resources. In addition, new facilities cannot be located within certain distances from roadways and existing buildings. The County Petroleum Department and the State Supervisor of Oil, Gas, and Geothermal Resources both have the power to determine that a well, an oil field, or other operations covered by the ordinances are safety hazards and, therefore, have the right to compel the operator to make modifications to correct unsafe conditions. Abandoned wells must have a 10-foot-wide radius "no build" easement measured from the well if the well resides in a residentially zoned area. For non-residential property, the property owner has the choice of recording the 10-foot-wide "no build" easement around the well, or installing an approved venting system over the well, in which case a structure may be built over the well.

To mitigate this hazard, the City has already:

- Adopted a Petroleum Ordinance and the designation of the County Petroleum Engineer to act on the City's behalf.
- Remediated several oil Bump/contaminated soil areas within the City Limits.
- Recent projects have recorded 10-foot radius "no-build" easements over abandoned oil wells.

Landfill Gas Migration
The City owns and operates a regional landfill located in the northeast portion of the City. In addition, abandoned landfill areas are located underneath Preisker Park and around the Santa Maria

Public Airport. A hazard associated with existing and abandoned landfills is underground methane gas migration. California Code of Regulations (CCR) under Title 14, Chapter 3, Article 7 apply to LFG production, containment, control, and utilization at Class III sanitary landfill sites. The CCR "Minimum Standards" are enforced by Cal Recycle, formerly known as the California Integrated Waste Management Board (CIWMB) and the Local Enforcement Agency (LEA). For the City, the LEA is the Santa Barbara County Environmental Health Division.

To mitigate this hazard, the City has already:

- Installed 38 City-owned LFG monitoring wells around the Santa Maria Regional Landfill.

Safe Drinking Water

In 1974, the Federal Safe Drinking Water Act was passed to establish standards for public drinking water. In 1986, the Act was amended to further safeguard the sources and treatment of water. The Environmental Protection Agency (EPA) and the State Water Resources Control Board, Division of Drinking Water (DDW), set quality standards which require water suppliers to monitor and treat public drinking water for potentially harmful contaminants. Any water supplier needs to make sure that its water supply meets State and Federal drinking water standards. The City of Santa Maria needs to be particularly aware of the presence of nitrate and total dissolved solids in its supply.

To mitigate this hazard, the City has already:

- Procured high quality imported State Water supply to blend with local drinking water supply.
- Addressed water supply reliability and quality in its Urban Water Management Plan, which is posted on the City's website.
- And is within the adjudicated area of the Santa Maria Groundwater Basin.

Aircraft Safety

The City of Santa Maria is within the Santa Maria Public Airport District Area of Influence. This area is divided into three areas of major concern: height restrictions, safety, and noise. Policies regarding these three issues have been established.

To mitigate this hazard, the City has already:

- Adopted the Clear Zone and Airport Approach Overlay zoning designations in coordination with the Santa Maria Airport District and Santa Barbara County.

Hazardous Materials

Hazardous materials are found throughout the Planning Area. The use and storage of hazardous materials is primarily regulated by the Uniform Fire Code. Transport of hazardous materials and waste on public streets is primarily regulated by the California Vehicle Code and the City's Municipal Code. Storage and disposal of hazardous wastes is primarily regulated by the Santa Barbara County Environmental Health Services Division through its Hazardous Waste Generator Program as authorized by the State Health and Safety Code. Santa Barbara County's Site

Mitigation Program administered by the EHS is responsible for the supervision of cleanup at contaminated sites throughout the County, including sites within the City Limits.

Although incidents may occur anywhere at any time, certain portions of the Planning Area are more likely to be the site of an accident involving hazardous materials including Highway 101, Highway 166, Betteravia Road, fixed facilities along Blosser Road, railroads, and airport industrial zones.

To mitigate this hazard, the City has already:

- Adopted the countywide Household Hazardous Waste Element in 1995.
- In accordance with Article 80 of the Uniform Fire Code, industrial and commercial hazardous material users are required to provide the County of Santa Barbara Fire Department with either a hazardous material inventory statement or a hazardous materials management plan that lists the hazardous materials used on the site, a description of where and how each is stored, and how each react in a fire.
- Industrial and commercial hazardous material users are required to provide a Business Plan to the County Environmental Health Services Department.
- The California Highway Patrol and the City's Municipal Code have designated appropriate hazardous material transport routes.

Emergency Services
The City's emergency preparedness capabilities include Chapter 17 of Title 2 of the Municipal Code, the Multi-Hazard Functional Plan, and the California Master Mutual Aid Agreement. Santa Maria has a functional Emergency Operations Center (EOC) to be activated in the event of an emergency.

15.4.6.3 Zoning and Subdivision Ordinances

The State of California has empowered all cities, and counties to adopt zoning ordinances. The City's Zoning Ordinance is detailed in Title 12 of the Santa Maria Municipal Code. The City's Subdivision Ordinance is detailed in Title 11 of the Santa Maria Municipal Code. The full text of the Santa Maria Municipal Code is available for review in the City Clerk's office, the Public Library, or at the City's website, http://www.qcode.us/codes/santamaria/

15.4.6.4 Building Codes

The State of California is responsible for enacting the California Building Code, which the City is responsible for enforcing locally. The current California Building Code (Title 24) is the 2016 adopted triennial Uniform Building Code (with amendments).

The Building Division is principally responsible for enforcing State and City codes for building residential and commercial structures with support from the Fire Prevention unit of the Fire Department for Fire Code enforcement. The enforcement of environmental codes and guidelines

for maintaining existing structures is a shared responsibility of the Building Division, Fire Department, and City Attorney's Office/Code Compliance Division.

15.4.6.5 Floodplain Management Ordinance (NFIP)

The Director of the Community Development Department is the designated Floodplain Administrator per City Municipal Code section 9-10.202. The Community Development Department is the lead agency in the City to coordinate National Flood Insurance Program (NFIP) compliance and enforces the City's Flood Plain Management Ordinance.

All potential development projects located within floodplains must follow an established development review process. Developments involving drainage ditches or watercourses in floodplains must receive Federal, State and Local review and permits as required by the Floodplain Administrator and the Santa Maria Municipal Code. The ordinance contains provisions for public utilities and facilities, such as sewer, gas electrical and water systems, manufactured homes, recreational vehicles, and existing structures.

The City of Santa Maria has an enforced floodplain ordinance requiring that all habitable floors must be built above the 100-year floodplain and the special flood hazard areas. It is important to note, however, that there are areas of the City that may flood due to the inadequate capacities of their storm water infrastructure – not because of their proximity to 100-year floodplains. A complete discussion of flood hazard is included in Section 5.4.4 of the Santa Barbara County 2016 Multi-Jurisdictional Hazard Mitigation Plan.

The Community Development Department provides the floodplain maps while the interpretations of floodplain district locations are made by the Federal Emergency Management Agency (FEMA). The Flood Insurance Rate Maps (FIRMs) were developed through the NFIP and were last updated in September 2008 and made available in GIS format as Digital Flood Insurance Rate Maps (DFIRM) and have been incorporated into the City GIS. Flood maps are also available from the FEMA Flood Map Service Center on the internet at http://msc/fema/gov/portal/. The FIRMs are used by both the public and private sector to determine flood insurance requirements and rates and to administer the City's Flood Zone Management Ordinance (Chapter 9-10 of the Santa Maria Municipal Code). These maps, last updated in 2008, do not reflect the recent (2009-2014) rehabilitation of the Santa Maria River Levee. Future maps will reflect updated calculations.

Floodplain districts identified in the FIRMs include the following flood hazard zones and definitions:

- **Zone A** is the flood insurance rate zone that corresponds to the 100-year floodplains that are determined in the Flood Insurance Study (FIS) by approximate methods. Because detailed hydraulic analysis is not performed for such areas, no Base Flood Elevations or depths are shown within this zone.
- **Zone AE** is the flood insurance rate zone that corresponds to the 100-year floodplains that are determined in the FIS by detailed methods. In most instances, whole-foot Base Flood Elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

- **Zone AH** is the flood insurance rate zone that corresponds to the 100-year floodplains that are flood depths of 1 to 3 feet (Usually areas of ponding); base flood elevations determined.
- **Zone X** is the flood insurance rate zone that corresponds to areas outside the 500-year floodplain, areas within the 500-year floodplain, and to areas of 100-year flooding where average depths are less than 1 foot, areas of 100-year flooding where the contributing drainage area is less than 1 square mile, and areas protected from the 100-year flood by levees. No Base Flood Elevations or depths are shown within this zone.

15.4.6.6 Repetitive Loss (RL) Properties

Repetitive Loss Properties are defined as property that is insured under the NFIP that has filed two or more claims in excess of $1,000 each within any consecutive 10-year period since 1978. There are no Repetitive Loss Properties within the City of Santa Maria, according to a Federal Emergency Management Agency (FEMA) regional representative whom was asked that question by City staff on July 26, 2011. There have been no flooding events since that date. Therefore, that relieves the City of the need to identify funding or education/engineering plans to reduce the risk of flooding to those properties.

15.4.6.7 City of Santa Maria Stormwater Plan

In October 1990, the National Pollutant Discharge Elimination System (NPDES) became the Federal law for regulating storm water runoff to reduce pollution.

The City's Utilities Department continually maintains over 330 miles of water mains, 230 miles of sewer lines, and other storm drainage-related structures throughout the City's drainage system. The division has a Storm Water Management Plan, which outlines design criteria and policies, City standards, and technical specifications for infrastructure development.

The City's approved Storm Water Management Plan is on the City's website at http://www.cityofsantamaria.org/city-government/departments/utilities-sewer-water-trash/stormwater.

During its first year of enrollment under the General Permit, the City made great strides in implementing its Storm Water Management Program. Some program highlights of Permit Year 1 include:

- Development of a robust Public Education and Outreach program resulting in greater community awareness and volunteering for Project Clean Waterways workdays.

- A Water Quality Monitoring Program focused on local water quality impairments and challenges (Appendix A) with the goal of reducing and improving discharges to receiving water bodies.

- Creation of a targeted Business and Industry Inspection Program including enforcement actions resulting in observable operational changes for some local businesses.

- GIS mapping of Mutt Mitt stations, storm water basins, channels, and other drainage facilities.

- Adoption of a practical and City-specific Storm Water Runoff Pollution Prevention Ordinance to the City Municipal Code.

- An overall greater understanding of the City's drainage sub-watersheds, its MS4, urban pollutant sources, and challenges arising from storm water comingled with agricultural runoff.

15.4.6.9 SEMS Multi-Functional Emergency Management Plan

In January 2016, the City completed an update of the Multi-Hazard Functional Plan (MHFP), which details the City's disaster operations activities. The MHFP is based on "Whole Community Planning" which engages different segments of the community to ensure that the plan addresses the potential needs of all residents in the community. The City is actively engaged with the Operational Area on a continual basis to ensure training, education, risk and hazard assessments, and planning are continually being addressed. The City has adopted the use of SEMS/NIMS in the management of disasters in the City. The plan discusses disaster response, mitigation, and recovery activities through a "whole community" approach. The City has an active bilingual (English and Spanish) CERT (Community Emergency Response Team) program, Listos program (Hispanic preparedness outreach), *Ready!* preparedness program, and continual community education and outreach on preparedness, response, and recovery planning. The City continually offers State- and FEMA-authorized courses to help meet Incident Command System (ICS) education requirements for employee and volunteer staff.

A copy of the City's MHFP is available for review in the Fire Department administration office during regular business hours.

15.4.6.10 City of Santa Maria Economic Development Element

Core Policies

1. Effectively target the recruitment of commercial, industrial, and retail enterprises that best fit Santa Maria's market and infrastructure. Continue to identify target industries.

2. Utilize a sophisticated and effective Strategic Workforce Action Team (SWAT) that best responds to commercial/industrial (job producing) prospect contacts, resulting in ultimate job creation.

3. Provide a cost-effective, operational Geographic Information System (GIS) with the ability to have integrated layered information, and easily updated.

4. Provide sufficient commercial/industrial sites that meet the size and location needs of prospects. To that end, unless the subject property clearly cannot be used for industrial purposes, suppress the rezoning of any sites from existing industrial zoning unless an equal or greater amount of land is zoned to an industrial classification prior to or during the zoning process.

The above policy shall be applied on a case-by-case basis and shall consider some or all of the following factors:

a) The amount of industrially-zoned land (in acres) currently available at the time of the rezoning request that is readily available for construction.

b) The land feasibility of the site for industrial development (due to such factors as the size and configuration of the parcel or remaining site area).

c) Any County property approved by LAFCO for annexation which is pre-zoned to industrial and feasible for development.

d) A Santa Maria Multiplier Impact rating at or above 2.11 and/or within one-half point of the average of all industries within the California RIMS II jobs multiplier.

e) Additional factors may be considered as appropriate for the site being considered.

5. Create and utilize ordinance amendments to address problems that thwart business creativity.

6. Streamline development processes using proven methods, such as concurrent permit processing or Performance Evaluation Review Technology (PERT).

7. Turn the current State budget crisis and negative impact to businesses into a positive situation by contacting businesses threatening to leave the Tri-County regions by emphasizing the many assets common to Santa Maria including the relatively low cost of doing business.

8. Adopt and implement an industrial preservation zone to protect scarce industrially-zoned properties to facilitate long-term job growth.

Note: Items 1, 2 and 7 are the primary responsibility of the Santa Maria Valley Chamber of Commerce. Items 3, 4, 5, 6 and 8 are the primary responsibility of the City of Santa Maria. The City contracts with the Chamber for economic development services.

15.4.6.11 City of Santa Maria Capital Projects

The City of Santa Maria Capital Projects Report lists the improvement categories and funding for each project within a given category. The City continually evaluates its hazard and risk profile and identifies mitigation strategies, whether by code, policy or by investment in infrastructure improvements. Currently (August 2016) there are multiple projects within the Public Safety category.

- **Police Department Headquarters**. A new Police Department facility was built, becoming operational in 2015. Built to California Essential Services Buildings Seismic Safety Standards, it incorporates design elements to enhance the security of employees and

maintain chain of custody of evidence. A new PSAP (Public Safety Access Portal aka Dispatch/9-1-1 Center) is being built in the new Police facility.

- **Information Technology Upgrades/Continuity of Operations**: The City's server farm is currently being relocated to a secure, essential services compliant location. An interoperable CAD/LRMS (Computer Aided Dispatch/Law Records Management System) system has been sourced and is being implemented. An interoperable multi-band wireless communications system has been designed and is being installed including the new public safety 700 MHz band in addition to legacy VHF and UHF wireless systems. A redundant wireless backbone network has been designed and is being installed in addition to a resilient fiber optic network. The phone system has been converted to a SIP/VOIP system to enhance deployment and reconfiguration. The City has identified a network disaster recovery site.
- **Fire Department Emergency Fuel Cache**. A gravity-fed above-ground tank, reinforced for seismic resilience has been identified to ensure operation of Fire Equipment for 24 hours.
- **Bridge Maintenance and Repair**. Survey and assessment of City controlled local bridges to determine required repairs and maintenance has begun. CalTrans-controlled bridges in the Santa Maria area have been surveyed and retrofitted.
- **Water Distribution System Improvements**. Water system flow and hydrant locations have been re-evaluated and improvements scheduled to mitigate impacts of additional commercial and residential development in Santa Maria.
- **Annual Drainage Improvements**. The City's flood control system is continually monitored and maintained. As new developments are approved, flood control system upgrades are included to mitigate storm runoff impacts.

  Betteravia Storm Drain Improvements. A specific project to improve substandard drainage facilities and construct improvements to aid storm water drainage on Betteravia Road area.

  Miller Street/Mariposa Way Storm Drain. Install approximately 175 LF of storm drain in Miller Street at Mariposa Way to an existing catch basin in Miller Street.
- **Annual Opticom Retrofit**. A multi-year program to update three to four existing traffic signals with an Opticom signal preemption system for emergency vehicles.
- **Aerial Imagery**. An annual program in coordination with neighboring jurisdictions and community partners to capture high resolution digital elevation modeled, geo-rectified aerial images of the City and surrounding areas for mapping, planning, high resolution hydrological and flood modeling and geospatial analysis.

15.5 HAZARD ASSESSMENT

The Hazard Assessment presented here reflects the City's 2016 review and modifications to the updated risk assessment presented in Sections 5 and 6 of the County Plan. Applicable hazard information from the City's 2011 plan was incorporated during the development of this section.

A comprehensive treatment of hazards and their descriptions, may be found in Section 5 of the Santa Barbara County 2016 Multi-Jurisdictional Hazard Mitigation Plan.

The City of Santa Maria's Local Planning Team reviewed the hazard ranking worksheet developed by the County MAC and used the same system to rank and prioritize hazards specific to the City of Santa Maria. Table 15-6 provides the summary hazard list specific to the City of Santa Maria while Table 15-7 provides the risk/hazard profile for the local community.

If the hazard is not listed, it was determined by the LMPT that those hazards had no history of occurrence or significant impact in Santa Maria either historically or in the Holocene, and no known evidence to suggest that it may be in the foreseeable future.

Table 15.6 Relevant Hazards in City of Santa Maria

City Hazards
Earthquake
Liquefaction
Wildfire
Flood
Climate-Related
Droughts and Water Shortage
Severe Weather and Storms
Extreme Heat
Freeze
Windstorm
Energy Shortage and Energy Resilience
Oil Spill
Dam Failure
Agricultural Pests and Disease
Epidemic/Pandemic/Vector Borne Disease
Hazardous Material Release
Radiological Incident

Terrorism
Cyber Threat
Aircraft Crash
Train Accident; Explosion and/or Chemical Release
Natural Gas Pipeline/Storage
Levee Failure
Civil Disturbance
Well Stimulation/Hydraulic Fracking

History of Disaster and Emergency Events in Santa Maria

There are a multitude of events that have affected the populations of Northern Santa Barbara County in the past. The earliest recorded events are in the diaries and records of the various explorers, Spanish Missions and Ranchos. Earthquakes, floods, wildfires, droughts, and El Niño events are not new phenomena and stretched the resources of the early Spanish colonists and Native American populations. The following table lists the currently known multi-family disasters that have occurred or adversely affected populations. It is not a comprehensive listing of all known events. Severe weather events are common. Winds over 40 knots are not uncommon. Rain events over 1" per hour are also common. Some historic events not listed include wildfires in Santa Maria valley before irrigated agriculture and multiple train derailments and collisions with automobiles.

Event	Date	Description
Earthquake	Dec. 21,1812	Large-scale (estimated 7+ pts. on Richter scale) located offshore SB county. Heavy damage to missions & Presidio. Original Mission in Lompoc completely destroyed. A mud flow during an aftershock was particularly devastating, potentially caused by the failure of the dam/aqueduct system.
Earthquake	Jan. 9,1857	Fort Tejón Earthquake. Damage to north Santa Barbara county (Missions Santa Ynez and La Purisima). Damage at Dana adobe in Nipomo. No record of impacts to Native American settlements in Santa Maria Valley.
Floods	Dec. 1861 – Jan 1862	The "Great Flood". Severe damage to area ports, railroads and bridges. Significant number of landslides. All rivers overbanked causing widespread destruction.

Event	Date	Description
Earthquake	Mar. 26,1872	Owens Valley Earthquake. Damage in Santa Ynez Valley.
Earthquake	July 27,1902	Los Alamos area (7+ pt.) Damage to structures.
Earthquake	July 31,1902	Los Alamos area (7+ pts.) Damage to structures in Los Alamos and Santa Maria.
Floods	Jan. 1907	Significant flooding in region. Widespread damage to railroads, ports and infrastructure. Overbanking of all rivers in the area.
Earthquake	Jan. 11,1915	Los Alamos area. Damage to structures in Los Alamos and Lompoc.
Epidemic	Late – 1917	Influenza epidemic.
Earthquake	Jun. 29,1925	Santa Barbara earthquake, 6.3, estimated location offshore. 3,000 units damaged, 13 dead. Large feeding operation. No shelters (Tents issued) 373 ARC financial assistance cases for home repair / re-building. Felt in Santa Maria, but no reported significant damage or casualties.
Earthquake	Nov. 04 1927	Lompoc Valley earthquake (7.3). Estimated location off Point Arguello. Damage in the Lompoc area to structures and rail lines. Liquefaction "sand volcanoes" documented.
Earthquake	Nov. 18,1927	Lompoc Valley earthquake aftershock – Santa Maria damage.
Aviation Incident	Jan. 30, 1945	P-38 Crashes into Rusconi Café in Santa Maria. 3 killed. 2nd P-38 crashes into a nearby field the same day.
Earthquake	July 21,1952	Kern County Earthquake (7.7). Damage to buildings in Santa Barbara, especially old and poorly repaired from prior 1925 and 1941 events. Damage in Santa Maria with water tower failures and wells reported as going dry.
Aviation Incident	Oct. 26, 1959	Santa Maria Airport, Pacific Airlines flight 308. Engine explosion and fire on takeoff. Clips high voltage power line and crashes. 1 fatality and 19 injured. Power to City of Santa Maria out.
Terrorism	April 25, 1965	Orcutt Hill Sniper. Closure of Highway 101. 4 dead including shooter. 10 wounded.

Event	Date	Description
Flood	Jan-Feb. 1969	Widespread damage. Evacuations in Santa Maria, Guadalupe, Buellton, and Lompoc. Highways, bridges, railroads, and ports damaged or destroyed.
Fire	April 25, 1970	Bradley Hotel Fire. City block at corner of Broadway and Main destroyed. Reserve Firefighter Newton killed.
Earthquake	Aug. 13, 1978	Goleta earthquake 5.7 (Richter Scale) DR 473, no shelters; 395 units affected, all trailers (350 with major damage); 30 ARC cases; $28,000 in ARC relief costs. Significant non-structural damage at UCSB and in Goleta. Train derailment. Felt in Santa Maria but no reported damage or casualties. Economic impact as commute workers' jobs in Goleta were impacted.
HazMat	Dec. 28 1983	Santa Ynez – Lompoc Valley Hazardous Materials Evacuation; (excessive odorant in natural gas system), 2 shelters in Lompoc and Santa Maria (Hancock College) 644 persons sheltered. Estimated 10,000 to 40,000 evacuated; 60,000, in affected areas; Solvang, Santa Ynez Buellton, Ballard, Lompoc, Los Olivos, Vandenberg Village. Total of $777 ARC relief costs.
HazMat	April 1986	Vandenberg AFB missile explosion near Casmalia, short term precautionary shelter opened at Hancock College, Santa Maria – no population.
HazMat/, Explosion	Nov. 7, 1990	Welding shop explosion in Guadalupe. 2 dead. 1 building destroyed, second unreinforced masonry building across the street condemned due to damage from shock wave.
HazMat	Jul. 28, 1991	Hazardous Material spill (Mutual Aid and local operation) Sea Cliff Train Derailment – Ventura County incident at SB county line – Hwy 101 closed at Sea Cliff. Sea Cliff community evacuated due to hazardous materials spill, 45 travelers and evacuees sheltered; housed at Santa Barbara Chapter H.Q. and Carpinteria Community Church. Traffic and hotel impact in Santa Maria.
Wind	Dec. 11, 1993	High winds (over 60 MPH) through the area. Downed trees, power lines, fences, and roof damage.
Earthquake	Jan. 17 1994	Northridge Earthquake; Minor damage (some glass ware) in Santa Maria. No significant damage or casualties.
Flood	Jan. 1995	Tri-Counties Flood, DR # 562. Flooding, principally in southern SB County. 349 cases assisted; 14 shelters; 893

Event	Date	Description
		shelter residents; 16,000 meals served. Initial isolation of Southern SB County by road, rail, commercial airlines. ARC relief over $100K (Level IV operation). Figures include San Luis Obispo and Ventura county chapters. Homes in Guadalupe and Orcutt affected.
Landslide	Feb. 1995	La Conchita Mudslide (Mutual Aid – Ventura County Chapter.) DR 589. Destruction of several homes due to landslide. Entire community evacuated and temporary closure of Hwy 101. Shelter at Carpinteria Community Church, and at the SB Chapter, for evacuees and travelers. (Ongoing hazard area). Closure of 101 created traffic and lodging impacts in Santa Maria.
Flood	Mar. 1995	Central Coast Floods, DR 597, Flooding principally in southern Santa Barbara County. 609 cases assisted; 21 shelters; 344 shelter residents; over 27,000 meals served. Initial isolation of southern Santa Barbara by road, rail and commercial airlines. ARC relief cost of $1,000,000 (Level IV operation). Also affected San Luis Obispo and Ventura County Chapters. Homes in Guadalupe and Orcutt were affected.
Thunderstorm	Dec. 9, 1996	Severe thunderstorms with winds over 77 MPH. Downed power lines, trees, fences, and roof damage. Some broken windows.
Flood	Feb. 1998	DR 593 Central Coast Floods. Anticipated El Niño event. Associated landslides, coastal erosion and coastal flooding. 126 cases assisted, 11 shelters, 210 shelter residents, over 4,400 meals served. ARC relief cost of $132, 000 (Data includes Level IV operation overall) Ojai Valley, Ventura County and San Luis Obispo County chapters were also affected. (Level III in Santa Barbara County). Homes in Guadalupe, Orcutt, and Los Alamos affected. Santa Maria levee breached near Bonita School Road. High winds (over 60 MPH) downed power lines, fences, trees, and damaged roofs.
Freeze	Dec 21, 1998	Freeze. 3 nights of below freezing temperatures with low daytime temps. Numerous broken pipes and crop failures.
Fire	June 9, 2001	Cassiano Berry Supply Fire. No casualties. Required mutual aid from Santa Barbara and San Luis Obispo Counties. Water

Event	Date	Description
		system pressure drop required booster pumps. On scene vehicle refueling required.
Floods	Dec. 2004-Jan. 2005	A series of strong storms affected the area with large amounts of rain. Multiple flood and flash flood events. Homes in Guadalupe affected.
Heat	July 22, 2006	Excessive heat. Heat index (temp and humidity) in Santa Maria between 100 and 119 degrees Fahrenheit.
Freeze	January 13-15, 2007	Freeze. Several nights of below freezing temperatures with low daytime temps. Widespread frozen and broken water pipes and backflow prevention valves. Widespread crop failure. Federal Disaster Declaration for agricultural losses. Impact on farm worker populations with lost employment.
Power Outage	June 23-24, 2013	Region wide power outage from PG&E equipment failure Sunday night through Monday morning. Medically fragile populations requiring power overwhelm 9-1-1 and hospital resources.
Flood/Winds	Dec. 11, 2014	An intense thunderstorm band passed through the area with high winds and rainfall over 1" per hour. Widespread power outages, property damage from wind and downed trees. Street flooding impaired emergency vehicles. Fire Station 1 residential quarters flooded.

Hazard Screening/Prioritization

The intent of screening hazards is to help prioritize which hazard creates the greatest concern in the community. Because the original process used to rank hazards in the Santa Barbara County 2011 HMP is not being utilized, an alternative approach was used by the MAC. The City of Santa Maria used the same system to remain consistent with the Santa Barbara County 2016 Multi-Jurisdictional Hazard Mitigation Plan, Section 5. A summary of the process and the results of the revised hazard ranking for the 2016 HMP Update are discussed below:

Ranking Tool Design

The ranking tool prioritizes hazards on two (2) separate factors:

- Probability of the hazard affecting the community
- Potential impacts of the hazard on the community

To further assist with the process; the following definition of "High", "Medium", and "Low" probability and impacts were utilized based on historic/prehistoric incidence (Law of

Uniformitarianism) or predicted to be possible from a reliable authority (USGS, NOAA, USFA, NFPA). The likelihood that a debilitating event would occur in any 5 year time span, as indicated in the Hazard Mitigation Planning time frame, is minimal for all hazards given the frequency of historic occurrence within the City of Santa Maria. However, as none of these events can be predicted and their impacts to life and property are significant, they are included in this plan.:

Probability

High- Highly Likely/Likely to happen in an undetermined future time frame.

Medium- Possible in an undetermined future time frame

Low- Unlikely in an undetermined future time frame barring significant changes.

Impact

High- Catastrophic/Critical: Major loss of function, downtime, and/or evacuations

Medium- Limited: Some loss of function, downtime, and/or evacuations

Low- Negligible: Minimal loss of function, downtime, and/or evacuations

Based on the revised list of hazards and utilizing the alternative approach, the LPT screened the hazards and assigned probable impacts based on local conditions. This hazard/risk profile differs from the Operational Area assessment. The results of the assessment are in **Table 15.7**. The shading of the matrix boxes indicates the priority level: red = tier 1; green = tier 2; and gray = tier 3.

Table 15.7 Hazard Screening and Ranking

Rank	High Impact	Medium Impact	Low Impact
High Probability	• Earthquake	• Drought/Water Shortage • Flooding • Severe Weather • Cyber Threat	• Well Stimulation / Hydraulic Fracking • Oil Spill • Agricultural Pests/Disease
Medium Probability	• HazMat Release • Energy Shortage	• Terrorism • Natural Gas Pipeline/Storage • Epidemic/Pandemic/Vector Borne Disease	•
Low Probability	• Dam Failure • Levee Failure • Radiological Accident	• Train Accident • Wildfire • Civil Disturbance	• Landslide/Other Earth Movements • Commercial/Military Aircraft Crash

Hazard	Mitigation Actions (See Section 15.7.5)
Earthquake	1, 2, 3, 4, 6, 7, 8, 10, 11
Drought/Water Shortage	4, 5, 11
Flooding	4, 5, 11
Severe Weather	6, 9, 10, 11
Cyber Threat	7, 11
Hazardous Materials Release	8, 9, 11
Energy Shortage	6, 11
Well Stimulation/Hydraulic Fracking	Santa Maria LMPT determined that existing regulatory systems are currently sufficient mitigation. Any additional impacts are equivalent to Hazardous Materials Release. No additional mitigation actions needed.

Oil Spill	Santa Maria LMPT determined that existing regulatory systems are currently sufficient mitigation. Any additional impacts are equivalent to Hazardous Materials Release. No additional mitigation actions needed.
Agricultural Pests/Disease	10, 11
Terrorism	7, 8, 9, 11
Natural Gas, Pipelines and Storage	8, 9, 11
Epidemic/Pandemic/Vector Borne Disease	This hazard is beyond the scope of the City. The City differs to State and County Public Health for appropriate mitigation actions.
Dam Failure	4, 5, 11
Levee Failure	4, 5, 11
Radiological Incident	8, 9, 11
Train Accident	8, 9, 11
Wildfire	Santa Maria LMPT determined that existing regulatory systems are currently sufficient mitigation. No additional mitigation actions needed.
Civil Disturbance	Santa Maria LMPT determined that existing regulatory systems are currently sufficient mitigation. No additional mitigation actions needed.
Landslide/Other Earth Movement	Santa Maria LMPT determined that existing regulatory systems are currently sufficient mitigation. No additional mitigation actions needed.
Commercial/Military Aircraft Accident	Santa Maria LMPT determined that existing regulatory systems are currently sufficient mitigation. No additional mitigation actions needed.

For the purposes of continuing compliance with the Disaster Mitigation Act of 2000, the City accepts the County's natural hazard profiles presented in Section 5 with the following notes. While

the County MAC considered Landslide/Coastal Erosion, Coastal Flooding, Sea Level Rise, Wildfire, Marine Invasive Species and Tsunami as potential hazards within the County, the City of Santa Maria Local Planning Team acknowledged these are either not a threat or highly unlikely within the City limits. The City does not agree with the assessment that Well Stimulation/Hydraulic Fracking is a hazard, but rather an oil extraction method. The hazard is ground water contamination or uncontrolled venting to atmosphere of hazardous gasses if those (or other) extraction methods are done incorrectly or their safety systems fail. However, it is listed in the State required list and was incorporated into the Operational Area list. Because it is, or has been, a technique of petroleum extraction in the Santa Maria Valley it remains on the list.

EARTHQUAKE

A more complete description of the Earthquake hazard is found in Chapter 5 of the Santa Barbara County Operational Area Hazard Mitigation Plan.

The City is in Seismic Zone 4, which is the highest potential status for earthquake in California. Many potential quake faults have been mapped in the Santa Maria Valley, as well as some areas that may be subject to liquefaction. However, there is a high likelihood that there are unidentified faults and unidentified areas of potential liquefaction in the area. Maps for the Santa Maria Valley available on the internet vary widely in shaking hazard potential. Maps included in this plan are based on data provided by the County of Santa Barbara as to be consistent with the Plan that this report is an annex to, and may under-estimate the shaking potential. Actual shaking during an earthquake will vary depending on the location and nature of the fault rupture.

Most impact analysis currently available on seismic risk in California are centered around the high population centers of the San Francisco Bay area and Los Angeles area. The Santa Maria area is on the edge of these models and is not as thoroughly assessed.

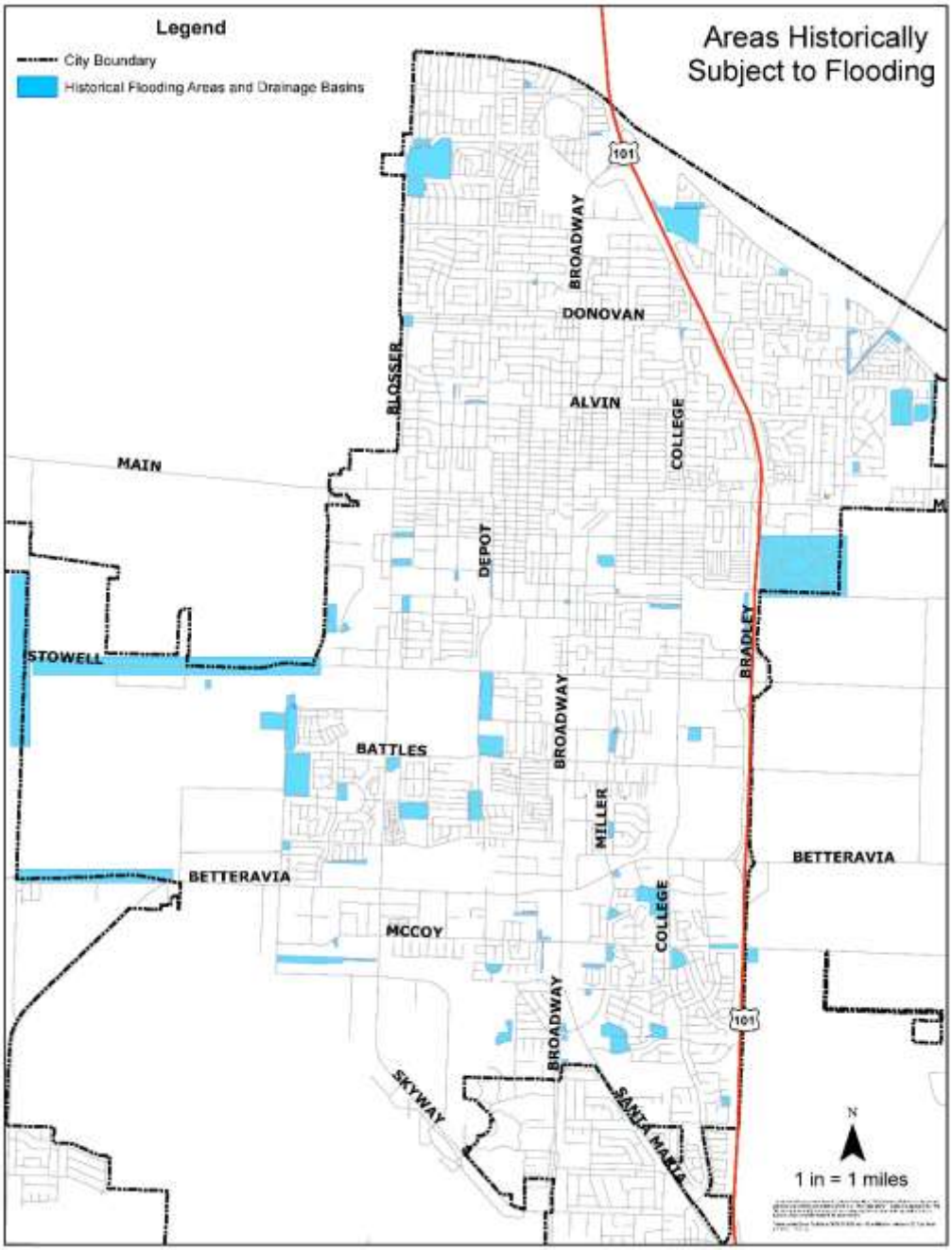
The most recent analysis of probability is provided in the Uniform California Earthquake Rupture Forecast, Version 3 from 2014 (http://pubs.usgs.gov/of/2013/1165/). Note that the report does not predict relative shaking or area impacted, but rather which known faults are likely to slip and relative probabilities of earthquakes on those faults to occur.

Map 2: Known Faults and Rupture Probability UCERF Ver. 3

(Base map Google Earth Pro. Data from http://www.wgcep.org/ucerf3)

LOCALIZED URBAN FLOODING

The City of Santa Maria is located at the floor of a valley, in a reclaimed riverbed. When the City was first developed, the pioneers diverted the Santa Maria River to create the corporate City limits. The Army Corps of Engineers subsequently constructed the Santa Maria River Levee to contain the river flow to the north end of the valley. Due to the relatively flat terrain, the City is subject to localized urban flooding during rainstorms and from agricultural irrigation runoff from the east side of the City. While the City has generally developed and maintained infrastructure to control storm water and agriculture water runoff, there are areas of the City which were annexed from the County which did not have adequate storm water and agriculture water runoff infrastructure in place.



Map 3: City of Santa Maria with Historic Flood Prone Areas

(from: http://www.cityofsantamaria.org/city-government/departments/fire-services/emergency-and-wet-weather-preparedness)

The City has an ongoing program of assessing the areas within the City that are subject to localized urban flooding and has allocated budget funds when available to improve the storm drain system. These areas include:

The Edwards Basin along Panther Drive, which floods in heavy rains and requires pumping to empty the water;

The intersection of Blosser Road at DeJoy and Creston;

Jones Street from Bradley to Suey near the Bradley Channel;

Inger-Broadway;

Miller Street at Mariposa;

Sonya and Depot;

Betteravia at the Mahoney "Y";

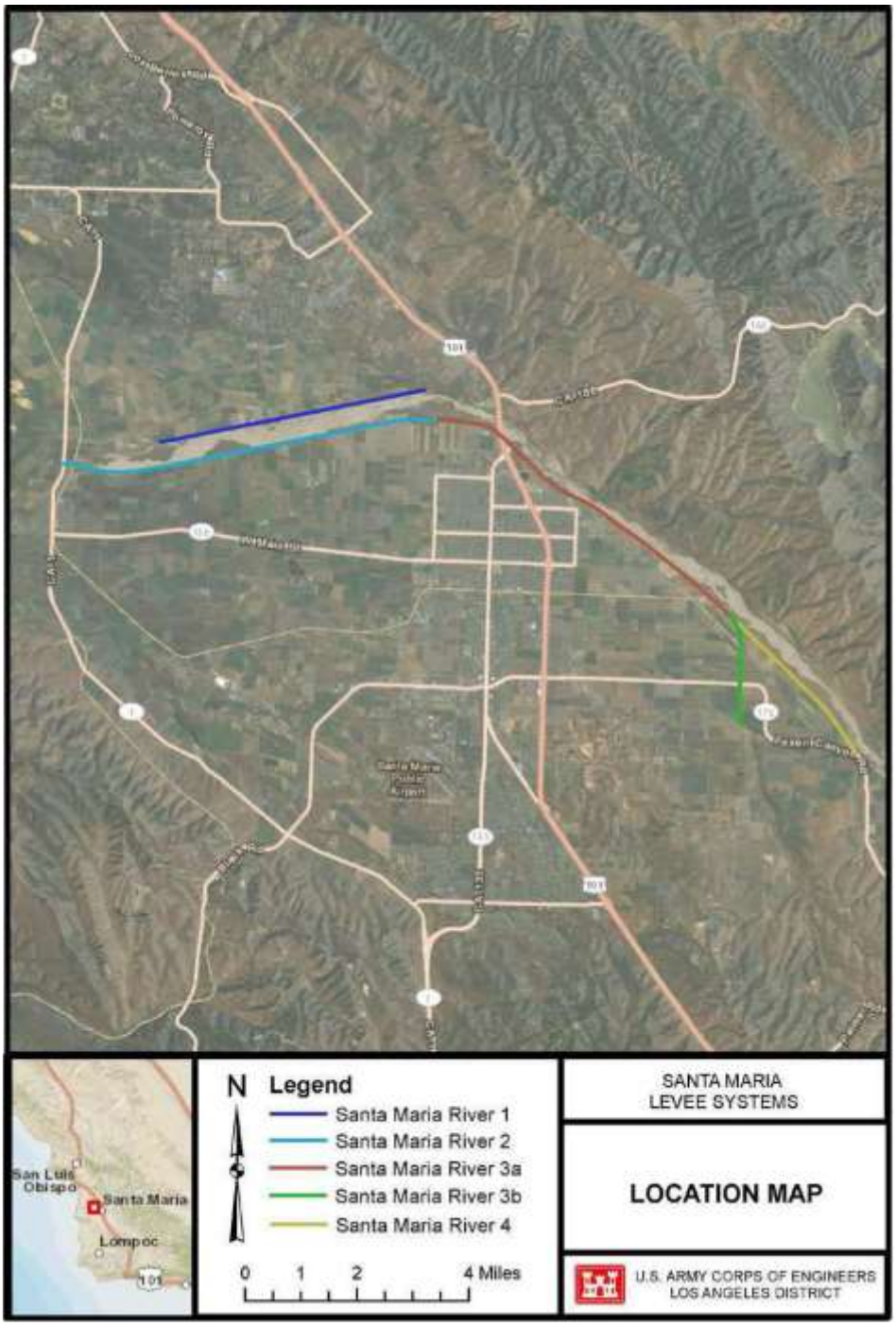
And sections of Black Road.

The LPG has identified two areas of the City that could benefit from the allocation of disaster mitigation funds to reduce the potential for damage from localized urban flooding.

1. The Country Club Estates Subdivision was annexed from the County of Santa Barbara and the downstream area (west) of that subdivision does not have adequate infrastructure to carry storm and agriculture water runoff and localized flooding has occurred.
2. The Hancock Park Subdivision has inadequate sized piping to carry the storm and agriculture water runoff and localized flooding has occurred. The existing infrastructure runs under the subdivision and adding to or expanding the existing piping is not feasible. An alternative routing of the new infrastructure needs to be done to adequately meet the needs.

SANTA MARIA RIVER LEVEE FAILURE

The City of Santa Maria is bordered on the north by the Santa Maria River Levee. The Santa Maria River is a seasonal river, carrying runoff from the Sisquoc Watershed, east of Santa Maria, and from the Cuyama Watershed via Twitchell Reservoir, northeast of Santa Maria.



Map 4: Location of Santa Maria River Levee Segments

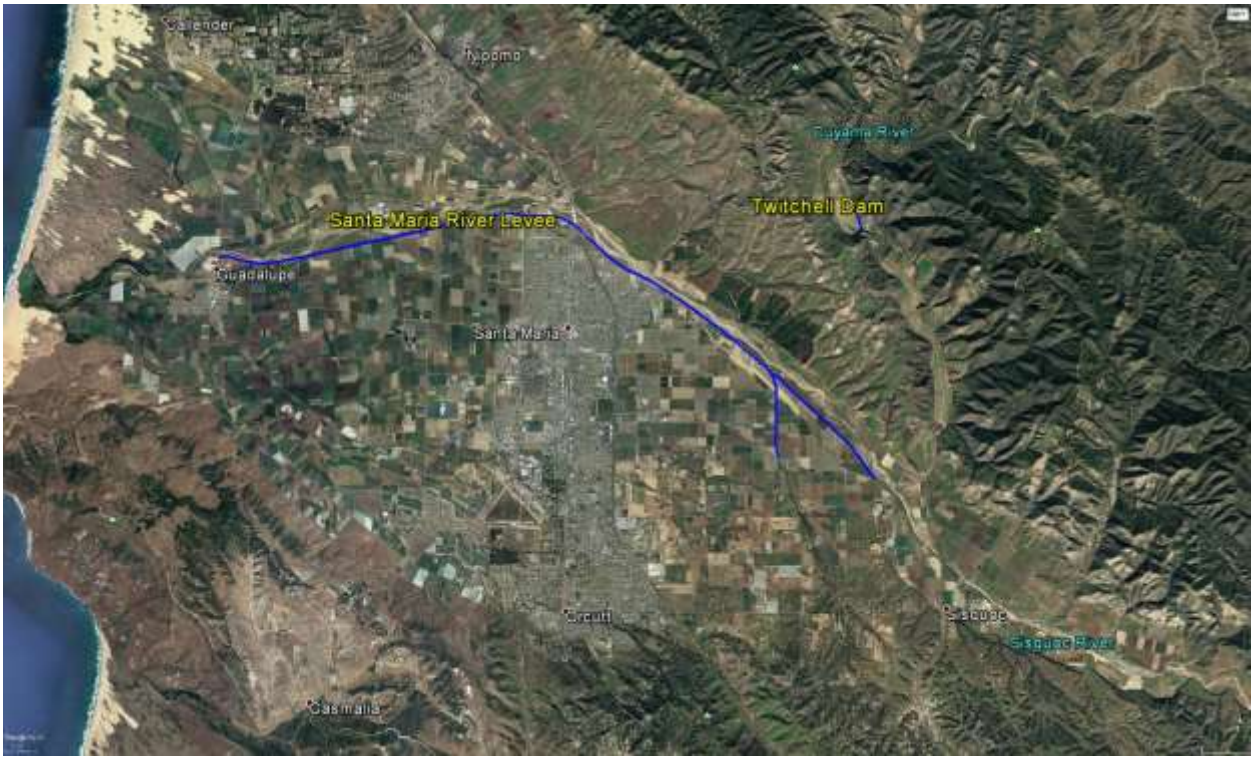
(from:http://www.spl.usace.army.mil/Portals/17/docs/LeveeSafetyProgram/Santa_Maria_River_3A_Levee_System_PI_Report_No-01_ES_M_20150506.pdf)

According to information provided by Santa Barbara County Flood Control officials, the Levee was constructed in a manner where it could be breached. The U.S. Corps of Engineers recently completed a project that installed a new levee system in front of the old levee. This repair brought

the levee up to current Army Corps of Engineers standards. Now that the levee has been rehabilitated, new flood mapping will be performed to calculate the impact. More detail is available in Section 5.4.18 of the Santa Barbara County 2016 Multi-Jurisdictional Hazard Mitigation Plan.

TWITCHELL (aka Vaquero) DAM FAILURE

The Twitchell Dam was constructed in the early 1950s to serve as a flood control and groundwater basin recharge tool. The dam receives runoff water from approximately 1,135 square miles of Cuyama watershed areas north and east of Santa Maria. The dam has a storage capacity of approximately 224,300 acre-feet of water. The dam is a seasonal water collection system and water is released on a regularly scheduled basis to recharge the groundwater basin in the Santa Maria Valley or to manage flooding in high rain events.



Map 5: Location of Twitchell Dam and Santa Maria River Levee.

(Base map from Google Earth Pro)

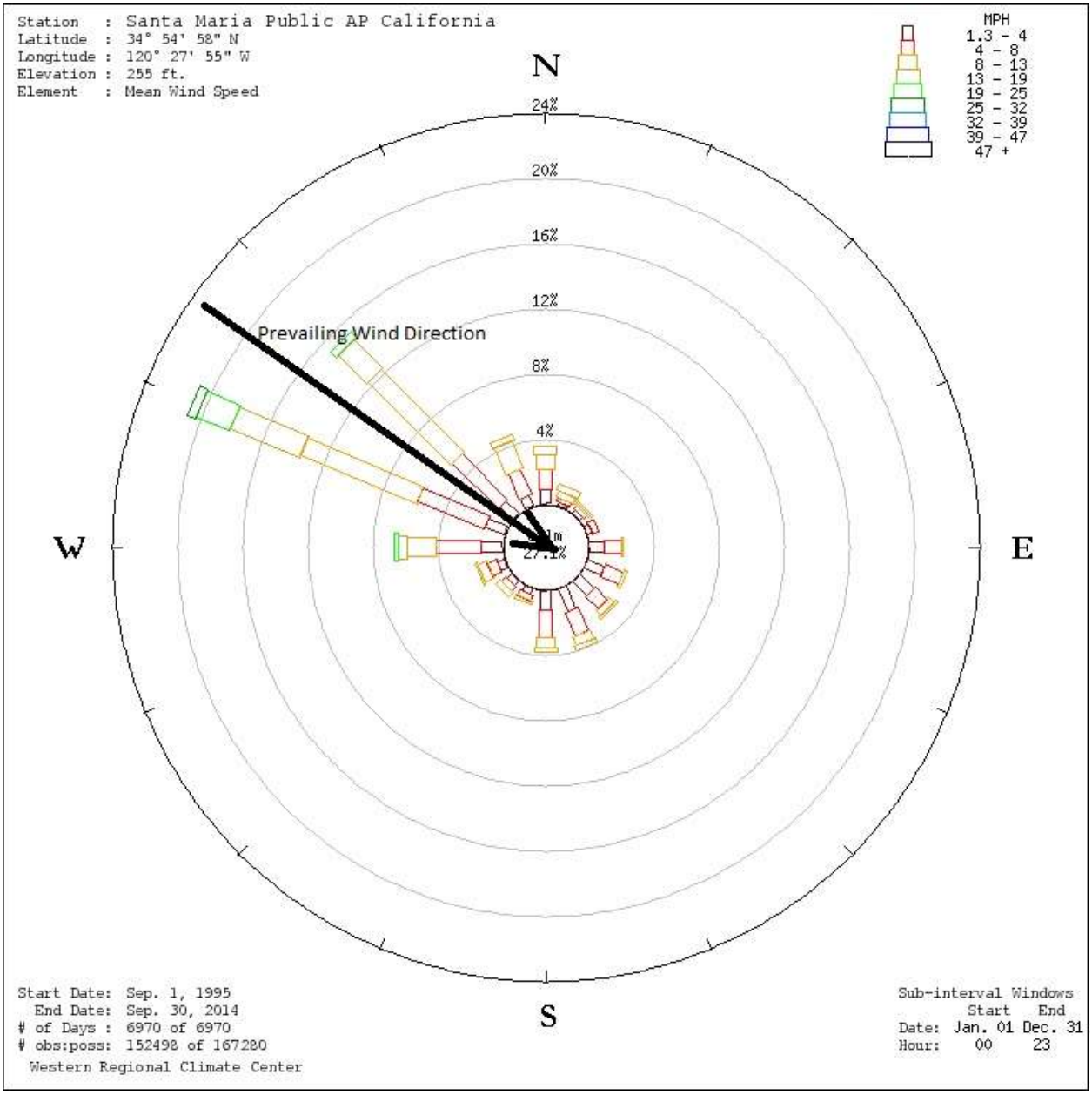
The Twitchell Dam is maintained by an on-site caretaker, and while the likelihood of a catastrophic failure of the dam is remote, the potential damage to the City of Santa Maria is significant should a failure occur.

Twitchell Reservoir and Dam is a U.S. Department of the Interior, Bureau of Reclamation facility. The Bureau maintains a plan that is available to response agencies.

HAZARDOUS MATERIALS RELEASE

The City of Santa Maria has numerous commercial and industrial businesses that utilize hazardous materials as part of their daily operations. In addition, the Santa Maria Valley is home to agricultural operations that produce a multitude of crops that are distributed both locally and worldwide. With these agricultural activities comes the use of agricultural related chemicals and refrigerants such as anhydrous ammonia.

Map 6: Prevailing Wind Direction, Santa Maria



Wind Rose for Santa Maria Airport

(from Western Regional Climate Center: http://www.wrcc.dri.edu/)

Petroleum production and transportation is also an industry in the Santa Maria Valley with over 100 years of history. The City relies on the California Department of Conservation, Division of Oil, Gas and Geothermal Resources (DOGGR) to monitor and manage the safety of well drilling and eventual decommissioning or abandonment. The County of Santa Barbara also monitors and regulates oil production in the Santa Maria Valley with an emphasis on environmental compliance and safety. Adequate monitoring and adherence to regulations are critical for the City as almost all petroleum wells (past and present) pass through the City's aquifer. Petroleum production in the Santa Maria Basin is also noteworthy in that it has the highest concentrations of Hydrogen

Sulfide (H_2S) in the State, with concentrations of 270,000 ppm. The reader is referred to Publication No. M10 *Drilling and Operating Oil, Gas, and Geothermal Wells in an H_2S Environment* (Dosch & Hodgson, 1997) published by DOGGR. Short term exposure and inhalation of over 600 ppm results in death within 15 minutes. Longer term exposures over 100 ppm can also result in death within hours.

For an annotated map of oil wells and status, the reader is referred to the California Division of Oil, Gas, and Geothermal Resources, Map 312:
(http://www.conservation.ca.gov/dog/maps/pages/d3_index_map1.aspx .)

In addition to the use and storage of hazardous materials in the City and surrounding valley, Santa Maria is near Vandenberg Air Force Base where a significant amount of hazardous materials are stored and used. While Vandenberg has an excellent safety record related to their hazardous materials, the threat of a significant release due to accidental or intentional acts is ever present. Should a significant release occur at Vandenberg, regional impacts would affect the City, but it would be unlikely to result in casualties as the prevailing winds would normally keep any airborne release South of the City.

The City has been very fortunate in the past and has had no serious releases of hazardous materials. Businesses that have sufficient material to pose a threat to large areas of the community are required to submit Risk Management Plans to the Santa Barbara County Environmental Health and Safety Division (CUPA) and to Santa Barbara County Fire Department which maintains the Hazardous Materials Response unit for the Operational Area. The City Fire Department is not large enough, nor has sufficient human and financial resources to create and maintain a certified hazardous materials response unit. Therefore, immediate response will be focused on area denial and either evacuation or Shelter in Place. Shelter in Place or evacuation will be determined by the City Fire Incident Commander based on the variables of the event (toxicity, concentration, humidity, winds, ability to move the population, etc.). In most cases, Shelter In Place will be required, as most material is too close to high density residential areas to allow for sufficient time to evacuate and to bring in busses for those who do not have transportation.

DIABLO CANYON NUCLEAR POWER PLANT

The Diablo Canyon Nuclear Power Plant, operated by the Pacific Gas and Electric Company (PG&E), is located on the San Luis Obispo County coast approximately 12 miles west of the City of San Luis Obispo and 30 miles northwest of the City of Santa Maria. PG&E announced in June 2016 that it intends to completely halt operations there by 2025 and retire the complex – California's last operating nuclear power plant.

Map 7: Ingestion Pathway Map, Diablo Canyon NPP

(from: http://www.slocounty.ca.gov/Assets/OES/Preparedness+Info/Ag+Brochure.pdf)

Emergency response action plans are not specifically required for Santa Barbara County for a nuclear power emergency at the Diablo Canyon Power Plant. There are no Protective Action Zone (PAZ's) or Public Education Zones (PEZ's) in Santa Barbara County or Santa Maria. However, the City of Santa Maria is located in the Ingestion Pathway area and is committed to a support role in the event of an emergency in San Luis Obispo County involving Diablo Canyon. While there is no plan to house or decontaminate evacuees in Santa Maria, the presumption is that evacuees will impact Santa Maria and Santa Barbara County based on evacuation patterns following the north/south transportation grid within the areas involved.

Emergency planning requirements for nuclear power plants are based on guidance from the Nuclear Regulatory Commission (NRC), Federal Emergency Management Agency (FEMA) and State Office of Emergency Services (OES). The State OES has established a planning area for the Diablo Canyon Power Plant that is larger than that required by the NRC and FEMA. The City of Santa Maria has adopted the official State emergency planning zones.

15.6 VULNERABILITY ASSESSMENT

The City of Santa Maria participated in the Operational Area Vulnerability Assessment and accepts the analysis as presented in Section 6 of the Santa Barbara County Operational Area Multi-Jurisdictional Hazard Mitigation Plan. A subset of that data is presented here specific to Santa Maria.

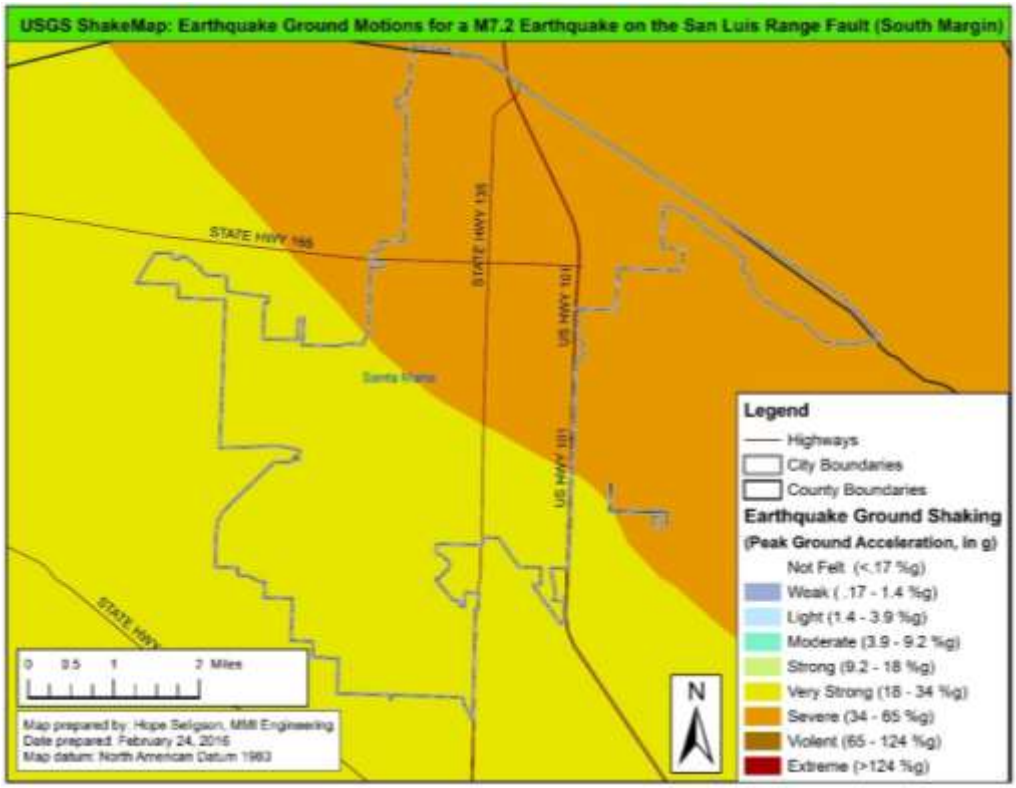
Earthquake (High Probability/High Impact):

The following information and figures (maps) are from HAZUS/MH with the default data set. In the future, it is the intent of the City to use local data sets with HAZUS/MH to get a more accurate assessment of potential impacts. For example, the default of W1, Wood Frame Structure is inaccurate for Four of the Six Fire Stations and Police Headquarters building which are built to California Essential Services Buildings standards. Schools are also subject to higher building standards as administered by the Division of the State Architect. Therefore, the assessment should be viewed as a worst-case scenario, with the likelihood that the Fire Stations and Police Headquarters would be intact and functional with some non-structural components potentially failing. Fire administration facility is an older school building and is not to current critical infrastructure standard and may experience some structural damage, although collapse would be unlikely. Many other City facilities are older, and pre-date the 1986 California Essential Services Buildings Seismic Safety requirement.

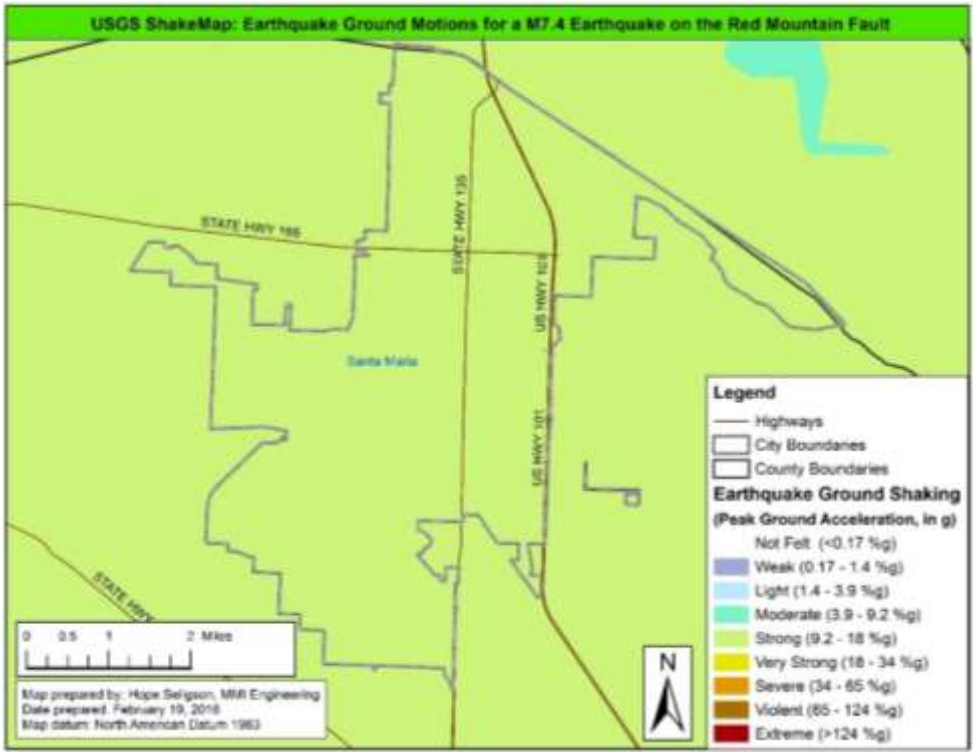
The City has an unreinforced masonry building ordinance. All known unreinforced masonry buildings have been retrofitted to meet seismic requirements. The City does have a significant number of buildings that are over 50 years old, and are subject to damage from a major quake but are not required to be retrofitted because of low occupancy. The Building Division has a list of buildings that have been retrofitted, need retrofitting, and those that are not required to be retrofitted. They are not reflected in the HAZUS/MH database.

The City's water reservoirs are located primarily below ground and are designed to resist a strong earthquake. However, the piping from the reservoirs to the City water system may be vulnerable to damage from a quake. Two of the City's reservoirs do not have seismic valves that would close in the event of an earthquake and retain the water in the reservoirs for domestic and firefighting use. The City also relies on well water and State Water pipeline for its drinking water. It is not uncommon for wells to fail (changes in water table or failure of well casing) during an earthquake. Pipelines are equally vulnerable to rupture if deformation or displacement is sufficient to cause pipe failure.

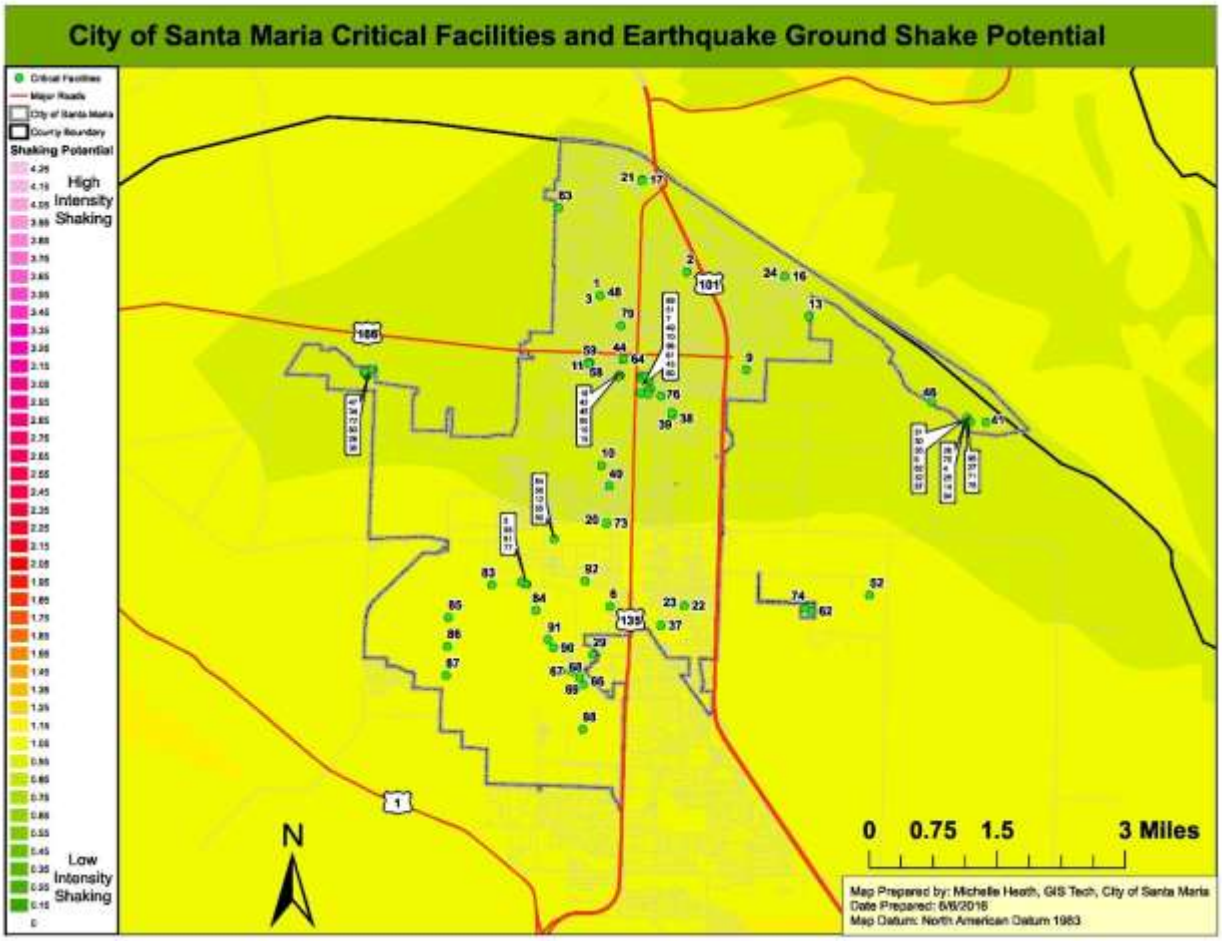
The City has sufficient capability to provide generator power to operate the water wells, and water reservoirs for life and safety needs, and full capability to provide generator power to operate the wastewater treatment plant during a prolonged power outage. The City also has significant capabilities to operate City fuel facilities during prolong power outages. This was not the case during earlier Hazard Mitigation Plans (2004, 2011). Those plans were used to prioritize projects that have increased the City’s ability to maintain services.



Map 8: Earthquake Ground Shaking from San Luis Range Fault Model

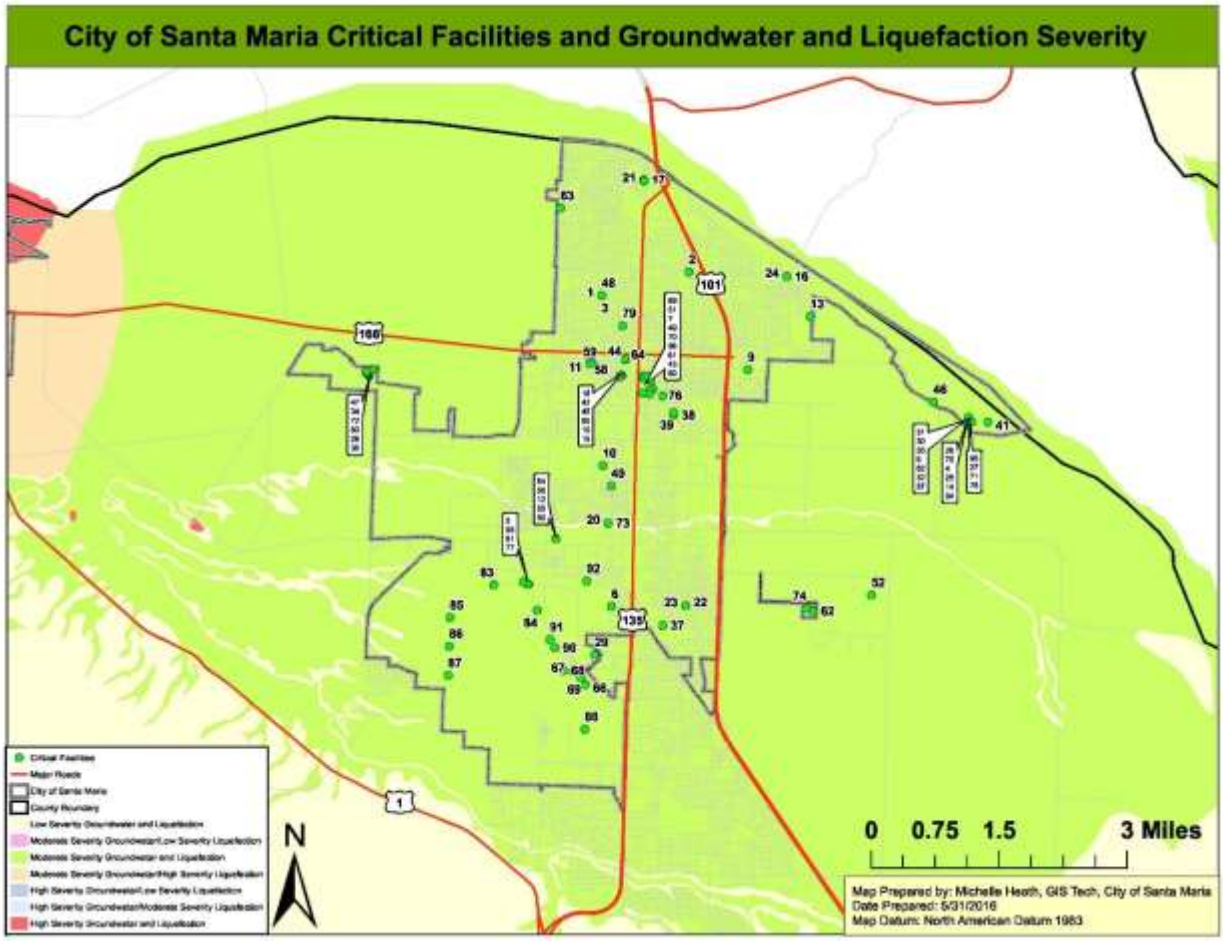


Map 9: Earthquake Ground Shaking from Red Mountain Fault Model



Map 10: Critical Facilities and Earthquake Ground Shaking

The Shaking Intensity shown on this map is provided by Santa Barbara County. As the valley is essentially unconsolidated Quaternary alluvium composed mostly of sand and sandy loam soils (see http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx for USDA soil maps and http://www.quake.ca.gov/gmaps/GAM/santamaria/santamaria.html for California Dept. of Conservation geological map), the actual shaking intensity will be dependent on the location and type of fault as well as the magnitude of the rupture and type of wave generated. Shaking will generally be more intense than areas on bedrock.



Map 11: Critical Facilities and Liquefaction Severity

This map is consistent with data currently available from the USGS (United States Geological Survey).

Table 15.8 City of Santa Maria Building Profile (from HAZUS)

Building Inventory Information by General Occupancy	Building Replacement Value ($1,000)	Contents Replacement Value ($1,000)	Building Square Footage (1,000 Sq. Ft.)	Estimated Building Count
Residential	$5,805,873	$2,903,431	42,812	23,720
Commercial	$1,302,757	$1,406,152	8,234	1,466
Industrial	$242,416	$337,707	1,732	302
Other	$242,664	$246,172	1,509	296
TOTAL	**$7,593,710**	**$4,893,462**	**54,287**	**25,784**

Selected Building Inventory Data by General Building Type	Building Replacement Value ($1,000)	Building Replacement Value (%)	Estimated Building Count	% of Building Count
Concrete	$406,298	5.4%	432	2%
Manufactured Housing	$103,051	1.4%	1,943	8%
Precast Concrete	$317,574	4.2%	384	1%
Reinforced Masonry	$522,472	6.9%	731	3%
Steel	$426,264	5.6%	459	2%
Unreinforced Masonry	$112,746	1.5%	134	1%
Wood Frame (Other)	$331,467	4.4%	374	1%
Wood Frame (Single-family)	$5,373,831	70.8%	21,329	83%
TOTAL	**$7,593,703**		**25,786**	

Notes:
1) Totals may not match due to rounding.
2) The distribution of buildings across the various construction classes is estimated using HAZUS' default relationships. The actual distribution may be different. For example, the California Seismic Safety Commission published results of unreinforced masonry building surveys (2006), which indicate that there were 24 URM buildings in Santa Maria (with a retrofit rate of 46 percent), vs. 134 URM buildings predicted by the default database.

Table 15.9 City of Santa Maria Predicted Earthquake Losses (from HAZUS)

		Earthquake Scenario	
		M7.4 Red Mountain Scenario	**M7.2 San Luis Range South Margin Scenario**
Direct Economic Losses for Buildings ($1,000)			
	Total Building Exposure Value	**7,593,710**	
Capital Stock Losses	Cost of Structural Damage	1,301	73,276
	Cost of Non-Structural Damage	15,809	305,015
	Total Building Damage (Str. + Non-Str.)	**17,110**	**378,291**
	Building Loss Ratio %	0.2%	5.0%
	Cost of Contents Damage	8,560	117,273
	Inventory Loss	239	2,228
Income Losses	Relocation Loss	248	34,302
	Capital-Related Loss	170	20,940
	Rental Income Loss	236	18,182
	Wage Losses	213	28,436

	Total Direct Economic Loss	**26,776**	**599,652**
	% Of Countywide Loss	**0.8%**	**73.1%**
Casualties			
Day Casualties	**Casualties - 2 pm**		
	Level 1 - minor injuries, basic first aid	2	259
	Level 2 - hospital treat & release	0	60
	Level 3 - injuries requiring hospitalization	0	9
	Level 4 - fatalities	**0**	**17**
	Total Casualties	**2**	**345**
Night Casualties	**Casualties - 2 am**		
	Level 1 - minor injuries, basic first aid	2	118
	Level 2 - hospital treat & release	0	19
	Level 3 - injuries requiring hospitalization	0	2
	Level 4 - fatalities	**0**	**3**
	Total Casualties	**2**	**142**

Shelter			
Shelter	Number of Displaced Households	0	348
	Number of People Requiring Short-term Shelter	0	363
Debris (thousands of tons)			
Debris	Brick, Wood & Other (Light) Debris	1.1	48.4
	Concrete & Steel (Heavy) Debris	0.5	87.9
	Total Debris	**1.6**	**136.3**
Building Damage Count by General Building Type (Based on HAZUS Default Building Data)			
Concrete	None	415	114
	Slight	16	142
	Moderate	1	107
	Extensive	0	53
	Complete	0	17
	TOTAL	**432**	**433**
Manuf. Housing	None	1599	28
	Slight	286	208
	Moderate	58	816
	Extensive	1	715
	Complete	0	176
	TOTAL	**1,944**	**1,943**
Precast Concrete	None	359	81
	Slight	22	116
	Moderate	3	134

	Extensive	0	42
	Complete	0	10
	TOTAL	**384**	**383**
Reinforced Masonry	None	715	268
	Slight	13	209
	Moderate	1	183
	Extensive	0	59
	Complete	0	11
	TOTAL	**729**	**730**
Steel	None	426	75
	Slight	27	102
	Moderate	5	171
	Extensive	0	90
	Complete	0	20
	TOTAL	**458**	**458**
Unreinforced Masonry	None	121	20
	Slight	12	38
	Moderate	1	47
	Extensive	0	22
	Complete	0	8
	TOTAL	**134**	**135**

Building Damage Count by General Building Type (Based on HAZUS Default Building Data, Continued)			
Wood Frame (Other)	None	360	104
	Slight	13	151
	Moderate	0	91
	Extensive	0	23
	Complete	0	4
	TOTAL	**373**	**373**
Wood Frame (Single-family)	None	20821	8533
	Slight	505	11161
	Moderate	3	1623
	Extensive	0	11
	Complete	0	0
	TOTAL	**21,329**	**21,328**
ALL BUILDING TYPES	None	24,816	9,223
	Slight	894	12,127
	Moderate	72	3,172
	Extensive	1	1,015
	Complete	0	246

	TOTAL	**25,783**	**25,783**

Notes:

1) Totals may not match due to rounding

		Earthquake Scenario	
	FACILITY TYPE	**M7.4 Red Mountain Scenario**	**M7.2 San Luis Range South Margin Scenario**
Fire Stations	**Santa Maria Fire Department**		
	Total Number of Facilities in HAZUS Default Database*	**7 (Stations 1 - 6, and Admin Office)**	
	Default Structural Class and Design Level	**W1 (Wood Frame ≤ 5,000 Sq Ft), Moderate Code Design Level**	
	Damage:		
	# Facilities with >50% Probability of Moderate or Greater Damage	0	0
	# Facilities with >50% Probability of Complete Damage	0	0
	Functionality:		
	Functionality < 50 % on Day 1	0	4 (Stations 1, 3, 5 & Admin Office)
	Functionality 50 - 75% on Day 1	0	3 (Stations 2, 4 & 6)
	Functionality >75% Day 1	7	0

Police Stations	**Santa Maria Police Department**		
	Total Number of Facilities in HAZUS Default Database	**1**	
	Default Structural Class and Design Level	**W1 (Wood Frame ≤ 5,000 Sq Ft), Moderate Code Design Level**	
	Damage:		
	# Facilities with >50% Probability of Moderate or Greater Damage	0	0
	# Facilities with >50% Probability of Complete Damage	0	0
	Functionality:		
	Functionality < 50 % on Day 1	0	1
	Functionality 50 - 75% on Day 1	0	0
	Functionality >75% Day 1	1	0
Schools	**Santa Maria - Bonita School District**		
	Total Number of Facilities in HAZUS Default Database	**19 Schools**	
	Default Structural Class and Design Level	**W1 (Wood Frame ≤ 5,000 Sq Ft), High Code Design Level**	
	Damage:		
	# Facilities with >50% Probability of Moderate or Greater Damage	0	0
	# Facilities with >50% Probability of Complete Damage	0	0

	Functionality:		
	Functionality < 50 % on Day 1	0	14 (Adam Elem., Alvin Elem., Bruce Elem., Oakley Elem., Sanchez Elem., Fairlawn Elem., Fesler Jr. High, Washington Battles Elem., Miller Elem., Ontiveros Elem, Rice Elem., Taylor Elem., Kunst Jr. High, & Tunnell Elem.)
	Functionality 50 - 75% on Day 1	0	5 (Arellanes Elem., Arellanes Jr. High, Bonita Elem., El Camino Jr. High, & Liberty Elem.)
	Functionality >75% Day 1	19	0
Schools	**Santa Maria Joint Union High School District**		
	Total Number of Facilities in HAZUS Default Database	**4 Schools**	
	Default Structural Class and Design Level	**W1 (Wood Frame ≤ 5,000 Sq Ft), High Code Design Level**	
	Damage:		
	# Facilities with >50% Probability of Moderate or Greater Damage	0	0
	# Facilities with >50% Probability of Complete Damage	0	0
	Functionality:		
	Functionality < 50 % on Day 1	0	2 (Pioneer Valley High & Santa Maria High)
	Functionality 50 - 75% on Day 1	0	2 (Delta High & Righetti High)
	Functionality >75% Day 1	4	0

** Note: The default fire station database was revised to include missing stations*

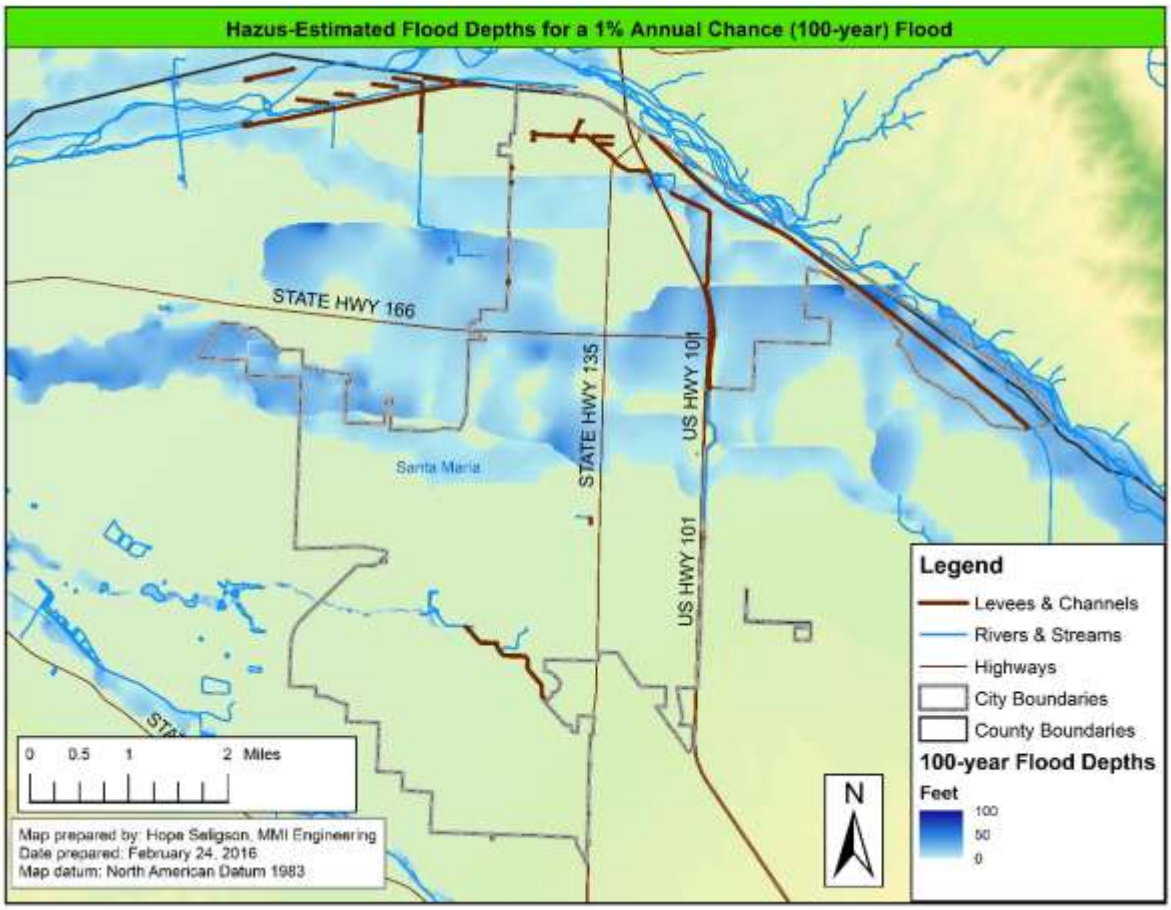
Flooding (High Probability/Medium Impact)

The following HAZUS model ignores levees and other human built structures in its estimation of flood inundation. This is intentional in order to predict worst case scenarios if those structures fail.

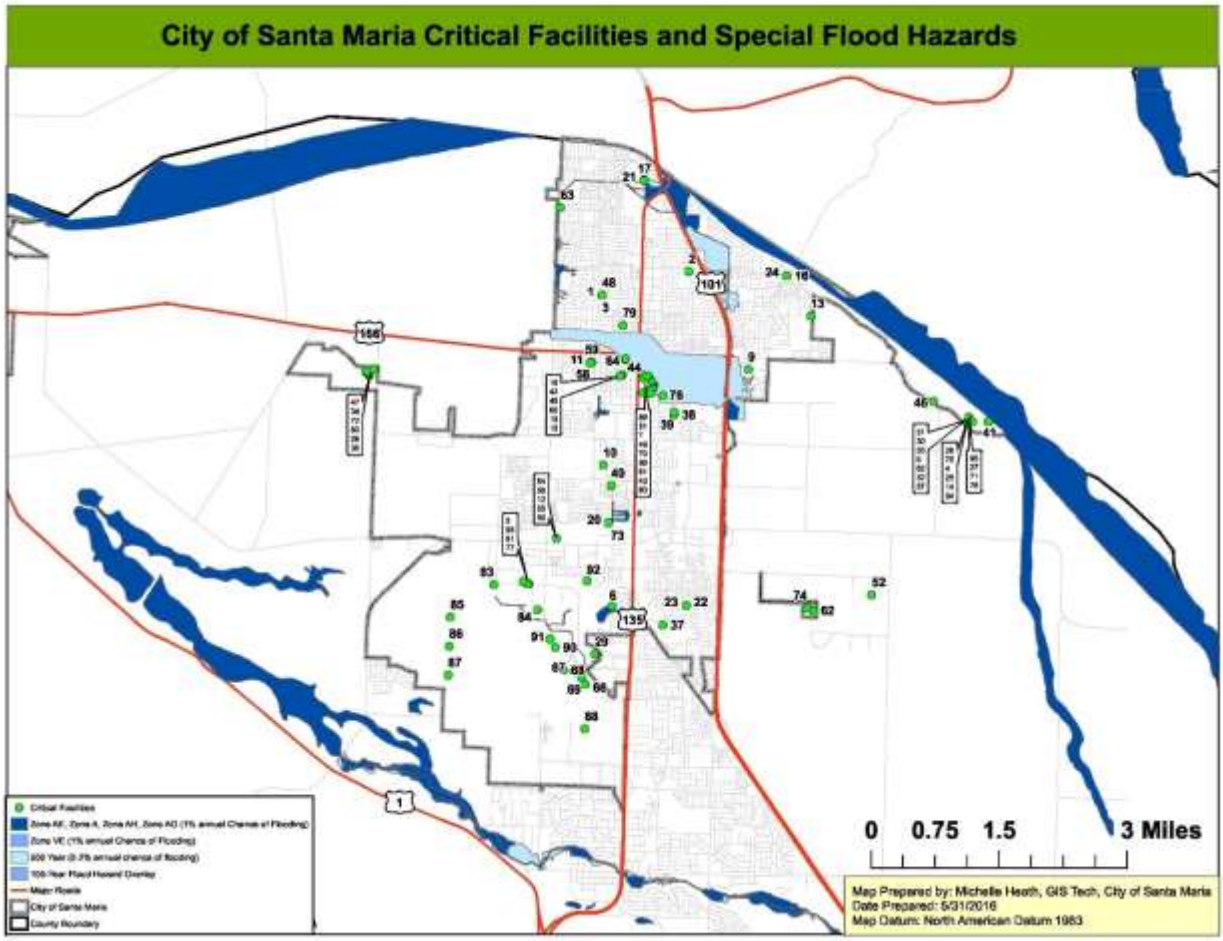
The map is also based on a 1 percent chance of this severity flood event occurring in any year (commonly referred to as a "100-year flood").

The City of Santa Maria has a Flood Plain Management Ordinance and Flood Plain Manager per NFIP. As stated above in section 15.4, the City has no Repetitive Loss Structures.

The Flood Plain Management Ordinance requires structure elevation and other mitigative measures that are addressed in the planning and environmental mitigation phases.



Map 12: HAZUS Estimated Flood Depths 100 yr. Flood Event



Map 13: Critical Facilities and Special Flood Hazards

This map may be compared to the flood hazard map from the HAZUS report earlier in this section. The HAZUS map ignores the presence of levees, dams, and other human made structures. This map was generated from DFIRM map information that pre-dates the reinforcement and redesign of the Santa Maria River Levee system described elsewhere in this plan.

Table 15.10 City of Santa Maria Predicted Flood Losses (from HAZUS)

		Flood Scenario
		1-percent chance annual flood (100-year flood)
Direct Economic Losses for Buildings ($1,000)		
	Total Building Exposure Value	**7,593,710**
Capital	Total Building Damage	355,023

	Building Loss Ratio %	4.7%
	Cost of Contents Damage	380,455
	Inventory Loss	4,532
Income Losses	Relocation Loss	1,205
	Capital-Related Loss	1,110
	Rental Income Loss	333
	Wage Losses	2,063
	Total Direct Economic Loss	**744,721**
	% Of Countywide Loss	65.8%
Shelter		
Shelter	Number of Displaced Households	47,058
	Number of People Requiring Short-term Shelter	45,437
Debris (thousands of tons)		
Debris	Finishes	29.0
	Structures	0.3
	Foundations	0.7
	Total Debris	**30.0**
Building Damage Count in Flooded Census Blocks by Occupancy		
Single Family Homes	None	1,874
	1 - 10%	1,441
	11 - 20%	2,066
	21 - 30%	722
	31 - 40%	551
	41 - 50%	209
	Substantial Damage	68
	TOTAL	**6,931**
Manufactured Housing	None	168
	1 - 10%	11
	11 - 20%	27
	21 - 30%	27
	31 - 40%	0
	41 - 50%	16
	Substantial Damage	34
	TOTAL	**283**
Building Damage Count in Flooded Census Blocks by Occupancy (Continued)		
Other Reside	None	60
	1 - 10%	8

	11 - 20%	19
	21 - 30%	8
	31 - 40%	0
	41 - 50%	0
	Substantial Damage	0
	TOTAL	**95**
Commercial	None	9
	1 - 10%	41
	11 - 20%	46
	21 - 30%	4
	31 - 40%	0
	41 - 50%	0
	Substantial Damage	0
	TOTAL	**100**
Industrial	None	0
	1 - 10%	1
	11 - 20%	4
	21 - 30%	0
	31 - 40%	0
	41 - 50%	0
	Substantial Damage	0
	TOTAL	**5**
Other Occupancies	None	4
	1 - 10%	6
	11 - 20%	1
	21 - 30%	0
	31 - 40%	0
	41 - 50%	0
	Substantial Damage	0
	TOTAL	**11**
ALL OCCUPANCIES	None	2,115
	1 - 10%	1,508
	11 - 20%	2,163
	21 - 30%	761
	31 - 40%	551
	41 - 50%	225
	Substantial Damage	102
	TOTAL	**7,425**

		Flood Scenario
	FACILITY TYPE	**1-percent chance annual flood (100-year flood)**
Fire Stations	**Santa Maria Fire Department**	
	Total Number of Facilities in HAZUS Default Database*	**7 (Stations 1 - 6, and Admin Office)**
	Flood Exposure	
	# facilities located within flooded areas	1 (Station 5)
	Damage:	
	# Facilities with Moderate or Greater Damage	1 (Station 5)
	# Facilities with Substantial Damage	0
	Functionality:	
	# facilities expected to be non-functional on Day 1	1 (Station 5)
Police Stations	**Santa Maria Police Department**	
	Total Number of Facilities in HAZUS Default Database	**1**
	Flood Exposure	
	# facilities located within flooded areas	0
	Damage:	
	# Facilities with Moderate or Greater Damage	0
	# Facilities with Substantial Damage	0
	Functionality:	
	# facilities expected to be non-functional on Day 1	0
Schools	**Santa Maria - Bonita School District**	
	Total Number of Facilities in HAZUS Default Database	**19 Schools**
	Flood Exposure	
	# facilities located within flooded areas	5 (Alvin Elem., Fesler Jr. High, Rice Elem., Tunnell Elem., Washington Battles Elem.)
	Damage:	
	# Facilities with Moderate or Greater Damage	2 (Alvin Elem., Fesler Jr. High)
	# Facilities with Substantial Damage	0
	Functionality:	

	# facilities expected to be non-functional on Day 1	5 (Alvin Elem., Fesler Jr. High, Rice Elem., Tunnell Elem., Washington Battles Elem.)
Schools	**Santa Maria Joint Union High School District**	
	Total Number of Facilities in HAZUS Default Database	**4 Schools**
	Flood Exposure	
	# facilities located within flooded areas	1 (Pioneer Valley High)
	Damage:	
	# Facilities with Moderate or Greater Damage	0
	# Facilities with Substantial Damage	0
	Functionality:	
	# facilities expected to be non-functional on Day 1	0

** Note: The default fire station database was revised to include missing stations*

Drought/Water Shortage (High Probability/Medium Impact)

The City of Santa Maria has an extensive aquifer that is fed by the Sisquoc and Cuyama watersheds. The City actively participates with regional partners and manages the groundwater basin in coordination with other basin stakeholders in the Santa Maria Valley Management Area. The City's Utility Department is the lead agency in the City on water management. The City is also a participant in the Coastal Aqueduct/State Water system. For additional information, the reader is referred to the 2014 Annual Report of Hydrogeologic Conditions, Water Requirements, Supplies and Disposition http://www.cityofsantamaria.org/home/showdocument?id=11806 . An example of the City partnering with other basin stakeholders to improve the water quality of the basin is a water pipeline to Nipomo Community Services District which is on the periphery of the basin from the main portion of the basin in Santa Maria. This provides higher quality water to the Nipomo urban area and prevents overdraft of the periphery of the basin which can jeopardize the quality of the water in the basin as well as the overall capacity of the basin http://ncsd.ca.gov/news-info/nipomo-supplemental-water-project/ .)

While the City is not experiencing a water shortage, it is within the Extreme Drought area of the State of California. (USDA National Drought Mitigation Center, California: http://droughtmonitor.unl.edu/Home/StateDroughtMonitor.aspx?CA .) The City will continue to identify ways to enhance water security.

Severe Weather (High Probability/Medium Impact)

Santa Maria is susceptible to the same weather patterns as other parts of Central and Southern California. While most of the time, the climate is mild, significant wind, rain, and temperature extremes can and do occur. As planetary warming continues, the severity of storms and weather

extremes are predicted to occur. The impacts on the community are mostly manifest on stress of the power grid and impacts on persons otherwise not protected from the elements in resilient structures. Impacts traditionally are limited requiring very few evacuations and limited casualties. The number of casualties may increase as the dependency on electricity continues to increase for home oxygen concentrators and other independent living assistive devices.

Weather Extremes, Santa Maria

Event	Date	Record
Highest Temperature	June 20th 2008	110 degrees Fahrenheit
Lowest Temperature	January 2nd 1976 and December 7th 1978	20 degrees Fahrenheit
Highest Rainfall	February 10th 1938	3.55 inches
Highest Recorded Wind Speed	NA	NA

(per National Weather Service eHalt Records Database: http://www.wrh.noaa.gov/lox/climate/ehalt.php?stn=alltime_min)

Dam Failure/Levee Failure (Low Probability/High Impact)

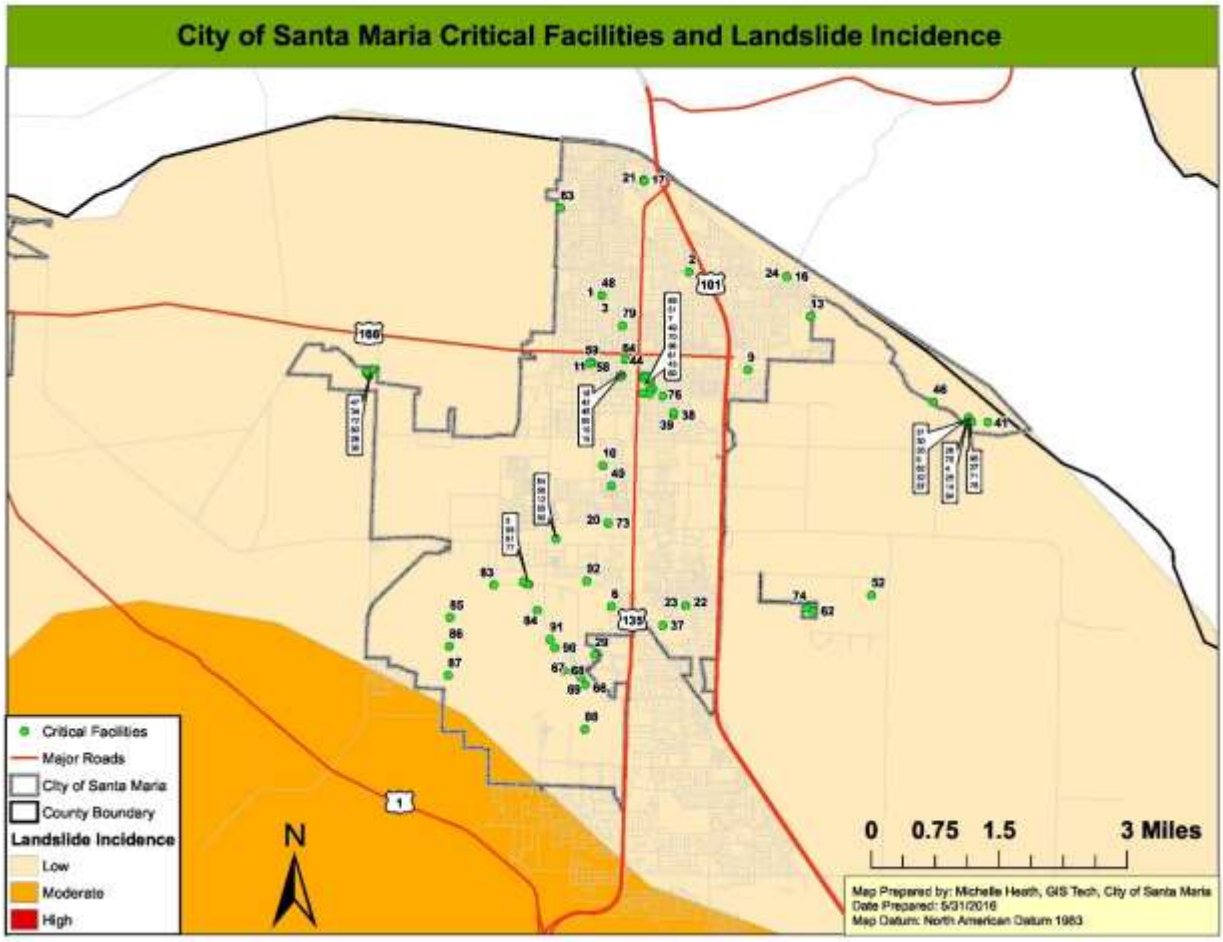
Dam failure is a remote possibility for the Santa Maria area. The Twitchell Dam is under the authority of the Department of the Interior, Bureau of Reclamation. The daily operations of the dam are overseen by the Santa Maria Valley Water Conservation District. They oversee the daily operations, maintenance and emergency planning for the dam in coordination with Santa Barbara County Public Works. Santa Barbara County Works Twitchell (aka Vaquero) Dam & Reservoir web page: http://cosb.countyofsb.org/pwd/pwwater.aspx?id=3732 . Santa Maria Valley Water Conservation District Web Page: http://www.smvwcd.org/ .

As the dam is a ground water recharge tool, it does not normally retain water, but manages the release of water to minimize downstream flooding and enhance the Santa Maria Valley Basin aquifer. The dam has a significant spillway to prevent overtopping of the earthen fill dam structure. The reader is referred to the Bureau of Reclamation Santa Maria Project website for details on the project and relevant response plans at: https://www.usbr.gov/projects/index.php?id=513. Some documents are protected under Department of Homeland Security and may not be available to the public.

Levee failure in the Santa Maria area has occurred with impact to local farming operations, but no evacuations or casualties. The Santa Maria River Levee is managed by the United States Army Corps of Engineers and Santa Barbara County Flood Control. The reader is referred to the USACE web site at: http://www.spl.usace.army.mil/Missions/Civil-Works/Levee-Safety-Program/ . The Levee is divided into management sections, with section 3a being most relevant to the City of Santa Maria.

While levee failure has been partially mitigated by recent improvements (see section 15.5 of this plan), the levee is at a fixed height and could be overtopped if sufficient flow existed. The watershed comprises an area of approximately 1,880 square miles. One of the predicted impacts of continued warming is energetic storms, which could produce rainfall amounts that would exceed infiltration rates and potentially be high runoff events. Impacts would be large evacuations, with minimal casualties (probably as a result of evacuation.) Current modeling does not take into consideration building elevations. This is an opportunity for further impact analysis.

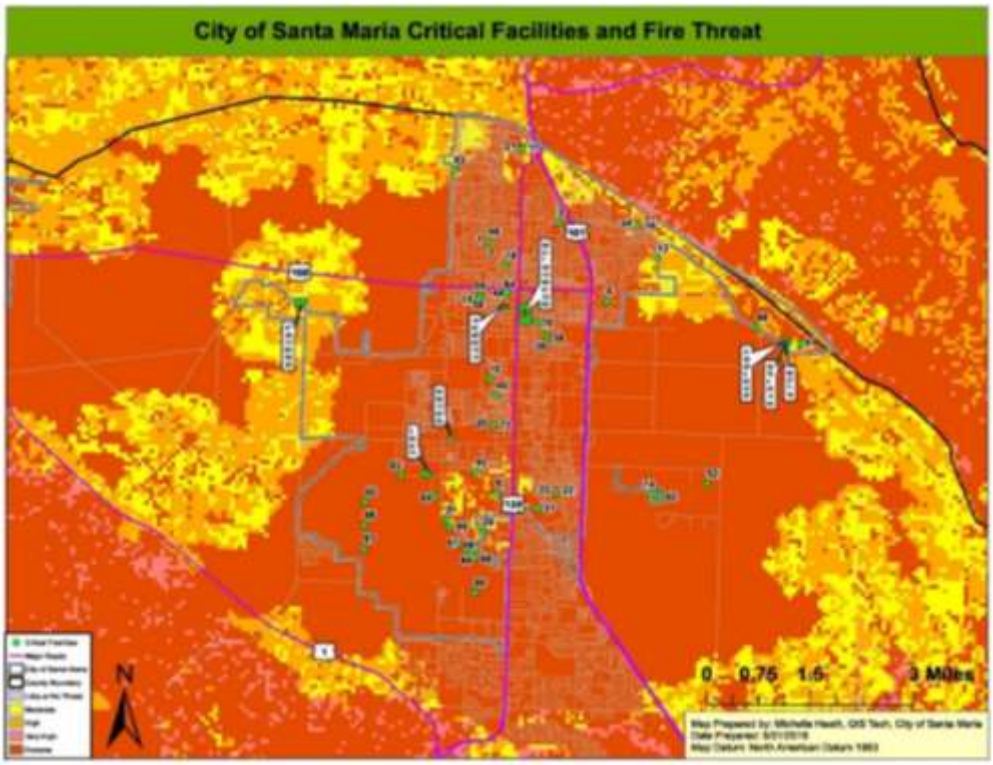
Landslide (Low Probability/Low Impact)



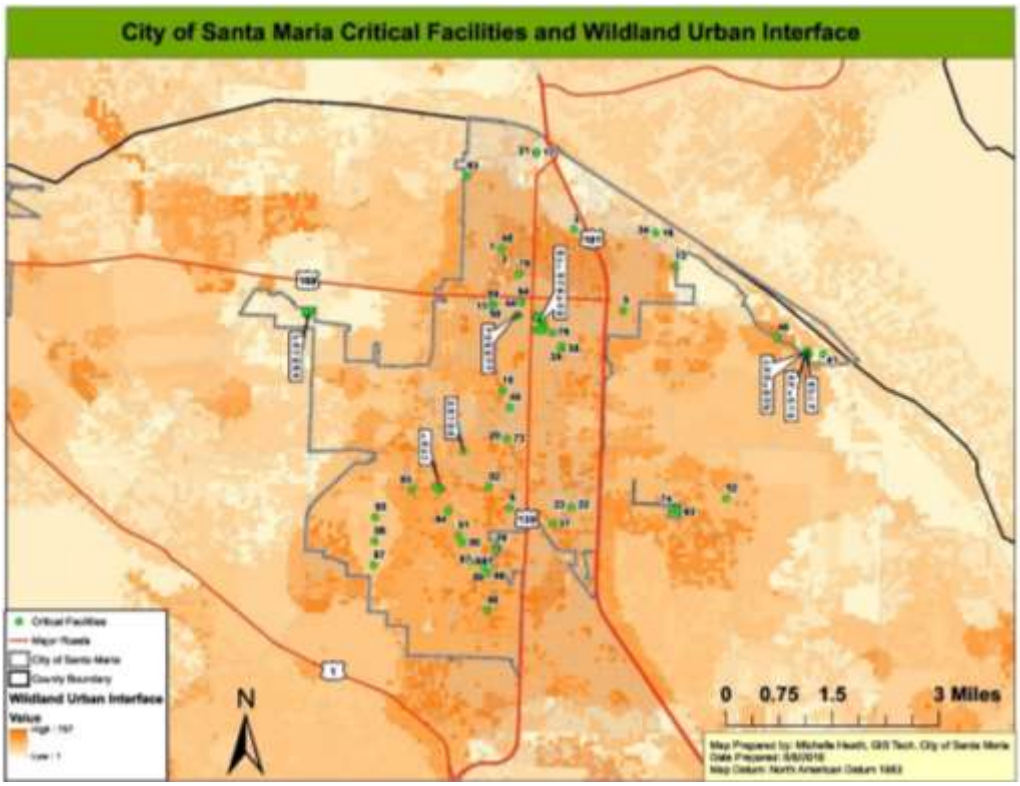
Map 14: Critical Facilities and Landslide Incidence

This map is consistent with the topography of the City. Santa Maria is a gentle sloping area in a riverine flood plain. Increase in risk would be man-made through excavation or other soil disturbance. While not a concern for the City, it is included to be consistent with the Operational Area plan.

Wildfire (Low Probability/Medium Impact)



Map 15: Critical Facilities and Fire Threat



Map 16: Critical Facilities and Wildland Urban Interface

The previous two fire hazard maps are generated from data provided by Santa Barbara County. They do not appear to have been ground-verified. Santa Maria is surrounded by irrigated row crop farms and has not experienced a wildfire environment since the late 19th Century and very early 20th Century. Although there are undeveloped lots and right-of-ways, vegetation growth is limited and required to be maintained. Landscaping and buildings are generally well maintained within the City Limits and do not currently create a regional wild fire hazard. The City's Recreation and Parks Department has an Urban Forestry unit that maintains public right of ways in addition to the park properties. The City also has an active Code Enforcement and Fire Prevention program that identifies at-risk properties and requires timely remediation where allowed by law. The City has an ISO (Insurance Services Office) Public Protection Classification of 3 (with 1 being the best and 10 not meeting minimum standards), last assessed in 2013. (The *Public Protection Classification Summary Report for Santa Maria California, November 2013* is available for review at Fire Administration, 314 W. Cook St. Suite 8, Santa Maria, CA 93458.)

There are potentially higher risk areas for urban fires, high occupancy housing units and older mobile home parks. The political challenges to enhance the safety of these areas and maintain sufficient cost effective housing is a growth area for most urban areas, including the City. The largest urban fires would likely be limited in geographic scope, but potentially high in displaced persons and casualties.

Energy Shortage (Medium Probability/Medium Impact)

Energy access is one of the key impacts of disasters that mitigation actions can have a significant influence on resiliency. Any event that disrupts power for more than a day, can cause significant social disruption, energy and potential deaths. The current reliance on relatively few power production stations with a power distribution grid spreading over thousands of miles of terrain with the myriad of threats and hazards that distribution system is subject to makes the normal operation of the system seem miraculous. The City of Santa Maria receives all of its commercial power from Pacific Gas and Electric (PG&E) and is near the end of it distribution system, making it more susceptible to power disruptions (as any failure has more area to occur between the end and the origin(s) of the system).

The City has limited ability to affect resiliency in the power distribution system. It actively participates in reducing its power usage and partners with PG&E, the State of California and Federal energy conservation programs.

Legislative opportunities exist at the State level to encourage a more geographically disbursed and redundant power distribution system, including urban solar systems. The need exists for more backup generator capacity in our daily supply system (fueling stations, grocery stores, clinics, dialysis centers, independent living senior housing, etc.) The State is encouraged to find opportunities to require backup generation for key societal infrastructure. We require fire suppression systems and Carbon Monoxide detectors. It can be argued that backup generation is more critical in life safety and certainly more impactful on community resiliency.

As more people continue to live independently, the distribution of life sustaining equipment that requires power is also increasing. The City will continue to have limited ability to respond to this

challenge. Residents are encouraged to work with their support systems and neighbors to enhance their personal preparedness.

Agricultural Pest/Disease (High Probability/Low Impact)

Santa Maria's economy has a significant agricultural base. Any impact on the sustainability of agriculture in the area would have a significant impact on the local economy and people's livelihood who are dependent on agricultural jobs and related service industries. According to the 2010 Census, approximately 16% of the population of Santa Maria work in agriculture (http://www.sbcag.org/uploads/2/4/5/4/24540302/santa_barbara_county_employment_characteristics.pdf .). For more information the reader is referred to County of Santa Barbara Agricultural Commissioner http://cosb.countyofsb.org/agcomm/) and http://www.sbcag.org/uploads/2/4/5/4/24540302/santa_barbara_county_employment_characteristics.pdf . Agricultural pests are monitored internationally, at the Federal, State, and County levels. Mitigative efforts begin at early stages of infestation. While infestations have occurred locally that have destroyed certain crop segments (for example potatoes in the Santa Maria Valley, personal communication Teixeira Farms), the local climate makes the ability to switch to another disease resistant crop (or at least a different disease) relatively easy, making long term impacts less likely. Different crops will respond differently to continued global warming, with some thriving and others becoming more susceptible to disease. Agricultural industries will continue to adapt with the support of continued research.

Epidemic/Pandemic/Vector-Borne Diseases (Medium Probability/Medium Impact)

For details on Epidemic/Pandemic/Vector-Borne Diseases, the reader is referred to the 2013 State of California Hazard Mitigation Plan, Chapter 6.6.3 and the 2016 Santa Barbara County Operational Area Hazard Mitigation Plan (of which this plan is an annex to) Chapter 6.4.7.

Historic impacts of communicable diseases suggest that in the worst case, community wide impacts can include disruptions in supply chain, service delivery systems, retail, and food service businesses as the affected individuals and their families become unable to work as well as others avoiding unnecessary social contact. Significant economic disruption is predicted. Health care systems will also likely become overwhelmed. Modern worldwide monitoring and pharmacology increase the chances of effectively mitigating outbreaks. However, modern transportation systems make the chances of rapid global spread a daunting challenge.

The City relies on the Federal, State, and County Health and Human Services systems to monitor and mitigate potential catastrophic disease outbreaks. The City as one of the largest local employers will implement workplace safety protocols to limit the spread of disease and maintain critical services.

Hazardous Materials Release (Medium Probability/High Impact)

Hazardous materials are addressed in the 2016 Santa Barbara County THIRA. For additional information, the qualified reader is referred to that document or to the Santa Barbara County Office of Emergency Management.

Hazardous materials are also addressed in this document as a component of petroleum production, processing, and transportation, as well as railroad and Diablo Canyon NPP sections.

There are a variety of hazardous materials, from individually packaged items available in stores and homes to large amounts used in manufacturing and industrial processes. In most cases, the larger amounts have the most potential for area wide impacts, and are regulated by a variety of Federal, State, and County agencies and programs. It is because of this regulatory framework that the probability is listed as medium. Leaks and releases have, and will occur, however, they are usually limited in scope and rarely result in significant evacuations or casualties.

The potential exists as infrastructure ages and as political will changes for this category of hazard to increase in potential and effect. In the Santa Maria area, many significant users and producers of hazardous materials are upwind and close enough to high density housing areas that there will be no warning between a release and its impact on people in their homes.

Categories of the most hazardous chemicals common in the Santa Maria area are Anhydrous Ammonia used as a refrigerant in agricultural coolers/warehouses, pesticides, herbicides, and fungicides stored at agrichemical service providers and farms and administered on neighboring farms. There are other chemicals used in industrial processes that may be safe in their normal form, but can create toxic byproducts if burned.

Well Stimulation/Hydraulic "Fracking", Oil Spill, and Other Petroleum Production and Transportation Hazards (High Probability/Low Impact)

The City is located in an historic oil production area, with a history of oil production extending over a century. Native Americans collected asphaltum from surface seeps and beach deposits for thousands of years in this area. Petroleum and petroleum byproducts are inherently flammable and toxic if ingested, inhaled or otherwise handled improperly. Petroleum products are refined and transported daily in large quantity, with most automobiles carrying approximately two gallons of lubrication/hydraulic oil and twenty gallons of fuel, usually gasoline. Commercial equipment has considerably more, and all of those needs are transported and stored daily over highways, railroads, and pipelines to fueling stations widely distributed over the landscape. While the potential for localized events remain, and have occurred, the fact that so few events have created any significant impact illustrates this as a low impact event. The role of regulatory compliance and safety engineering should not be underestimated in mitigating this potentially lethal material.

The continued safe production of petroleum is reliant on a robust regulatory system to ensure compliance. The City has had thousands of oil production wells within its jurisdiction over the last 100 years, but as our population has increased, high density residential areas now exist next to oil production and transportation systems, and in some cases on top of decommissioned wells and other infrastructure. These wells also traverse through the City's aquifer. Any failure or inadequately decommissioned well has the potential to contaminate the aquifer. The extremely high Hydrogen Sulfide gas concentrations in the oil production basin, in addition to the normal risks of petroleum, require continued vigilance to ensure the safety of our residents and visitors. These regulatory processes exist outside of the City's legal jurisdiction. Continued engagement with County, State, and Federal agencies is required to ensure the safety of Santa Maria area residents.

For a map of interstate pipelines, qualified government and emergency services personnel are referred to the National Pipeline Mapping System of the Dept. of Transportation: https://www.npms.phmsa.dot.gov/default.aspx . Pipelines in California (intrastate) are regulated by the State Fire Marshal. Natural Gas pipeline infrastructure maps are available California Dept. of Energy: http://www.energy.ca.gov/maps/infrastructure/Natural_Gas_Pipelines.pdf .

Hydrogen Sulfide releases in Santa Maria would likely result in very large evacuations (thousands) and result in significant casualties. Impact modeling is an opportunity for future hazard mitigation plan updates.

Radiological Accident/Diablo Canyon NPP (Low Probability/High Impact)

PG&E manages the Diablo Canyon Nuclear Power Plant (DCNPP). While current plans are to shut down electrical generation by 2020, on site storage of radioactive material will continue until the regulatory system creates an acceptable reprocessing, waste diversion and sequestration system. The DCNPP is highly regulated and a catastrophic release of radiological material is extremely remote. However, if such an event did occur, it would have long-term sociological and economic impacts.

Santa Maria lies outside of the current State and Federal Emergency Protective Zones (which could include shelter in place or evacuation.) However, the City and environs are well within the 50-mile ingestion pathway zone which extends for 50 miles from the plant. As the City is downwind from the DCNPP, long term impacts would probably result in spontaneous mass evacuation and collapse of the local economy. While it would likely be safe to live here, the stigmatization would make it highly likely that there would be significant long term social disruption and community relocation.

Train Accident (Low Probability/Medium Impact)

The City of Santa Maria is home to the Santa Maria Valley Railroad (SMVR). The SMVR is a low speed system that serves local industries in transportation of bulk materials needed for manufacture and in the export of products. The SMVR also stores product in rail cars on sidings and track for a variety of customers. The low speed of rail cars and small consists (number of cars in the train) in the area minimizes the risk of spillage or rupture as most railcars are built to be resilient. While the risk of an accident is small, the potential impact has dramatically increased as population density and development have occurred downwind and next to rail transportation corridors and their industrial customers. Most rail accidents happen at significant speeds or during the loading or unloading of product. Therefore, the most likely scenario would be an accident during the transfer of a hazardous material. The City currently does not have a regulatory method to monitor or manage rail operations in the City. The City does not have sufficient resources to respond to a hazardous material spill of any significant size. As most materials within rail cars are unknown to initial responders, any gaseous or odiferous spill would immediately result in area denial and evacuations. Impacts would be determined by the toxicity, volatility, or flammability of the material. Worst case scenario would be thousands of evacuees and hundreds of casualties, especially if it occurred next to high density residential areas. It is important to note that there have been very few accidents on the SMVR system throughout its history, and none have resulted in evacuations or significant number of casualties.

Map 17: Santa Maria Valley Railroad

(From: http://www.smvrr.com/map.html)

Terrorism (and Other Criminal Acts) (Medium Probability/Medium Impact)

For a more detailed overview, the qualified reader is referred to the 2016 Santa Barbara County Operational Area THIRA.

Terrorism is defined as follows (from https://www.fbi.gov/investigate/terrorism):

> 18 U.S.C. § 2331 defines "international terrorism" and "domestic terrorism" for purposes of Chapter 113B of the U.S. Code, entitled "Terrorism."
>
> **"International terrorism" means activities with the following three characteristics:**
>
> - Involve violent acts or acts dangerous to human life that violate federal or state law;
> - Appear to be intended (i) to intimidate or coerce a civilian population; (ii) to influence the policy of a government by intimidation or coercion; or (iii) to affect the conduct of a government by mass destruction, assassination, or kidnapping; and

- Occur primarily outside the territorial jurisdiction of the U.S., or transcend national boundaries in terms of the means by which they are accomplished, the persons they appear intended to intimidate or coerce, or the locale in which their perpetrators operate or seek asylum.*

"Domestic terrorism" means activities with the following three characteristics:

- Involve acts dangerous to human life that violate federal or state law;
- Appear intended (i) to intimidate or coerce a civilian population; (ii) to influence the policy of a government by intimidation or coercion; or (iii) to affect the conduct of a government by mass destruction, assassination. or kidnapping; and
- Occur primarily within the territorial jurisdiction of the U.S.

18 U.S.C. § 2332b defines the term "federal crime of terrorism" as an offense that:

- Is calculated to influence or affect the conduct of government by intimidation or coercion, or to retaliate against government conduct; and
- Is a violation of one of several listed statutes, including § 930(c) (relating to killing or attempted killing during an attack on a federal facility with a dangerous weapon); and § 1114 (relating to killing or attempted killing of officers and employees of the U.S.).

Other crimes can occur that have the same impact on a community, but may not be politically motivated and therefore would not be classified as Terrorism. In some cases, the intent of the event may not be known, but the impact on the community is the same. For example, an industrial accident or transportation accident may be intentional or an act of sabotage.

In any event, the mitigation of such actions is a challenge. Regulation of potentially harmful substances during their manufacture and transportation certainly is helpful. The identification and tracking of individuals and organizations who may have the intent to do harm is balanced against civil liberties in the United States. People who intend to create mayhem are only limited by their imagination.

Fortunately, except in a very few instances, the ability to debilitate a community is more difficult than the perpetrators may have imagined. Certainly, such acts are shocking, painful, and despicable, but rarely do they result in mass evacuations. Casualties can exceed local response capability (classified as Mass Casualty Incidents), but are transitory. The psychological and social impacts to the event may create more challenges than the initial incident.

Civil Disturbance (Low Probability/Medium Impact)

Civil disturbances in Santa Maria have been limited to Constitutionally protected speech, with very little social disruption, violence or destruction, with the largest demonstrations associated with agricultural labor movements and social justice issues. As the City becomes more diverse and the population continues to increase, the problems of larger urban centers will likely manifest here as well. The City can mitigate those impacts by concerted efforts at whole community outreach, perceived fairness to all residents, and earnestly addressing issues of grave concern to any segment of the community. City leaders are encouraged to take Crisis Communications courses and the City is evolving its ability to constructively engage with the community using emerging social media tools. While the risk of a Civil Disturbance is low given local history, the potential impacts are also relatively low and would likely be transitory.

Cyber Threat (High Probability/Medium Impact)

The City of Santa Maria faces the same vulnerability to Cybercrime as any modern municipality. The City does have an Information Technology division in the City Manager's Office which has a security plan. More information may be found by qualified agencies in the 2016 THIRA.

The City does participate in security audits per Dept. of Justice regulations and other State and Federal laws, policies, and procedures.

Economic impacts on banking, financial, and retail sectors could be significant. Few life necessary systems are currently vulnerable in the City (not connected to the internet). Continued security audits and additional attention to this emerging threat is warranted.

Aircraft Crash (Low Probability/Low Impact)

The Santa Maria Public Airport District is located adjacent to the City of Santa Maria. As of the time of this plan (December 2016), only occasional commercial traffic is handled at the airport. Private and leased aircraft use the airport and a National Forest Service Air Attack base is hosted at the airport. Santa Maria is located along the Pacific Flyway so aircraft traveling along the Pacific Coast of the United States are often in or near the airspace controlled by the Santa Maria FAA tower.

The airport and neighboring jurisdictions, including the City, maintain special zoning to manage appropriate development in the approach and take off zones of the airport, which are potentially the most hazardous times in flight operations. The scarcity of aircraft crashes, and their relatively small area of effect place this event as a low probability/low impact event. There are no high-density housing areas within approach and take off zones. There are single family residences, commercial, and industrial facilities near approach and takeoff zones.

Critical Infrastructure

The following is the table of City of Santa Maria Critical Infrastructure buildings and infrastructure (not including linear systems such as water, sewer, streets, etc.) The number corresponds with the map locations above. Building value and contents values are based on most recent evaluations. Hazard columns were generated from the GIS based on data provided by Santa Barbara County.

Table 15.11 City of Santa Maria Critical Infrastructure

Bldg	Bldg Name	Bldg Value	Contents Valu	EQ Shake Po	FireThreat	EQ Liquifactio	Land Slide	FloodHaz	WildUrbInt
1	Allan Hancock College/Atkinson learning center	412896	0	YES	YES	YES	LOW	NO	YES
2	AMR Lease	609290	0	YES	YES	YES	LOW	NO	YES
3	Atkinson Recreation Building	1738831	14926	YES	YES	YES	LOW	NO	YES
4	Baler (Contractor: CCRR)	400000	200000	YES	YES	YES	LOW	NO	YES
5	Blending Station	1203721	9460044	YES	YES	YES	LOW	NO	YES
6	Bower Lift Station	0	100000	YES	YES	YES	LOW	YES	YES
7	City Hall Offices	3766022	1703246	YES	YES	YES	LOW	YES	YES
8	Co-Gen Facility (Contractor: J&A)	0	1500000	YES	YES	YES	LOW	NO	YES
9	Co-Gen Facility (Contractor: J&A)	0	2000000	YES	YES	YES	LOW	NO	YES
10	Community Center	3525228	36503	YES	YES	YES	LOW	NO	YES
11	Corporation Yard	499254	112045	YES	YES	YES	LOW	NO	YES
12	Dispatch Equipment	0	3000000	YES	YES	YES	LOW	NO	YES
13	Edwards Community Center	2343345	36738	YES	YES	YES	LOW	NO	YES
14	Emergency Generator House	20000	100000	YES	YES	YES	LOW	NO	YES
15	Fire Administrative Headquarters	0	0	YES	YES	YES	LOW	NO	YES
16	FIRE STATION	2139691	69787	YES	YES	YES	LOW	NO	YES
17	FIRE STATION	2139691	512490	YES	YES	YES	LOW	NO	YES
18	Fire Station	2346276	271666	YES	YES	YES	LOW	NO	YES
19	Fire Station #1	0	0	YES	YES	YES	LOW	NO	YES
20	Fire Station #2	0	0	YES	YES	YES	LOW	NO	YES
21	Fire Station #3	0	0	YES	YES	YES	LOW	NO	YES
22	Fire Station #4	2187634	62791	YES	YES	YES	LOW	NO	YES
23	Fire Station #4	0	0	YES	YES	YES	LOW	NO	YES
24	Fire Station #5	0	0	YES	YES	YES	LOW	NO	YES
25	Fire Suppression Pump House	20000	370000	YES	YES	YES	LOW	NO	YES
26	Fire Suppression Tank	0	300000	YES	YES	YES	LOW	NO	YES
27	Flare Facility	1300000	0	YES	YES	YES	LOW	NO	YES
28	Flares	500000	800000	YES	YES	YES	LOW	NO	YES
29	Hagerman Sports Complex	0	1124218	YES	YES	YES	LOW	NO	YES
30	Hazardous Waste Facility	918200	250000	YES	YES	YES	LOW	NO	YES
31	Landfill Scale House/Scale	491704	108525	YES	YES	YES	LOW	NO	YES
32	Leachate Facilities	0	175000	YES	YES	YES	LOW	NO	YES
33	Los Flores Ranch Park	93593	0	YES	YES	YES	LOW	NO	YES
34	Main Office	0	0	YES	YES	YES	LOW	NO	YES
35	Main Office/Maint Shop	5000000	400000	YES	YES	YES	LOW	NO	YES
36	Maintenance Shop	0	0	YES	YES	YES	LOW	NO	YES
37	Maramonte Park & Recreation Community Center	0	363016	YES	YES	YES	LOW	NO	YES
38	Media Center	586920	174995	YES	YES	YES	LOW	NO	YES
39	Mussell Senior Center	1768306	40636	YES	YES	YES	LOW	NO	YES
40	Newlove Community Center	274577	40815	YES	YES	YES	LOW	NO	YES
41	NHIS Scale House/Scale	30000	10000	YES	YES	YES	LOW	NO	YES
42	Office area/Classrooms	1231592	0	YES	YES	YES	LOW	NO	YES
43	Office of the City Attorney	0	0	YES	YES	YES	LOW	YES	YES
44	Offices, shops	1993358	0	YES	YES	YES	LOW	YES	YES
45	Offices/Classrooms	729042	0	YES	YES	YES	LOW	NO	YES
46	Old Scale House (Non-Operational)	20000	0	YES	YES	YES	LOW	NO	YES
47	Operations & Lab Building	889564	1005221	YES	YES	YES	LOW	NO	YES
48	Park Restroom	106784	0	YES	YES	YES	LOW	NO	YES
49	Police Annex/City Attorney's Office	1309404	291061	YES	YES	YES	LOW	YES	YES
50	Police Radio Antenna/Repeater	5000000	0	YES	YES	YES	LOW	NO	YES
51	Police Radio Antenna/Repeater	2000000	0	YES	YES	YES	LOW	YES	YES
52	Police Radio Antenna/Repeater	2500000	0	YES	YES	YES	LOW	NO	YES
53	Police Radio Antenna/Repeater	2500000	0	YES	YES	YES	LOW	NO	YES
54	Police Station	35000000	10975000	YES	YES	YES	LOW	NO	YES
55	Police Station/Office building	24591606	7687960	YES	YES	YES	LOW	NO	YES
56	Police Technical Systems	0	2500000	YES	YES	YES	LOW	NO	YES
57	Pressure Wash System	0	40000	YES	YES	YES	LOW	NO	YES
58	Public Works Annex Office, Shops	930604	163261	YES	YES	YES	LOW	NO	YES
59	Public Works, Administration Office	768080	169511	YES	YES	YES	LOW	NO	YES
60	Rec and Parks Equipment Storage	200730	71831	YES	YES	YES	LOW	NO	YES
61	Recreation and Parks Administration	730325	177437	YES	YES	YES	LOW	NO	YES
62	Reservoirs #4, #5, #6	50000	21000000	YES	YES	YES	LOW	NO	YES
63	Robert F. Grogan Park	470526	3120	YES	YES	YES	LOW	NO	YES
64	Ruffoni Building	2000000	0	YES	YES	YES	LOW	YES	YES
65	S.M. PUB. FIN	0	120046	YES	YES	YES	LOW	NO	YES
66	Santa Maria Airport	0	0	YES	YES	YES	LOW	NO	YES
67	Santa Maria Airport	0	0	YES	YES	YES	LOW	NO	YES
68	Santa Maria Airport Air Traffic Control Tower	0	0	YES	YES	YES	LOW	NO	YES
69	Santa Maria Fire Station #6	0	0	YES	YES	YES	LOW	NO	YES
70	Santa Maria Public Library	18308795	12707702	YES	YES	YES	LOW	NO	YES
71	Scale House	329344	117317	YES	YES	YES	LOW	NO	YES
72	Septage Receiving Station	0	0	YES	YES	YES	LOW	NO	YES
73	Station #2	1548008	104147	YES	YES	YES	LOW	NO	YES
74	Support Services Annex	21225	284506	YES	YES	YES	LOW	NO	YES
75	Trailer Office (Contractor: CCRR)	55000	10000	YES	YES	YES	LOW	NO	YES
76	TRANSIT CENTER	936339	273714	YES	YES	YES	LOW	YES	YES
77	Transit Operations	2593605	0	YES	YES	YES	LOW	NO	YES
78	Utilities, Administration & Operations	1831140	238820	YES	YES	YES	LOW	NO	YES
79	Vets Cultural Center	4352442	24488	YES	YES	YES	LOW	NO	YES
80	Waste Water Treatment Facility	3394018	27891887	YES	YES	YES	LOW	NO	YES
81	Water and Disinfecting Building	1316817	1022686	YES	YES	YES	LOW	NO	YES
82	Water Tower	0	45000	YES	YES	YES	LOW	NO	YES
83	Water Well #10	5000	200000	YES	YES	YES	LOW	NO	YES
84	Water Well #11	5000	200000	YES	YES	YES	LOW	NO	YES
85	Water Well #12	5000	200000	YES	YES	YES	LOW	NO	YES
86	Water Well #13	5000	200000	YES	YES	YES	LOW	NO	YES
87	Water Well #14	5000	200000	YES	YES	YES	LOW	NO	YES
88	Water Well #5	0	200000	YES	YES	YES	LOW	NO	YES
89	Water Well #5H	0	200000	YES	YES	YES	LOW	YES	YES
90	Water Well #6	5000	200000	YES	YES	YES	LOW	NO	YES
91	Water Well #7 (Non-operational)	5000	200000	YES	YES	YES	LOW	NO	YES
92	Water Well #8	5000	200000	YES	YES	YES	LOW	NO	YES
93	Water Well #9	5000	200000	YES	YES	YES	LOW	NO	YES
94	Water Well Operations #1	100000	0	YES	YES	YES	LOW	NO	YES
95	Water Well Operations #2	100000	0	YES	YES	YES	LOW	NO	YES
96	Youth Recreation Center	5148779	1100780	YES	YES	YES	LOW	NO	YES

15.7 MITIGATION STRATEGY

In preparation of the 2016 update of this plan, the City's Local Planning Team individually reviewed the Mitigation Priorities from the previous plan for continued relevance and provided comments in an annotated "working edit" of this plan. Additionally, the City made minor revisions to the Countywide goals and objectives to better reflect the needs for the City. This section contains the City's updated and most current mitigation strategy as of November 2016.

15.7.1 Mitigation Priorities

After review of the hazard identification and risk assessment and capabilities assessment, the LPG conducted a meeting to discuss the results of the hazard identification and risk assessments, review mitigation goals and alternatives based on the priority areas and hazard types, discuss community strengths and weaknesses, and begin developing the mitigation strategy. The following strengths, weaknesses and priorities were identified.

General Observations — Strengths

- Several policies exist that have hazard mitigation elements or effects such as development and building code regulations, the floodplain regulations set forth in the Municipal Code, and other codes and plans discussed in more detail in this document.
- The City has established a multi-departmental, multi-disciplinary Disaster Planning Group that meets regularly to identify opportunities to enhance disaster resilience of the City, its employees, residents, and guests.
- The General Plan update is an on-going process with a Safety Element.
- Existing codes ensure that new development (including tear down and rebuild projects) will be built to modern standards, including the floodplain code, which exceeds minimum standards. With the current trend of replacing existing substandard buildings with new ones, a safer community is constructed.
- Due to the relatively flat terrain and the rapid development of the valley, there is a potential for flood control and drainage infrastructure to lag construction, increasing the potential for localized urban flooding. Building and development codes mitigate this impact by requiring concurrent improvements to flood control systems.
- Communication and network upgrades and trained staff are in place and strengthen the City's ability to anticipate and respond to events.
- The GIS Unit intends to incorporate HAZUS-MH into its system, improving the mapping of floodplains and other hazard areas, potential impacts of events and efficacy of potential mitigation and development strategies. The current version of HAZUS-MH is not compatible with ArcGIS 10.3.

General Observations — Weaknesses

- As with most organizations, there is consistent turnover of employees, including leadership staff. These employees need to be trained to a level that will allow them to function effectively in their respective EOC assignments. Identified staff have been attending recommended and required training. The City is participating in the Operational Area and State of California credentialing program. This will require continual attention as new requirements and new training is released.
- City staffing levels are efficient and are balanced between service delivery and financial sustainability. While there is a desire and commitment to service by City staff, the staffing levels result in limited availability of staff to take on additional responsibilities for emergency preparedness, response and mitigation programs.
- Record preservation policies among various departments and divisions is not well coordinated or centralized. There is a record retention policy, but many records are hard copy only. A City-wide record preservation program needs to be developed and implemented to ensure that in the event of a disaster, vital records are adequately protected.
- Training for all City employees in their specific roles during a disaster needs to be improved. Managers and Supervisors need advanced training in SEMS principles to allow them to be more effective during a disaster. The City has a CSTI certified instructor and courses are being regularly offered. A training plan is being developed to ensure adequate courses are available to staff. Coordination with the Operational Area and CSTI on new (2016) credentialing requirements will aid in ensuring staff are trained appropriately.
- The threat of earthquake is ever-present in Santa Maria. While a significant portion of the community is of "Modern" construction, the potential for significant damage to structures and infrastructure is still quite high. The City is in Seismic Zone 4, which is the highest zone rating.

General Observations — Priorities

During the presentation of findings for the hazard identification and risk assessment and capabilities assessment, the LPG provided preliminary input and ideas for mitigation strategies. The following priorities were identified.

- Top priorities for Santa Maria were public safety, public education, and reducing the potential economic impacts of disasters.
- Alternatives should consider the impacts on the community to the extent possible.
- Alternatives must not conflict with other local programs.
- Experiences from past disasters should be built upon.
- Outreach and training should be a component.

The goals and objectives were developed by considering the risk assessment findings, localized hazard identification and loss/exposure estimates, and an analysis of the jurisdiction's current capabilities assessment. These preliminary goals, objectives and actions were developed to represent a vision of long-term hazard reduction or enhancement of capabilities. To help in further

development of these goals and objectives, the LPG compiled and reviewed current jurisdictional sources including the City's planning documents, codes, and ordinances.

15.7.2 Goals and Objectives

The City of Santa Maria modified the goals and objectives as determined by the County-wide Mitigation Advisory Committee to meet the specific needs of the City. These goals and objectives represent a vision of long-term hazard reduction or enhancement of capabilities.

Goal 1: Promote disaster-resistant future development.
Objective 1.A: Facilitate the development or updating of the City General Plan elements, and zoning ordinances, to limit (or ensure safe) development in hazard areas.
Objective 1.B: Facilitate the adoption of building codes and development regulations that protect existing assets and require disaster resistant design for new development in hazard areas.
Objective 1.C: Facilitate consistent enforcement of the zoning ordinances, and building and fire codes
Objective 1.D: Address identified data limitations regarding the lack of information about new development and build-out potential in high hazard areas.
Objective 1.E: Educate the professional community on design and construction techniques that will minimize damage from the identified hazards
Notes: This goal focuses on the programmatic/policy approaches to reducing risk to future new development. Building codes are updated on a regular basis in California. The City agreed the objectives for this goal are ongoing to ensure that the best and most recent building and fire codes are adopted. New building and fire codes were adopted by the City Council in January 2011. The 2016 building and fire codes are currently in review and are pending approval in the spring of 2017.
Goal 2: Build and support capacity and commitment for existing assets, including people, critical facilities/infrastructure, and public facilities, to become less vulnerable to hazards.
Objective 2.A: Increase awareness and knowledge of hazard mitigation principles and practice among City officials.
Objective 2.B: Address data limitations identified in Hazard Profiling and Risk Assessment
Objective 2.C: Decrease the vulnerability of public infrastructure including facilities, roadways, and utilities.

Objective 2.D: Protect existing structures with the highest relative vulnerability to the effects of identified hazards through structural mitigation projects, as funding becomes available.
Notes: This goal focuses on the programmatic and structural approaches to reducing risk to existing development.
Goal 3: Enhance hazard mitigation coordination and communication.
Objective 3.A: Educate the public to increase awareness of hazards, potential impact, and opportunities for mitigation actions.
Objective 3.B: Monitor and publicize the effectiveness of mitigation actions implemented.
Objective 3.C: Participate in initiatives that have mutual hazard mitigation benefits for local jurisdictions.
Objective 3.D: Support a coordinated permitting activities process and consistent enforcement.
Note: This goal focuses on communication and coordination required for successful mitigation of risk.

15.7.3 Mitigation Progress

The City's Local Planning Team reviewed the mitigation actions listed in the 2004 and 2011 plan to determine the status of each action. The following table includes only the actions that have been completed or were under way as of September 2016

Ultimately, these projects will be completed and are no longer necessary for consideration by the LPG regarding implementation approaches. Mitigation actions identified for future implementation are presented in the following section.

Table 15-12 Completed and In-Progress Mitigation Actions

Plan Action #	Mitigation Action Description	Status	Completion Date	Comments
GEN 2	Develop Hazard and Damage Data tracking system linked to GIS	**Completed**	2008	Dispatch system tracks incidents and locations
GEN 6	Develop shelter list	**Completed**	2008	FEMA/American Red Cross nationwide shelter database. Includes Santa Maria.

FLD 1	Update and integrate FEMA FIRM maps into City GIS	**Completed / In Progress**	2008	FEMA FIRM maps are integrated into the City GIS. However, FEMA has not updated the maps since the Santa Maria River Levee rehabilitation was completed in 2014.
FLD 3	Develop early warning system	**Completed / In Progress**	2008	Blackboard Connect CTY community notification system contract. Currently reviewing possibility of, integrating with Operational Area using Everbridge
EQ Narrative	Unreinforced Masonry Structures	**Completed**	2008	Small number of facilities. Some retrofit, some granted waiver by the City. Structures with waiver are commercial or industrial, no residential. Some may have historic potential. No hazard signage on structures with waiver.
EQ Narrative	Seismic valves on water reservoirs	**Completed**	2010	Seismic valves installed
EQ Narrative	Generator power for critical water/sewer systems, wells, etc.	**Completed**	2009	Systems have emergency power
Flooding/ Dam Failure	Dam response plan	**Completed**	2008	Bureau of Reclamation multiagency response plan exercise in 2008. Plan updated May 2016.
General Narrative	Concern re: flood control changes due to rapid development	**Completed**	2005	City incorporates water runoff mitigations in all development. No known issues except for annexed properties listed above.
General Narrative	Earthquake hazard and impact on built infrastructure	**Completed**	2010	City adopted State Building & Fire code 2010

GEN 3	Critical Facility Audit	**In Progress**		The consistent application and definition of Critical Facility needs to be addressed. Non-City facilities and infrastructure needs to be incorporated into the planning process.
GEN 4	Critical Facility Retrofit and Mitigation	**In Progress**		
GEN 5	Provide CERT training to population	**Ongoing**		CERT offered through partnership with Allan Hancock College. City also offers CERT in English and Spanish. City is part of Operational Area CERT collaborative.
GEN 7	Provide training to City employees with EOC responsibilities	**Ongoing**		Training officer position reinstated. Emergency Services Specialist position created. CSTI and OSFM authorized instructors on staff. Coordinating training offerings with State and Operational Area. City Disaster Planning Group working with Emergency Services Specialist to establish training program and calendar. City holds annual table top EOC exercise as well as function specific field exercises using unified command principles.
FLD 2	Evaluate effectiveness of Floodplain Management Ordinance	**Ongoing**		Reviewed annually after seasonal rain events

HAZ 1	Develop site specific HazMat response plans	**In Progress**		CUPA sites on City GIS. RMP/RMPP not linked. City does not have HazMat response team.
Flooding/ Levee Failure	Install new Levee system along 7 miles of the Santa Maria River	**Completed**	May 2014	Last portion of levee rehabilitation project was completed in April 2014.
Flooding/ Levee Failure	Marian Hospital in flood zone, 3' depth	**Completed**	April 2012	Marian Hospital has built a new facility to meet California Critical Infrastructure seismic requirements for hospitals. Elevation and flood mitigations were required and incorporated.
General Narrative	More direct language re: Mitigation and Hazard Reduction in planning documents	**Completed**		City adopted State Building & Fire code 2010
N/A	New Police Headquarters and Dispatch Center	**In Progress**	2016	City has built a new Police Headquarters facility to California Essential Services Building Standard and is updating and moving the Dispatch Center to the new facility.

N/A	Information Technology Upgrades/Continuity of Operations	**In Progress**	2016-2017	Essentially complete. CAD system adopted and upgraded. Narrow banding completed and new 700 MHz system installed and being implemented. State and Federal compliant interoperability plan and equipment acquired, installed and being implemented. Network equipment being moved to critical infrastructure site. Fiber optic network and microwave redundant backbone systems being installed.

15.7.4 Mitigation Approach

The City of Santa Maria followed the same prioritization process of the Countywide Mitigation Advisory Committee in considering the current mitigation actions. The City used the STAPLE/E Criteria (Social, Technical, Administrative, Political, Legal, Economic, and Environmental) to evaluate the mitigation actions which have not been completed or implemented (noted as deferred). The social, technical, administrative, political, legal, economic, and environmental aspects of each project were ranked using the following scale.

0 = Poor (negative impacts)

1 = Fair (neutral or no impacts)

2 = Good (positive impacts)

3 = Excellent (very favorable impacts)

This process was used to help ensure that the most equitable and feasible actions would be undertaken based on available resources. Table 15-13 presents the STAPLE/E criteria.

Table 15-13 STAPLE/E Review and Selection Criterial for Alternatives

SOCIAL
• IS THE PROPOSED ACTION SOCIALLY ACCEPTABLE TO THE COMMUNITY? • ARE THERE EQUITY ISSUES INVOLVED THAT WOULD MEAN THAT ONE SEGMENT OF THE COMMUNITY ARE TREATED UNFAIRLY? • WILL THE ACTION CAUSE SOCIAL DISRUPTION?
TECHNICAL
• WILL THE PROPOSED ACTION WORK? • WILL IT CREATE MORE PROBLEMS THAN IT SOLVES? • DOES IT SOLVE A PROBLEM OR ONLY A SYMPTOM? • IS IT THE MOST USEFUL ACTION CONSIDERING OTHER COMMUNITY GOALS?
ADMINISTRATIVE
• CAN THE COMMUNITY IMPLEMENT THE ACTION? • IS THERE SOMEONE TO COORDINATE AND LEAD THE EFFORT? • IS THERE SUFFICIENT FUNDING, STAFF, AND TECHNICAL SUPPORT AVAILABLE? • ARE THERE ONGOING ADMINISTRATIVE REQUIREMENTS THAT NEED TO BE MET?
POLITICAL
• IS THE ACTION POLITICALLY ACCEPTABLE? • IS THERE PUBLIC SUPPORT BOTH TO IMPLEMENT AND TO MAINTAIN THE PROJECT?
LEGAL
• IS THE COMMUNITY AUTHORIZED TO IMPLEMENT THE PROPOSED ACTION? IS "THERE A CLEAR LEGAL BASIS OR PRECEDENT FOR THIS ACTIVITY? • ARE THERE LEGAL SIDE EFFECTS? COULD THE ACTIVITY BE CONSTRUED AS A TAKING? • IS THE PROPOSED ACTION ALLOWED BY THE GENERAL PLAN, OR MUST THE GENERAL PLAN BE AMENDED TO ALLOW THE PROPOSED ACTION? • WILL THE COMMUNITY BE LIABLE FOR ACTION OR LACK OF ACTION? • WILL THE ACTIVITY BE CHALLENGED?
ECONOMIC
• WHAT ARE THE COSTS AND BENEFITS OF THIS ACTION? • DO THE BENEFITS EXCEED THE COSTS? • ARE INITIAL, MAINTENANCE, AND ADMINISTRATIVE COSTS CONSIDERED? • HAS FUNDING BEEN SECURED FOR THE PROPOSED ACTION? IF NOT, WHAT ARE THE POTENTIAL SOURCES (PUBLIC, NON-PROFIT, AND PRIVATE)? • HOW WILL THIS ACTION AFFECT THE FISCAL CAPABILITY OF THE COMMUNITY? • WHAT BURDEN WILL THIS ACTION PLACE ON THE TAX BASE OR LOCAL ECONOMY? • WHAT ARE THE BUDGET AND REVENUE EFFECTS OF THIS ACTIVITY? • DOES THE ACTION CONTRIBUTE TO OTHER COMMUNITY GOALS, SUCH AS CAPITAL IMPROVEMENTS OR ECONOMIC DEVELOPMENT? • WHAT BENEFITS WILL THE ACTION PROVIDE?

ENVIRONMENTAL
• HOW WILL THE ACTION AFFECT THE ENVIRONMENT? • WILL THE ACTION NEED ENVIRONMENTAL REGULATORY APPROVALS? • WILL IT MEET LOCAL AND STATE REGULATORY REQUIREMENTS? • ARE ENDANGERED OR THREATENED SPECIES LIKELY TO BE AFFECTED?

The following table presents the actions to be considered and implemented during the life of this plan update These actions and their status will be tracked and updated as appropriate by the City Fire Department. The Disaster Planning Group, formed in July of 2016, will identify and help prioritize mitigation activities for the City on a continual basis. The priority projects are rated using the STAPLE/E method. In reality, the projects that are lower cost and can be operationalized into existing maintenance and replacement schedules are likely to be achieved first. The Santa Maria DPG will continue to meet and update this section annually.

Table 15-14 Mitigation Actions for Future Implementation

Action #	Mitigation Action Description	Status	S	T	A	P	L	E	E
1	Earthquake: Non-Structural Hazard Reduction	New	3	3	2	3	3	2	3
2	Earthquake: Structural Hazard Reduction	New	3	3	0	2	3	0	0
3	Earthquake: Auxiliary Hazard Reduction	New	3	2	2	3	3	1	1
4	Ground Water Enhancement and Sustainability	New	3	2	1	2	1	1	1
5	Storm Water Capacity Enhancement	New	3	2	1	2	1	1	1
6	Electrical Power Resiliency Project	New. Environmental Impacts uncertain.	3	3	1	2	3	0	0

7	Critical Systems Cyber Resiliency Project	New	3	3	2	3	3	1	2
8	Hazardous Material Air Monitoring and Alerting Project	New	3	3	0	3	3	1	2
9	Public Weatherization Support Program	New	2	3	0	2	1	1	3
10	Urban Forestry Hazard Assessment and Hazard Reduction	New	2	3	2	2	2	2	1
11	Critical Infrastructure Threat Assessment Identification Project	New	3	2	0	2	3	2	3

In addition to the actions noted in Table 15-14, The City of Santa Maria will participate to the extent it can, with the County to implement #2011-4 Bradley Channel as shown in Section 7.4 of the County plan.

The City of Santa Maria will participate to the extent it can, with the County to partner for implementation of #2011-11, a flood warning system, as shown in Section 7.2 of the County plan. The City has its own Community Notification System, but is in discussion with the Operational Area on standardizing on an Operational Area-wide Everbridge notification system.

The City of Santa Maria will participate in the County 2016-31 Critical Infrastructure Threat Assessment Identification Project as its funding and capabilities permit.

15.7.5 Implementation Plan

Mitigation Action # 1
Project Description: Earthquake: Non-Structural Hazard Reduction • Survey City owned buildings and infrastructure to identify potential hazards and non-structural failures from an earthquake. • Use engineering best practices and existing non-structural hazard reduction methods, including most recent publication FEMA E74 or subsequent guidance. • Prioritize projects and establish a budget and project calendar. • Identify on-going costs to maintain and monitor.
Applicable Hazards Earthquake
Existing and Potential Resources: General Fund, Department specific maintenance funds, PDM funds, Homeland Security Grants, and other Federal and State grants and funds.
Responsible Department: Public Works, with support from City Manager's Office and other City departments.
Target Completion Date: To be determined.
Additional Comments / Status Report: Nonstructural hazards from earthquakes can range from simple rearranging of non-secured items, simple bracing of shelves and cabinets, to significant engineered restraint systems for HVAC and other machinery. While some items can be incorporated or prioritized using future budgeting processes, the fiscal reality for the City is that some projects will require significant grant funding.

Mitigation Action # 2
Project Description: Earthquake Structural Hazard Reduction • Survey City owned buildings, bridges and other infrastructure to identify potential structural failures from an earthquake. • Conduct engineering, environmental, and cost benefit analysis • Use engineering best practices. Evaluate efficacy/viability of using higher standard of structural survivability and functionality vs. lower standard of life safety in current building codes. • Prioritize projects and establish a budget and project calendar. • Identify on-going costs to maintain and monitor.
Applicable Hazards Earthquake
Existing and Potential Resources: PDM funds, Homeland Security grants, CDBG and other Federal and State infrastructure grants and funds, local capital funds.
Responsible Department: Public Works, with support from City Manager's Office and other City Departments.
Target Completion Date: To be determined.
Additional Comments / Status Report: The City uses many structures and facilities of various age and capability for daily operations. Many have been re-purposed or modified to meet expanding needs of the City over the last 100 years. The costs will be considerable and likely beyond the fiscal capability of the City.

Mitigation Action #3
Project Description: Earthquake Auxiliary Hazard Reduction • Survey City owned buildings and infrastructure.to identify potential hazards from an earthquake not otherwise categorized as structural or non-structural. Examples may include mitigated in place Asbestos, secondary impacts of hazardous materials releases, mold, dust, flooding, fire, water well casing failure/aquifer failure etc. that are not otherwise mitigated. • Conduct engineering, environmental, and cost benefit analysis • Use engineering best practices. Evaluate efficacy/viability of using higher standard of structural survivability and functionality vs. lower standard of life safety in current building codes. • Prioritize projects and establish a budget and project calendar. • Identify on-going costs to maintain and monitor
Applicable Hazards Earthquake
Existing and Potential Resources: General Fund, Capital funds, PDM funds, CDBG, Homeland Security grants, and other Federal and State infrastructure grants and funds.
Responsible Department: Public Works, with support from City Manager's Office and other City Departments.
Target Completion Date: To be determined.
Additional Comments / Status Report: Recent events, such as the 2015 Napa Earthquake, have shown that otherwise structurally sound structures may be un-inhabitable or unusable due to unforeseen secondary impacts. While it may be fundamentally impossible to predict all potential impacts, a review of post event analysis of events will likely reveal some impacts that can be addressed..

Mitigation Action #4
Project Description: Ground Water Enhancement and Sustainability • Conduct engineering, environmental, and cost benefit analysis of potential groundwater enhancement projects in the Santa Maria basin. • Projects may include ground water quality rehabilitation, increase water permeability of built landscape, increase potable water storage, additional storm water retention and percolation basins as identified. • Identify viable projects and prioritize. • Establish budgets and project calendars.
Applicable Hazards Drought, Water Safety, Flood Prevention, Earthquake (Potable Water)
Existing and Potential Resources: Capital Projects budget, maintenance budget, CDBG funds, HMP funds, Homeland Security grants, and other Federal and State infrastructure grants and funds.
Responsible Department: Public Works Utilities Division, Ground water basin partners, flood control partners.
Target Completion Date: To be determined.
Additional Comments / Status Report: While the Santa Maria Valley Management Area is a significant aquifer, the City relies mostly on State Water from the Coastal Aqueduct due to the superior quality of the water. In order to increase the City's resiliency and reduce its dependence on State Water, the current aquifer and/or the water from it will need significant rehabilitation.

Mitigation Action #5
Project Description: Storm Water Capacity Enhancement • Conduct engineering, flow modeling (including micro topographical and variable precipitation models), environmental, and cost benefit analysis • Projects may include property acquisition, ground water retention/percolation basins, flow control channels/enhancements, road bed or bridge elevation/realignment, or other infrastructure projects as informed by research and history. • Prioritize projects and establish a budget and project calendar. • Identify on-going costs to maintain and monitor
Applicable Hazards Flood Prevention, Water Safety, Drought
Existing and Potential Resources: Capital Projects budget, maintenance budget, CDBG funds, HMP funds, Homeland Security grants, and other Federal and State infrastructure grants and funds.
Responsible Department: Public Works Utilities Division, Ground water basin partners, flood control partners.
Target Completion Date: To be determined.
Additional Comments / Status Report: While Environmental assessments are conducted on development projects per NEPA and CEQA, constraints limiting the analysis to project boundaries and the general exceptions granted to agriculture have allowed development that has modified the flood control landscape of the Santa Maria area. New agricultural methods such as hoop structures and hydroponic/greenhouse structures in addition to residential development outside of the City's regulatory sphere have decreased the available area for storm water percolation into the landscape. A re-analysis of the current and projected landscape requirements to maintain open roads and keep peak rain events from impacting homes and necessary infrastructure is warranted as indicated in the recent rain events of Feb. 2017.

Mitigation Action #6
Project Description: Electrical Power Resiliency Project • Conduct engineering, environmental, and cost benefit analysis of existing City buildings and infrastructure to identify power requirements, efficiency, and resiliency during short term and extended power failures. • Identify and prioritize projects based on critical systems and life safety. • Identify and retrofit or establish multi-purpose facilities to be used for medically fragile shelters, cold/warming shelters • Projects may include equipment hardening, power management/monitoring systems, alternative power generation, capability design/retrofit to allow the use of temporary alternative power generation when permanent alternative generation installation is otherwise not warranted. • Prioritize projects and establish a budget and project calendar. • Identify on-going costs to maintain and monitor
Applicable Hazards Energy Shortage, Earthquake, Severe Weather
Existing and Potential Resources: Capital Projects budget, maintenance budget, CDBG funds, HMP funds, Homeland Security grants, and other Federal and State infrastructure grants and funds.
Responsible Department: Public Works, with support from City Manager's Office and other City Departments.
Target Completion Date: To be determined.

Additional Comments / Status Report:

The Public and the City's reliance on power to provide life safety necessary systems has continued to increase. Per the Public Health Emergency HHS emPOWER Map, over 500 Medicare recipients are electricity dependent in the Santa Maria area. This number is a conservative estimate considering others who may also be electricity dependent that are not Medicare recipients (private funding, insurance, CPAP, etc.) Also as our population continues to age, common medications reduce individuals resiliency to heat and cold. The City currently does not have a public facility that has backup generation suitable for short or long term sheltering.

As critical systems become more dependent on telemetry and remote controls, power hardening of the communication paths becomes necessary and has only emerged as new technologies have been retrofit or replaced existing systems.

Mitigation Action #7
Project Description: Critical Systems Cyber Resiliency Project • Conduct security audit, power audit, engineering, environmental, and cost benefit analysis of critical systems (communications networks, telemetry networks, system controls, etc.) • Identify and prioritize projects based on critical systems and life safety. • Projects may include software/hardware upgrades, power hardening/resiliency, "sandboxing" or isolating systems from Internet or other networks. • Prioritize projects and establish a budget and project calendar. • Identify on-going costs to maintain and monitor
Applicable Hazards Cyber Threat, Energy Shortage, Severe Weather, Earthquake, Terrorism
Existing and Potential Resources: Capital Projects budget, maintenance budget, CDBG funds, HMP funds, Homeland Security grants, and other Federal and State infrastructure grants and funds.
Responsible Department: City Manager's Office, Information Technology Division, Public Works, Fire Department, Police Department, other Departments and partner agencies.
Target Completion Date: To be determined.
Additional Comments / Status Report: The "Internet of Things" as well as ubiquitous use of IC's and intelligent controls has provided unprecedented capability to provide services and manage infrastructure. It has also provided a pathway for independent "Lone Wolf" and State Sponsored attacks that can range from annoying to life threatening. A systems risk assessment and mitigation/hardening is warranted to protect the City's ability to serve the public.

Mitigation Action #8
Project Description: Hazardous Material Air Monitoring and Alerting Project • Conduct engineering, atmospheric/meteorological studies, environmental, and cost benefit analysis • Project includes identifying sensor arrays, telemetry, and alert system integration, property/right of way acquisition, and other requirements as may be identified. • Prioritize projects and establish a budget and project calendar. • Identify on-going costs to maintain and monitor
Applicable Hazards Hazardous Materials Release, Train Accident, Radiological Accident
Existing and Potential Resources: Capital Projects budget, maintenance budget, CDBG funds, HMP funds, Homeland Security grants, and other Federal and State infrastructure grants and funds.
Responsible Department: City Manager's Office, Information Technology Division, Public Works, Fire Department, Police Department, other Departments and partner agencies.
Target Completion Date: To be determined.
Additional Comments / Status Report: The City hosts an active railroad, as well as industrial, petroleum and agricultural chemical producers, users, and transporters in and near the City as well as the Diablo Canyon Nuclear Power Plant. The City has limited capability/authority to manage these hazards and are generally managed by the County of Santa Barbara and the County of San Luis Obispo. However, low level events have shown an inherent weakness in the system in that budgets no longer support full time monitoring and staffing of response personnel trained in HazMat response as well as the inability of the City to elicit timely information from responsible parties. The proximity of these hazards to high density population centers leaves very little time to identify and enact protective measures. A real-time monitoring system that is integrated into a public warning system is warranted.

Mitigation Action #9
Project Description: Public Weatherization Support Program • Conduct environmental, and cost benefit analysis • Projects may include low/no interest loans, grants, property acquisition, or other infrastructure projects as informed by research and history. • Prioritize projects and establish a budget and project calendar. • Identify on-going costs to maintain and monitor
Applicable Hazards Hazardous Materials Release, Severe Weather, Petroleum Accident, Train Accident, Radiological Accident
Existing and Potential Resources: Capital Projects budget, maintenance budget, CDBG funds, HMP funds, Homeland Security grants, and other Federal and State infrastructure grants and funds, community partners.
Responsible Department: TBD
Target Completion Date: To be determined.
Additional Comments / Status Report: Weatherization of structures is an effective mitigation method of protecting inhabitants from various hazardous materials ("Sheltering in Place as a Public Protective Action" NRC000071, March 30, 2012). While recent construction over the last several decades has included, per code, adequate weatherization, older structures, including high density rentals are less resilient to weather, energy use, and hazardous material infiltration. The City has limited ability to affect change to privately owned, existing built infrastructure. Establishing a program/partnership to enhance the resiliency of private residences will serve the safety of residents if legal and sustainability goals can be met.

Mitigation Action #10
Project Description: Urban Forestry Hazard Assessment and Hazard Reduction • Conduct environmental, and cost benefit analysis • Catalog, identify, and map trees within the City • Assess their health • Assess a risk and failure profile for each tree. • Identify lower risk trees for reforestation while supporting environmental and habitat benefits of urban forests. • Prioritize projects and establish a budget and project calendar. • Identify on-going costs to maintain and monitor
Applicable Hazards Severe Weather, Drought, Earthquake, Agricultural Pests/Disease
Existing and Potential Resources: Capital Projects budget, maintenance budget, CDBG funds, HMP funds, Homeland Security grants, and other Federal and State infrastructure grants and funds, community partners.
Responsible Department: Recreation and Parks
Target Completion Date: To be determined.
Additional Comments / Status Report: Drought has weekend trees throughout California, making them more susceptible to disease and increasing their risk to neighboring structures, vehicles, and passersby. Recent storms have caused extensive failure of trees in Santa Maria, causing damage to infrastructure, vehicles and homes. Urban forests serve a necessary function in providing mitigation for 'heat island' effects of urbanization, carbon sequestration, and habitat for protected, threatened, and endangered species such as Monarch Butterflies and raptors. Removing and replacing existing trees with resilient species that can provide the same benefits, but with a lower risk profile is a priority for the City.

Mitigation Action #11
Project Description: Critical Infrastructure Threat Assessment Identification Project • Establish project deliverables in order to meet goals and objectives • Establish budget and timeline • Assess current capabilities to achieve project objectives and address resource shortfalls. • Establish a comprehensive list of built infrastructure resources, their owners, and meta data relevant to risk assessment. • Identify facilities and infrastructure that are necessary to minimize loss of life and property or to facilitate response or recovery activities. • Prioritize projects and establish a budget and project calendar. • Identify on-going costs to maintain and monitor
Applicable Hazards Earthquake, Drought/Water Shortage, Flooding, Severe Weather, Cyber Threat, Hazardous Materials Release, Energy Shortage, Well Stimulation/Hydraulic Fracking, Oil Spill, Agricultural Pests/Disease, Terrorism, Natural Gas, Pipelines and Storage, Epidemic/Pandemic/Vector Borne Disease, Dam Failure, Levee Failure, Radiological Incident, Train Accident, Wildfire, Civil Disturbance, Landslide/Other Earth Movement, Commercial/Military Aircraft Accident
Existing and Potential Resources: Capital Projects budget, maintenance budget, CDBG funds, HMP funds, Homeland Security grants, and other Federal and State infrastructure grants and funds, community partners.
Responsible Department: Public Works, City Manager's Office, Information Technology, with support from other departments as required.
Target Completion Date: To be determined.

Additional Comments / Status Report:

Currently there is not a countywide agreed upon list of Critical or Essential Facilities. While there are several lists of Critical and Essential Facilities, the criteria are not standardized. Additionally, the list of Critical and Essential Facilities lack the necessary meta data (i.e., construction type, elevation level, replacement value, content cost) that would be beneficial to assessing risk to threats and hazards.

Because there is not a comprehensive list of Critical or Essential Facilities, portions of the HMP utilized the HAZUS default data. While the HAZUS default data provided better insight into the earthquake and flood risk, the assumptions (i.e. structural characteristics of building) does not adequately reflect the true vulnerabilities of the facilities and/or the community. To remedy this, The City of Santa Maria is proposing to coordinate with Santa Barbara County to create a comprehensive Critical or Essential Facilities List and utilize it in HAZUS.

15.8 PLAN MAINTENANCE and INTEGRATION

The Emergency Services Specialist, with the support of the Disaster Planning Group (or similar staff in the event of re-organization) will continue the process of identifying opportunities to create a more resilient community using a whole community approach. Significant changes to the hazard and risk profile of the City will be documented. Appropriate mitigation measures, where appropriate, will continue to be managed in the City's planning and regulatory processes.

The City's planning and regulatory processes will be managed by the City Manager's Office and the City's Management Team in coordination with the City Council, the public, and community partners per code, law, regulation, and best practices. These processes will continue to integrate and inform the myriad of planning and regulatory documents such as the General Plan (including the Safety Element, Circulation Element, Housing Element, Land Use Element, Noise Element, Resources Management Element, Conservation Element, Open Space Element, Public Infrastructure Element, Recreation and Parks Element, and Economic Development Element), Zoning and Subdivision Ordinances, Building Codes, Floodplain Management Ordinance (NFIP), Storm Water Plan, SEMS Multi-Functional Emergency Management Plan (aka Emergency Operations Plan in next edit), annual budgeting processes and the Capital Projects as approved by the City Council.

For more information see above in Section 15.4.6 on page 24 of this annex.

The Disaster Planning Group will continue to meet on a regular basis to continue the process of integrating whole community resiliency throughout the various processes of government services as well as in the: Emergency Operations Plan, Hazard Mitigation Plan, Threat and Hazard Identification and Risk Assessment, Continuity of Government Plan, Continuity of Operations Plan, Long Term Recovery Plan, or other plans as required.

Major disasters affecting the City of Santa Maria's community, legal changes, notices from Santa Barbara County (lead agency for the County-wide Plan), and other significant events may trigger revisions to this plan. To honor the commitment of service to the community as well as remain eligible for mitigation grant funding from FEMA (if required), the City is committed to revising the plan at a minimum of every five years.

As an active member of the Operational Area, the City will continue to collaborate with the other jurisdictions on updates and coordination of future Operational Area and Regional plans as appropriate.

The City will continue to engage stakeholders in the planning processes to meet the spirit of whole community resiliency.

15.8.1 Point of Contact

Comments or suggestions regarding this plan may be submitted at any time to the Emergency Services Specialist, at (805) 925-951 ext. 2334.

Emergency Services Specialist
City of Santa Maria Fire Department

Roy Dugger
314 W. Cook Street
Suite 8
Santa Maria, CA 93458
www.CityOfSantaMaria.org
rdugger@CityOfSantaMaria.org

15.9 CITY OF SANTA MARIA APPENDIX

15.9.1 Santa Maria Attachment 1: Meeting Documentation

This attachment includes documentation of the meetings conducted within Santa Maria's Local Planning Group separately from the County Mitigation Advisory Committee.

Disaster Planning Group
July 2016

Name	Dept.	Email	Extension
Angie Hernandez	Finance	ahernandez@CityOfSantaMaria.org	2426
David Beas	Public Works	dbeas@CityOfSantaMaria.org	2439
(Helen) Joyce Fischer	Library	hfischer@CityOfSantaMaria.org	2331
Jeffrey Clarin	Utilities	jclarin@CityOfSantaMaria.org	7239
Jim Davis	Rec & Parks	jdavis@CityOfSantaMaria.org	2219
Kristine Mollenkopf	City Attorney's Office	kmollenkopf@CityOfSantaMaria.org	2310
Mark van de Kamp	City Manager's Office	mvandekamp@CityOfSantaMaria.org	2372
Mellissa Guerrero	Rec & Parks	mguerrero@CityOfSantaMaria.org	2352
Mike Cardona	Community Development	mcardona@CityOfSantaMaria.org	2393
Roy Dugger	Fire	rdugger@CityOfSantaMaria.org	2334
Ryan Cornell	Finance	rcornell@CityOfSantaMaria.org	2233
Ryan Heath	Rec & Parks	rheath@CityOfSantaMaria.org	2354
Terry Flaa	Police	rflaa@CityOfSantaMaria.org	1236
Chirstina Alvarez	Police	calvarez@cityofsantamaria.org	2144

Disaster Planning Group

21-July-2016
09:00

Agenda

1. Welcome and Introductions
2. Purpose
3. Overview of tasks:
    a. Hazard Mitigation Plan
    b. Emergency Operations Plan annexes and checklists
    c. Training plan/Training
    d. Business Continuity Plan
    e. Department Response Plans
    f. Recovery Plan
    g. Exercise/Drill
    h. Other, input from group
4. Calendar
5. Hazard Mitigation Plan
6. Next Meeting

21-July-2016 DPG ATTENDANCE

NAME

Roy Dugger
Terry Rao SMPO
Christina Alvarez SMPD
Mike Cardona C.D
Ryan Heath Rec+Parks

Jim Davis R&T
H. Joyce Fischer Library
Ryan Cornell Finance

Consuelo Hernandez Finance
Kristine Mallenkopf CAO
Mark van de Kamp CMO
Jeff Clarin Utilities
David Beas Public Works / Engineering

Disaster Planning Group

25-Aug-2016
09:00

Agenda

1. Welcome and Introductions
2. Events Overview
    a. Rey Fire
    b. Earthquake Risk Update
3. Hazard Mitigation Plan
4. Calendar Training and Events:
    a. FEMA Class: MGT 416: Continuity of Government Operations Planning. Sept. 15th here. Sept. 1st registration deadline. Discount hotel rate at Santa Maria Inn. Discount code "FEMA class".
    b. ICS SEMS/NIMS South Co. (North Co. date TBD)
    c. CERT 30th Anniversary Conference Sept 8-10 Sheraton Hotel, Universal City.
    d. Airport Disaster Exercise: Santa Maria: Sept. 23rd.
    e. Disaster Health Care Coalition Active Shooter training and exercise: Oct. 6 (tentative) No. Co. training "Beyond Run Hide Fight", Nov. 17th exercise Co. Wide.
    f. Zika Virus: All infections to date in California from travel abroad.
    g. Aware and Prepare Summit postponed
    h. CERT All Co. Annual Exercise: Oct. 22nd Santa Ynez Band of Chumash Indians Tribal Hall.
    i. Other, input from group
5. Roundtable
6. Next Meeting

Disaster Planning Group

Date: 25-AUG-2016

	Name	Department
1	Kristine Hollenkopf	CAO
2	Joyce Fischer	Library
3	Mark van de Kamp	CMO
4	Melissa Guerrero	R+D
5	Ryan Heath	R+P
6	JEFF CLARIN	UTIL
7	Jim Davis	R+P
8	RYAN CORNELL	FIN
9	David Beas	ENGR
10	ROY DUGGER	FIRE
11	MIKE CARDONA	C.D
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Disaster Planning Group

6-Oct-2016
09:00

Agenda

1. Welcome and Introductions
2. Hazard Mitigation Plan next steps
3. Calendar Training and Events:
    a. ICS SEMS/NIMS South Co. (North Co. date TBD)
    b. Disaster Health Care Coalition Active Shooter training: Oct. 13 Community Health Centers 2050 S. Blosser Rd., "Beyond Run Hide Fight", Nov. 17th exercise Co. Wide.
    c. California ShakeOut Oct. 20th at 10:20 a.m. Http://www.shakeout.org
    d. Zika Virus: http://www.cdph.ca.gov/HealthInfo/discond/Pages/Zika.aspx .
    e. CERT All Co. Annual Exercise: Oct. 22nd Santa Ynez Band of Chumash Indians Tribal Hall.
    f. Other, input from group
4. Training Calendar
5. Department response plans.
6. Next Meeting

Disaster Planning Group

Date: 6-Oct-2016

	Name	Department
1	David Beas	Engineering
2	Angie Hernandez	Finance Dept
3	Kristine Mollenkopf	CAO
4	Christina Alvarez	PD
5	Terry Flaa	PD
6	Mike Cardona	Bldg
7	Ryan Cornell	Finance
8	Jeff Clarin	Utilities
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Disaster Planning Group

17-Nov-2016
09:00

Agenda

1. Welcome and Introductions
2. Hazard Mitigation Plan
    a. New Mitigation Projects
    b. Review Hazard Risk profile
3. Next Meeting

Disaster Planning Group

Date: 17-Nov-2016

	Name	Department
1	Roy Dugger	Fire
2	Joyce Fisher	Library
3	Mike Cardona	Bldg.
4	Terry Tran	SMPD
5	Jeff Green	Utilities
6	Jim Davis	R&P
7	Angie Hernandez	Finance
8	Mark van de Kamp	City Mgr's office
9	[illegible]	CAL
10		
11		
12		

Mitigation Meeting

27-Feb-2017
13:00-14:00

Agenda:

Clarify and identify Mitigation Projects in alignment with the Hazard Screening and Ranking tool in the proposed Hazard Mitigation Plan per comments from reviewer from California Office of Emergency Services.

Minutes:

Discussion on what qualifies as Mitigation and examples. Departments will submit potential mitigation projects. Roy Dugger will provide a copy of the Hazard Screening and Ranking table from the current HMP and example mitigation projects to meeting attendees.

Present:

Leonard Champion, Fire Chief, Fire Dept.
Roy Dugger, Emergency Services Specialist. Fire Dept.
Mark Van de Kamp, Management Analyst II, City Manager's Office
Alex Posada, Recreation & Parks Director
Shad Springer, Director, Utilities
Jeff Clarin, Deputy Director, Utilities
Rodger Olds, Principal Civil Engineer, Public Works

15.9.2 Santa Maria Attachment 2: Outreach Materials

This attachment includes the Community Feedback Survey for the Santa Maria area, website postings, news releases, and newspaper articles demonstrating the City's efforts to engage public and interested stakeholders in the mitigation planning process.

The City is also a member of the Operational Area and participates in the Aware and Prepare collaborative, Public Education subcommittee, Emergency Managers group and other Operational Area wide coordination efforts to enhance and coordinate public outreach with consistent messaging and education. References to those programs and materials used are also provided in this annex.

A summary of the results from the Community Feedback Survey:

Survey Results

The survey responses are summarized below.

1. What is the zip code of your residence?

Area	Zip Code	Responses
Santa Maria	93454	13
	93458	13
Unincorporated Santa Maria area	93455	10
Lompoc Valley	93436	1
San Luis Obispo area	93401	1

2. Respondents were asked to mark the hazards that are of the most concern to them. More than one hazard could be chosen.

Hazard	Percentage	Responses
Agriculture (pests and disease)	39.47%	15
Climate Change	36.84%	14
Dam Failure	5.26%	2
Drought	84.21%	32
Earthquake	55.26%	21
Flooding (including coastal surge)	13.16%	5

Landslide/Coastal Erosion	5.26%	2
Tsunami	5.26%	2
Wildfire	44.74%	17
Additional Hazards (as identified by respondents verbatim)		
Social/Infrastructure Collapse		1
Zombies		1
Stray Dogs		1
Illegal aliens murdering people		1
Pesticides in the air and water supply		1
Chemicals from agriculture. Chemicals (round up) used at our city parks and open spaces.		1

3. Respondents were asked what they are doing to their property or within their home to reduce future damage from the hazards identified above. Below is a summary of responses:

Property Mitigation	**Percentage**	**Responses**
Seismic retrofit of the structure and / or foundation	2.63%	1
House elevation or first floor modification to prevent flood damage	2.63%	1
Installed backflow prevention device(s)	15.79%	6
Defensible space landscaping (clear vegetation around house to reduce wildfire risk)	50.00%	10
Installation of fire sprinklers	10.53%	4
Installation of fire hydrant or above ground water storage tank	2.63%	1
Installed earthquake bracing and tie-downs to heavy, expensive, or fragile objects (non-structural hazard reduction)	34.21%	13

4. Respondents were asked if they have a plan for evacuating large animals and pets. Below is a summary of responses:

Pet or Livestock Plan	Percentage	Responses
Yes, I have a plan for evacuating my pets (cats, dogs, etc.)	47.37%	18
Yes, I have a plan for evacuating my large animals (horses, cows, etc.)	2.63%	1
No, I have pets, but have not planned for their evacuation	21.05%	8
No, I have large animals, but have not planned for their evacuation	0%	0
Not applicable. I have no large animals or pets	31.58%	12

5. Respondents were asked if they included neighbors for family members who may need assistance (such as physical, emotional, language, age, electricity, etc.)

   Yes: 44.74% (17)

   No: 55.26% (21)

6. Respondents were asked what are the most important things local government can do to help communities be more prepared for a disaster.

Action	Percentage	Responses
Disseminate effective emergency notifications and communication	76.32%	29
Provide training and education to residents and business owners on how they can reduce future damage	57.89%	22
Community outreach regarding emergency preparedness	60.53%	23
Being aware of special needs and vulnerable populations	42.11%	16
Make a plan to use volunteer residents to help in a disaster	63.16%	24

7. Respondents were asked if an event occurred today (even if it wasn't a "disaster) and their home did not have services such as power, gas, water, or sewer, or stores or gas stations would be closed for 3 days to 6 weeks, which of these items do they have readily available.

Item that is Readily Available	Percentage	Responses
Potable Water (3 gallons per person)	44.74%	17
Can Opener	97.37%	37
Cooking and eating utensils	100.00%	38
Canned / Non-perishable Foods (ready to eat)	81.58%	31
Outdoor Gas grill / Camping stove and fuel	71.05%	27
Extra Medications	50.00%	19
First Aid Kit/Supplies	81.58%	31
Portable AM/FM/Weather Radio (solar powered, hand crank, or batteries)	50.00%	19
Important Family Photos/Documentation in a waterproof and fireproof container	28.95%	11
Extra Clothes and Shoes	86.84%	33
Blanket(s)/ Sleeping Bag(s)	86.84%	33
Cash	39.47%	15
Flashlight (with batteries)	81.58%	31
Half tank of fuel in your car	71.05%	27
Backup battery for cell phone	23.68%	9
Pet Supplies	47.37%	18

8. Respondents were asked if they had attended Community Emergency Response Training (CERT), or Listos or other preparedness training. Below is a summary of responses:

   Yes: 18.42% (7)

   No: 81.58% (31)

   Other:
   I have not heard of these trainings. (1)
   Fire extinguisher training. (1)

9. Respondents were asked if they live in an apartment building or a home with a living space above a garage or parking area:

   Yes: 26.32% (10)

   No: 73.68% (28)

10. Those respondents who indicated that they do live in an apartment building or home with living space above the garage or parking area were asked to describe their level of concern for the building to collapse in a large earthquake event.

Level of Concern	**Percentage**	**Responses**
Extremely concerned	0%	0
High concern	0%	0
Moderate concern	10.53%	4
Little concern	10.53%	4
Not concerned. I feel safe in my home.	13.16%	5
Not applicable	65.79%	25

11. Respondents who are homeowners were asked if they have adequate homeowner's insurance to cover the hazards that could impact their home. Below is a summary of responses:

Answer	**Percentage**	**Responses**
Yes, my insurance coverage should be adequate	52.63%	20
No, I don't believe my insurance coverage would be adequate for a major disaster	2.63%	1
Unsure	10.53%	4
I do not have an insurance policy	0%	0
Not applicable, I rent my current residence	34.21%	13

12. Respondents who are renters were asked if they have renter's insurance. Below is a summary of responses:

Answer	Percentage	Responses
Yes	19.44%	7
No	16.67%	6
Not applicable, I own my residence.	63.89%	23

13. Respondents were asked if they have earthquake insurance. Below is a summary of responses:

Answer	Percentage	Responses
Yes, I own my home and have earthquake insurance.	28.95%	11
Yes, I rent my home and have earthquake insurance.	7.89%	3
No, but I am interested in reviewing earthquake insurance options.	10.53%	4
No, earthquake insurance is too expensive.	52.63%	20

14. Respondents were asked if they have flood insurance. Below is a summary of responses:

Answer	Percentage	Responses
Yes, I own my home and have flood insurance.	18.42%	7
No, but I am interested in reviewing flood insurance options.	13.16%	5
No, I do not need flood insurance	68.42%	26

15. Respondents were asked for the zip code of where they work.

City	Zip Code	Responses
Santa Maria	93454	14
	93458	6
Santa Maria (unincorporated)	93455	11
San Luis Obispo	93401	3

Cal Poly San Luis Obispo	93407	1
Lompoc	93436	1
Vandenberg AFB	93437	1
Pismo Beach	93449	1

16. Respondents were asked if their place of work is in an area susceptible to natural hazards. Below is a list of natural hazards and responses from survey respondents:

Natural Hazard	**Percentage**	**Response**
High-risk flood zone	18.42%	7
Earthquake fault zone	36.84%	14
Liquefaction zone		
Landslide Risk Area	5.26%	2
Wildland Urban Interface (wildfire risk area)	15.79%	6
Sea level rise area	2.63%	1
I don't know	55.26%	21

17. Respondents were asked if their employer has a workforce communication plan to implement following a disaster so that the respondent may be contacted.

    Yes: 57.89% (22)

    No: 13.16% (5)

    Don’t Know: 28.95% (11)

18. Respondents were asked to list any studies that they are aware of being conducted within their community or the County regarding the risk to future hazard events.

    List (verbatim from respondents):
    Soilent Green
    levee flood study

19. Respondents were asked what recommendations they have for local government to improve identification, prioritization, and implementation of actions intended to reduce future damage and increase resiliency. The following recommendations were received:

Recommendations for Local Government	**Percentage**	**Responses**
Perform outreach to ensure people are aware of their environment and the inherent risks	75.76%	25
Provide training and materials on how residents can be prepared for the identified risks	81.82%	27
Enforce/update building codes	63.64%	21
Other (verbatim)		
Multilingual Emergency Communication Network		1
Have a team of trained staff and community volunteers ready to respond		1
Ensure ALL businesses follow codes. The health dept. is clearly being paid off, make sure the office in charge of this dept. isn't.		1
The City should monitor air quality.		1

20. Respondents were asked if they would like to review and comment on the City of Santa Maria's draft of the disaster plan.

    Yes: 35.29% (12)

    No: 64.71% (22)

21. Respondents were asked to provide any additional comments, suggestions, questions or concerns. The responses are verbatim below:

    Concerned about being able to get updated status during disaster recovery - communication is critical. Very concerned about freeway overpass collapse in earthquake splitting city off from medical services.

    Agricultural watering needs to be more regulated. I have seen far too many fields being sprinkler-irrigated in the afternoon when it is hot & windy (so barely any water is making it to the actual plants). Farmers need to be more educated about the most efficient times to water so that they stop wasting our ground water supply.

    I feel the City is woefully unprepared for a serious disaster or long-term disruption of utility services/infrastructure and have not addressed what to do in such a situation with the residents.

Commercials similar to the drought information would be beneficial.

Animal control should have an emergency line (from another question but most appropriate here).

22. This question was for contact information as a follow up to question number 20.

23. Respondents were asked to recommend other companies, associations, or organizations that should be involved in hazard mitigation planning. The list is summarized as some agencies were suggested more than once.

    - *Marian Hospital*
    - *Clinics*
    - *Medical services*
    - *Pharmacies*
    - *American Red Cross*
    - *Youth organizations (YMCA, Boys and Girls Club, Scouts)*
    - *Local businesses that provide products or services that would be needed in long-term disaster (fuel, food, medicine, building supplies, contractors, architects, engineers, etc.)*
    - *I.B.E.W. (International Brotherhood of Electrical Workers)*
    - *Potable water supply company*
    - *Churches to provide overnight shelter*
    - *Schools*
    - *Elder care facilities*
    - *SBCAN (Santa Barbara County Action Network)*

Public Review of Hazard Mitigation Plan:

The following is documentation of the open public review period from December 12th through December 19th 2016. The City issued a news release to all news media representatives (76 contacts). The release was printed on www.noozhawk.com and in the Santa Maria Times; and was prominently posted on the City website's homepage under "Latest News" and "In the Spotlight." No public comments were received on the draft plan.

Santa Maria City Website:

Noozhawk (local online news):

NOOZHAWK
the freshest news in Santa Barbara

PRINT THIS PAGE

Weigh In on Santa Maria Hazard Mitigation Plan

By Mark van de Kamp for city of Santa Maria | December 13, 2016 | 9:06 a.m.

The city of Santa Maria is requesting the public's participation to review and comment on the 2016 Multi-jurisdictional Hazard Mitigation Plan Update by 5 p.m. Monday, Dec. 19. Any resident is encouraged to provide input. Public participation is crucial to creating a more resilient community.

The plan is online at www.cityofsantamaria.org/home/showdocument?id=20735 (http://www.cityofsantamaria.org/home/showdocument?id=20735), or a print copy may be reviewed at the Santa Maria Public Library's second-floor reference desk, 421 S. McClelland St., or at the Santa Maria Fire Department's administrative office, 314 W. Cook St., Room 8.

The 2016 Santa Maria Hazard Mitigation Plan identifies risks and suggests ways to minimize vulnerabilities and damage from natural and manmade disasters.

The plan is a comprehensive resource that serves to enhance public awareness, act as a decision tool for policymakers, enhance local policies for risk reduction capabilities, provide coordination between the cities and the county, and promote compliance with state and federal program requirements.

The Federal Disaster Mitigation Act of 2000 requires all local governments to create a disaster Hazard Mitigation Plan in order to qualify for federal mitigation funding in the future. The plan is required to be updated and revised every five years.

Public comments will be reviewed by the designated city staff and incorporated into the current plan or into future edits to the plan, as appropriate.

For information and to participate in the public review process, contact the Emergency Services Specialist, Roy Dugger at 925-0951 ext. 2334 or by email at rdugger@cityofsantamaria.org.

— Mark van de Kamp for city of Santa Maria.

https://www.noozhawk.com/article/publics_input_sought_on_citys_hazard_safety_plan

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Santa Maria Times (local newspaper, delivered and online):

http://santamariatimes.com/news/local/govt-and-politics/santa-maria-hazard-mitigation-plan-available-for-review/article_bb5dc560-24f8-5e17-a6c8-18e94e8e7eab.html

Santa Maria Hazard Mitigation Plan available for review

Staff Report 19 hrs ago

The city of Santa Maria is requesting the public's participation to review and comment on its 2016 Multi-Jurisdictional Hazard Mitigation Plan Update by 5 p.m. Monday.

The plan is online at http://www.cityofsantamaria.org/home/showdocument?id=20735, or a print copy can be reviewed at the Santa Maria Public Library's second-floor Reference Desk, 421 S. McClelland St., or at the Santa Maria Fire Department's administrative office, 314 W. Cook St., Room 8.

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Public comments will be reviewed and incorporated into the current plan or into future edits to the plan, as appropriate.

For information and to participate in the public review process, contact the Emergency Services Specialist Roy Dugger at 925-0951, ext. 2334, or email him at rdugger@cityofsantamaria.org.

Logan Anderson

FEMA (Federal Emergency Management Agency) documents used by the City for outreach to the public:

Emergency Supply List: https://www.fema.gov/media-library/assets/documents/90354

Preparing Makes Sense: https://www.fema.gov/media-library/assets/documents/90058 (also provided in Spanish, English large text, Spanish large text)

Prepare for Emergencies Now: Information for Pet Owners: https://www.fema.gov/media-library/assets/documents/90356

Prepare for Emergencies Now: Information for Older Americans: https://www.fema.gov/media-library/assets/documents/90375

Preparing for Emergencies Makes Sense for People with Disabilities: https://www.fema.gov/media-library/assets/documents/90360

FEMA preparedness App: https://www.fema.gov/mobile-app

CERT (Community Emergency Response Team) courses: https://www.fema.gov/community-emergency-response-teams

American Red Cross. Reference to smart phone apps are provided to the public. For more information: http://www.redcross.org/get-help/prepare-for-emergencies/mobile-apps

Santa Barbara County Aware and Prepare Program: http://awareandprepare.org/

Listos Program. The following is the link to the most current documents and program. Archival material available at Santa Maria Fire Emergency Services program, 314 W. Cook St., Suite 8, Santa Maria, CA 93458. http://www.cafsti.org/programs/alertar-y-preparar-and-listos/

The City participates in a community collaborative for CERT. The community members use Twitter, Facebook, and Samariteam tools to promote preparedness and education in the community. The Emergency Services program participates by providing information from current risk assessments and input from Operational Area partners: Twitter: *@SantaMariaCERT*, Facebook: *Santa Maria Valley CERT*, Samariteam: https://santamariacert.samariteam.com

Press Releases:

The following are links to press coverage of mitigation and education outreach to the community. These are a sample. Coverage in Spanish language media (Radio and TV) is also common. The Santa Maria Times often has an editorial on preparedness based on recent national and international events.

Listos program:

http://santamariatimes.com/news/local/listos-graduates-trained-in-emergency-preparedness/article_4da05032-eede-5e6d-aac0-ba3161312560.html

CERT program

http://santamariatimes.com/news/local/gallery-cert-class-tested-in-disaster-final/collection_63a00406-c47b-5088-8a93-7ac291c3cb2f.html

http://santamariatimes.com/news/local/community-volunteers-receive-real-life-training-in-disaster-response/article_0b4c0d94-c023-592d-8e30-b3a94547f09c.html

http://santamariatimes.com/news/local/cert-training-helps-with-el-ni-o-preparedness/article_f906e438-68bf-5d3c-9005-b003a79ed665.html

http://santamariatimes.com/santamaria/fire-department-trains-emergency-response-team/article_1a876031-7681-5b07-80a0-be158c04448a.html

http://santamariatimes.com/news/local/santa-maria-fire-department-offering-free-preparedness-class/article_fe597e39-9c9e-5102-ad28-b3f5575f897d.html

Editorials on preparedness

http://santamariatimes.com/news/opinion/editorial/getting-ready-for-the-worst/article_b0529b73-e8b4-53f7-9ee5-c5a35fda6d26.html

Full scale Airport Exercise

http://santamariatimes.com/news/local/agencies-test-teamwork-during-emergency-airport-drill/article_a77b7583-4c6f-5c06-8119-079c48aada13.html

Press coverage for the online Hazard Mitigation Survey for the City of Santa Maria:

https://www.noozhawk.com/article/city_of_santa_maria_asks_residents_to_fill_out_disaster_readiness_survey

http://santamariachambernews.com/2016/08/take-quick-online-survey-to-help-santa-maria-plan-to-reduce-hazards/

Local press that cover emergency preparedness activities and promote preparedness.

www.santamariatimes.com

https://www.noozhawk.com/

15.9.3 References

Main Page that links to Plans and Environmental Impact Reports for the City of Santa Maria

http://www.cityofsantamaria.org/about-us/codes-and-documents

General Plan Annual Report 2014

http://www.cityofsantamaria.org/city-government/departments/community-development/planning-division/planning-policies-and-regulations/general-plan

Zoning District Map:

http://www.cityofsantamaria.org/home/showdocument?id=6625

Economic Development Element of General Plan

http://www.cityofsantamaria.org/home/showdocument?id=602http://www.ci.santa-maria.ca.us/54327-EconomicDevelopmentElement.pdf

Safety Element of General Plan

http://www.cityofsantamaria.org/home/showdocument?id=612

Capital Improvement Projects (taken from current 2016-18 City Budget)

http://www.cityofsantamaria.org/home/showdocument?id=15219

Integrated Plan for Water Quality

http://www.cityofsantamaria.org/city-government/departments/utilities-sewer-water-trash/stormwater/integrated-plan-for-water-quality

2014 Annual Report of Hydrologic Conditions, Water Requirements, Supplies and Disposition Santa Maria Valley Management Area, April 2015

http://www.cityofsantamaria.org/home/showdocument?id=11806

CITY OF SOLVANG

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SECTION 16 City of SOLVANG

16.1 INTRODUCTION

Solvang was founded in 1911 by a group of Danish teachers. Danish for "Sunny Fields", Solvang is now a popular tourist destination. Located in the Santa Ynez Valley, it is home to a variety of Danish festivals, the Hans Christian Andersen Park, Danish pastries and Danish-themed shops. Solvang was incorporated as a city on May 1, 1985 and has a population of 5,345. It is located just off the south coast of the County, at an elevation of roughly 496 feet. The median resident age in Solvang is 49.7, and the median income was $66,511 according to the 2014 American Community Survey. Solvang, like the rest of the Santa Ynez Valley continues to experience growth as people migrate from the coastal areas looking for affordable real estate within commuting distance to the more populous areas of the County, however, unlike the rest of the Valley, Solvang is close to full build out with very few vacant, developable parcels remaining. Solvang enjoys a Mediterranean coastal climate with mild to hot, dry summers and cool winters.

16.2 PLAN PURPOSE

This annex was prepared in 2017 as part of an update to the Santa Barbara County Multi-Jurisdictional Hazard Mitigation Plan. The City of Solvang participated in the County wide Mitigation Advisory Committee, reviewed all portions of the prior Hazard Mitigation Plan pertaining to the City, interfaced with other cities and special district representatives, and incorporated relevant components into this annex. This annex serves as a complete hazard mitigation planning tool for the City of Solvang. It contains updated capability assessment information, a new vulnerability assessment, and an updated/revised mitigation strategy. The methodology and process for developing this annex is explained throughout the following sections. City Council Resolution No. 17-1020 adopting this annex is provided as Appendix A.

16.3 PLANNING PROCESS

16.3.1 Overview and Regional Planning

The planning process implemented for updating the Santa Barbara County *Multi-Jurisdictional Hazard Mitigation Plan* (HMP) used two different planning teams. The first team is the Mitigation Advisory Committee (MAC) and the second is the Local Planning team. All eight incorporated cities (Buellton, Carpinteria, Goleta, Guadalupe, Lompoc, Santa Barbara, Santa Maria, and Solvang) joined the County of Santa Barbara in the preparation of this *Multi-Jurisdictional Hazard Mitigation Plan*. Each of the participating jurisdictions had representation on the MAC and was responsible for the administration of their Local Planning Team.

The planning process followed the concepts and principles outlined in the Comprehensive Preparedness Guide (CPG) 101. Both the MAC and the Local Planning teams focused on these underling philosophies:

- *Focus on the mitigation strategy*

  The mitigation strategy is the plan's primary purpose. All other sections contribute to and inform the mitigation strategy and specific hazard mitigation actions.

- *Process is as important as the plan itself*

  In mitigation planning, as with most other planning efforts, the plan is only as good as the process and people involved in its development. The plan should also serve as the written record, or documentation, of the planning process.

- *This is the community's plan*

  To have value; the plan must represent the current needs and values of the community and be useful for local officials and stakeholders. Develop the mitigation plan in a way that best serves your community's purpose and people.

- *Intent is as important as Compliance*

  Plan reviews will focus on whether the mitigation plan meets the intent of the law and regulation; and ultimately that the plan will make the community safer from hazards.

The planning process for the Santa Barbara County HMP incorporated the following steps:

- *Plan Preparation*
  - Form/Validate planning team members
  - Establishing common project goals
  - Setting expectations and timelines
- *Plan Development*
  - Validate and revise the existing conditions/situation within planning area; the *Capabilities Assessment and Hazard Assessment Sections* in the HMP
  - Develop and review the risk to hazards (exposure and vulnerability) within the planning area; the *Vulnerability Assessment Section* in the HMP
  - Review and identify mitigation actions and projects within the planning area; the Mitigation Strategy in the HMP
- *Finalize the Plan*
  - Review and revise the plan
  - Approve the plan
  - Adopt and disseminate the plan

Throughout this process, and through other standard practices, opportunities for public involvement were offered and encouraged. More details about public engagement are provided under Section 3.3.

The MAC team was guided through the planning process; and as material was shared and decisions were made, it was the MAC team's responsibility to bring these findings back to their Local Planning Team. Below is a summary of the collaborative planning process of the MAC and Local Planning team.

The Mitigation Advisory Committee (MAC), formed in 2004, is a standing committee that works together throughout the year to discuss and provide input on a variety of activities. The MAC is led by Santa Barbara County Public Works Department, Fire, and Office of Emergency Services and has representation from all of the local jurisdictions.

The MAC was utilized for the updating of the Santa Barbara County HMP. To assist with this effort Santa Barbara County Fire, Office of Emergency Services hired a consultant to support and assist each jurisdiction to update their Local Hazard Mitigation Plan; contained as an annex in the Santa Barbara County *Multi-Jurisdictional Hazard Mitigation Plan*. The table below lists the members of the MAC.

Table 1 Members of the Mitigation Advisory Committee 2015-2016

Names	Organization	MAC Member Status
Michael Dyer	Santa Barbara County – Emergency Manager	New Member
Shannon McCrone	Santa Barbara County – Emergency Services Planner	New Member
Robert Troy	Santa Barbara County – Deputy Director Emergency Management	New Member
Tylor Headrick	Santa Barbara County- GIS/Emergency Services Planner	New Member
Steve Oaks	Santa Barbara County Fire – Battalion Chief	New Member
Rob Hazard	Santa Barbara County Fire – Captain	New Member
Rudy Martel	Santa Barbara County Agricultural Commissioner	New Member
Joyce Tromp	Santa Barbara County Flood Control	New Member
Jon Frye	Santa Barbara County Flood	New Member
Tom Fayram	Santa Barbara County PW Deputy Director	Returning Member
Matthew Schneider	Santa Barbara County Planning and Development Deputy Director-Long Range Planning	New Member
Marc Bierdzinski	City of Buellton – City Manager/Planning Director	Returning Member
Mimi Audelo	City of Carpinteria – Program Manager	New Member
Claudia Dato	City of Goleta – Senior Project Manager (Public Safety)	Returning Member
Gary Hoving	City of Guadalupe – Public Safety Director	New Member
Kurt Latipow	City of Lompoc – Fire Chief	New Member
Yolanda McGlinchey	City of Santa Barbara – Emergency Services Manager	Returning Member
Roy Dugger	City of Santa Maria – Emergency Preparedness Coordinator	Returning Member
Lisa Martin	City of Solvang – City Clerk/Emergency Coordinator	New Member

Jim Caesar	UCSB – Emergency Manager	Returning Member
Lindsey Stanley	Cal OES – Emergency Services Coordinator	New Member
Andrew Petrow	Consultant	New Member

MAC meetings were held from April 2015 through June 2016. Each meeting was designed to walk the MAC members through sections of the Santa Barbara County HMP and annexes. In addition to reviewing and validating material, the intent was to also educate MAC members on the planning process and purpose of each section. By taking this step it will help ensure that each MAC member could bring this knowledge back to their Local Planning Teams.

16.3.2 City Local Planning Team Meetings and Outcomes

After FEMA approval and City Council Adoption, adoption, the 2011 HMP was integrated into the Seismic and Safety Element of the City's General Plan by Council Resolution. City planning efforts and Capital Projects directed by the city were influenced by the information taken from the 2011 HMP. The 2011 HMP was also utilized and referenced to update the City Emergency Operations Plan, Land Use Plan, and the Capital Project Plan.

Table 2 lists the City of Solvang Local Planning Team (LPT). As previously mentioned, these individuals reviewed the previous Hazard Mitigation Plan (HMP) and collaborated to identify the City's critical facilities, provide relevant material (i.e., plans), validate hazard information, report on progress of city mitigation actions and provide suggestions for new mitigation actions as part of the MAC.

Table 2 City of Solvang Local Planning Team 2016

Name	Title
Brad Vidro	City Manager/Emergency Manager
Lisa Martin	City Clerk/Emergency Coordinator
Matt van der Linden	Public Works Director/City Engineer
Arleen Pelster	Planning Director
Bridget Elliott	Associate Engineer

The City of Solvang Local Planning Team (LPT) discussed the Hazard Mitigation Plan after MAC meetings at monthly city staff meetings during the planning process, and on June 16, 2016 to discuss specific data needs, critical facilities and mitigation strategies. After these meetings, relevant information was incorporated into the current annex.

16.3.3 Public Involvement

In May 2015, an online survey in both English and Spanish was distributed county-wide to solicit public input regarding the concern for risk to natural hazard events and suggestions for how local government could minimize the risk. The City of Solvang notified residents and businesses of the opportunity to participate in the survey through posting it on the City's website and notifying key stakeholders such as city departments and CERT members via email. Survey results are contained in the County of Santa Barbara portion of the HMP.

The public was also invited to a public workshop to receive plan input was held at the Solvang Council chambers on July 15, 2016.

Emergency preparedness information is also regularly distributed to the residents and businesses via the City's website.

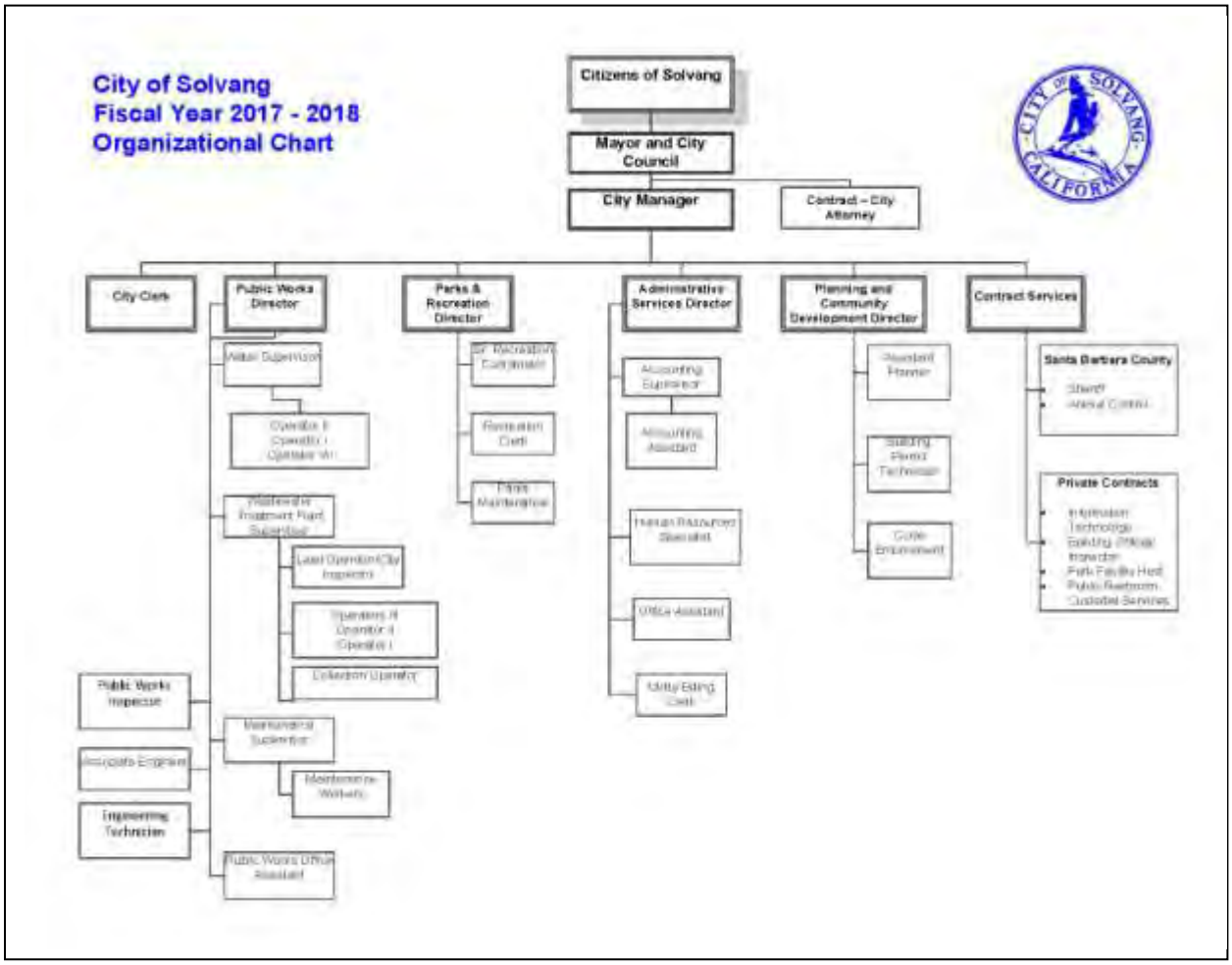
16.4 CAPABILITY ASSESSMENT

The City identified current capabilities and mechanisms available for implementing hazard mitigation activities. This section presents a discussion of the roles of key departments, administrative and technical capacity, fiscal resources, and summaries of relevant planning mechanisms, codes, and ordinances.

16.4.1 Key Departments

Solvang utilizes the Council-Manager form of local governance, which includes both elected officials and an appointed City Manager. Solvang has five council members, which includes an elected mayor with a two-year term and a mayor pro-tem, who is appointed each calendar year to represent Solvang.

The City Council is Solvang's legislative body, setting policy, approving budgets, and setting tax rates. Members also hire the City Manager, who is responsible for the day-to-day administration of Solvang, and serves as the Council's chief advisor. The City Manager prepares a recommended budget, recruits and hires most of the City's staff, and carries out the council's policies. While the City Manager may recommend policy decisions, he is ultimately bound by the actions of the Council. The Council appoints the City Attorney. Solvang's organizational chart is shown below.



Departments involved in activities related to Hazard Mitigation include:

- **Fire Protection Services** (Solvang is part of the Santa Barbara County Fire District).
  - Administration: Develop, implement and monitor policies, procedures, budgets, fees, automatic aid agreements, mutual aid agreements, and liaison with other City departments and outside agencies.
  - Fire Prevention Bureau: Coordinate adoption of codes and ordinances, review site and building plans for fire code compliance, and develop and present public education programs.
  - Emergency Medical Services: Manage the department's paramedic and EMT programs, respond to medical emergencies and other calls for service, and participate with other community and regional health care providers to reduce public illness and injury.
  - Suppression Division: Maintain the department's personnel, apparatus, equipment and fire stations in a state of readiness to respond to the community's needs, develop and implement standard operating procedures for various types of emergency responses, respond to all types of emergencies, and train and interact with neighboring jurisdictions and regional agencies.
- **Building & Safety Department** (Solvang has a Building Division for issuance of Building Permits, but contracts with a private company for Building & Safety services related to plan check and inspection)
  - Coordinate adoption of building, plumbing, electrical, and mechanical codes. Develop building ordinances.
  - Review site and building plans for compliance with building codes and ordinances. Conduct inspections of building permit related construction projects.
  - Conduct health and safety inspections relating to violations of the building, electrical, plumbing, and mechanical codes.
  - Damage assessment of structures from multiple causes to facilitate repair and future occupancy.
- **Solvang City Manager/Planning Department**
  - Emergency Management: Coordinate Solvang's Disaster Preparedness Program, liaison with all City departments and divisions, as well as other public and private organizations, develop, coordinate and implement the EOP, and maintain the operational readiness of Solvang's Emergency Management Team, the E.O.C., and other key elements.
  - Develop and maintain Solvang's general plan, zoning ordinances and development standards.
  - Oversee Solvang's development process assuring compliance with zoning and general plan, and including environmental impact reports, design review, historic preservation, landscape review, habitat conservation, floodway prohibitions and post-construction stormwater development standards.
  - Through the Code Enforcement position, manage Solvang's weed abatement program along with County Fire.
- **Solvang Public Works Department**
  - Maintains Solvang's infrastructure (assets) ranging from streets to parks to buildings, vehicle fleet, and water and wastewater infrastructure..

- Responds to Solvang's emergencies, includes EOC response in disasters and assisting police and fire departments with hazardous materials clean up, debris removal, traffic and perimeter control efforts, traffic accident clean up and evacuation routing.
- Operates, maintains and enhances both the water treatment/distribution and wastewater collection/treatment systems within Solvang.
- Responsible for planning and implementation associated with the following plans:
  - 1.1.1 Bradbury Dam Emergency Action Plan
  - 1.1.2 Water Quality Emergency Notification Plan
  - 1.1.3 Water Division Emergency Response Plan
  - 1.1.4 Wastewater Overflow Response & Prevention Plan
  - 1.1.5 Wastewater Treatment Plant Operations Plan
  - 1.1.6 Stormwater Management Plan

- **Engineering Department**
  - Reviews engineering on private and public grading, floodways, retention basins, and infrastructure to assure compliance with Federal, State and local ordinances.
  - Develops engineering ordinances, policies, and standards that help protect and preserve Solvang's infrastructure.
  - Evaluates all circulation elements for projected traffic impacts.
  - Determines needed infrastructure improvements, water system and water/wastewater treatment capabilities.
  - Provides response personnel for evaluation of damaged infrastructure.
  - Provides support as necessary to Solvang's EOC Team.
  - Coordinates other response agencies assisting with damage assessment and assists with cost estimates for damage assessment.
- **Police Department** (Solvang contracts with Santa Barbara County Sheriff's Department for Police Services).
  - Responds to safety concerns involving threats and/or damage to life or property. Acts as the enforcement entity for violations of State and local laws and ordinances.
  - Primary emergency responders to acts of civil disobedience and public disorders and terrorism. Support personnel for emergency rescue and management.
  - Investigative services for criminal acts that result in personal injury/death and the destruction of property.
  - Develops and implements emergency response plans and policies, focusing on evacuation procedures and traffic control.
  - Primary responders to acts of terrorism, focusing on suspect intervention and facility and staff protection.

16.4.2 Administrative and Technical Capacity

The administrative and technical capabilities of Solvang, as shown in Table 3, summarizes the staff, personnel, and department resources available to implement the actions identified in the mitigation section of the Plan. Specific resources reviewed include those involving technical personnel such as planners/engineers with knowledge of land development and land management practices and familiar with hazards in the community, engineers trained in construction practices related to building and infrastructure, planners and engineers with an understanding of natural or manmade hazards, floodplain managers, surveyors, and personnel with GIS skills. Equipment and supplies maintained by the Public Works Director.

Table 3
Solvang's Administrative and Technical Capacity

Staff/Personnel Resources	Y/N	Department/Agency and Position
A. Planner(s) or engineer(s) with knowledge of land development and land management practices	Y	Planning – Planning Director
B. Engineer(s) or professional(s) trained in construction practices related to buildings	Y	Engineering & Building – City Engineer & Contract Building Inspector and Official
C. Planners or Engineer(s) with an understanding of natural and/or manmade hazards	Y	Planning & Engineering – Planning Director/City Engineer
D. Floodplain Manager	Y	Public Works - City Engineer
E. Surveyors	Y	County of Santa Barbara Surveyor
F. Staff with education or expertise to assess the community's vulnerability to hazards	Y	Fire Department/Planning – Fire Chief and Planning Director
G. Personnel skilled in GIS and/or HAZUS	Y	Public Works –Engineering Staff
H. Scientists familiar with the hazards of the community	Y	Consultants
I. Emergency Manager/Emergency Coordinator	Y	City Manager/City Clerk
J. Grant Writers	Y	City Staff

16.4.3 Legal and Regulatory Capabilities

The legal and regulatory capabilities of Solvang are shown in Table 4, which presents the existing ordinances and codes that affect the physical or built environment of Solvang. Examples of legal and/or regulatory capabilities include building codes, zoning ordinances, subdivision ordinances, special purpose ordinances, growth management ordinances, site plan review, general plans, capital improvement plans, economic development plans, emergency response plans, and real estate disclosure laws.

Table 4
Solvang's Legal and Regulatory Capability

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

[1]Building Code, [2]25% slopes, flood plain, smart-growth, [3]Storm Drains, [4]General Plan.

16.4.4 GIS, Computer and Communication Technology

The City has a basic GIS system used by the Public Works and Planning Departments. Currently, parcels, zoning and flood hazards have been mapped including water, sewer, and storm drain systems. Hazard layers created for this plan can be incorporated into that system for future planning and updates. In the event it is needed, the GIS system is fully functional and can be used to provide the State of California Office of Emergency Services with preliminary damage assessments.

Through the Santa Barbara County Sheriff's Department, Solvang has a fully functional 911 emergency telephone system, dispatch capabilities, and a reverse 911 system to issue warnings in advance of disasters. The Santa Barbara County Office of Emergency Services is also implementing new emergency notification software called Everbridge for use throughout the county.

Solvang is fully functional on the internet and has its own website which will be used to assist with communication necessary for implementation and future updates of this plan. Emergency Alerts can be added to the City of Solvang website home page to provide essential information to residents. Solvang also has a satellite phone for emergency communications.

16.4.5 Financial Resources

Solvang's financial worth continues to grow. The General Fund balance is an important element that can show Solvang's financial strengths or weaknesses. The Finance Department confirms that Solvang has over 2,300 properties with a total taxable value of approximately $1,055,704,000. For Fiscal Year 2016-2017 (FY 16-17), Solvang's General Fund operating budget is approximately $7.6M.

The revenue budget for Solvang contains several funding sources, each governed by a distinct set of conditions particular to that revenue source. The largest General Fund revenue source for the City is Transient Occupancy Tax, generated from local tourism. In addition, Property Taxes also contribute significantly to the health of the General Fund. The General Fund does not have any outstanding debt.

The largest revenue factor and the core of the resource base that enables Solvang's provision of community services is the local revenue portion of Solvang's General Fund. Solvang's revenue base is determined by different community conditions such as the current population, employment and income, economic activity within Solvang, the growth of invested value from residential and commercial construction, business investment in plant and equipment, and demand for local real property. National, State, and regional economic conditions can also affect Solvang's revenue base by creating demand for community goods and services produced within Solvang. The primary revenue sources for the City are transient occupancy tax, sales tax, and property tax. The majority of expenditures are for operation and maintenance, water, and employee salaries and benefits.

Solvang's major economic drivers for its revenue base are from transient occupancy tax sales tax, population growth, employment, construction, property values, and commercial activities. Solvang will begin to see a deceleration of population growth and construction over the next seven years based on the fact that Solvang is nearly built out.

Over the last few years, California's budget has diminished rapidly due to decreased tax revenues from an economic recession. The overall health of California's economy has a significant influence on local cities and counties, as local government appropriations are usually the first to have their appropriations diminished due to downturns in the economy.

Solvang's long-term financial and programmatic policies to be achieved over the next few years demonstrate its dedication to protecting the life and property of Solvang residents and businesses include:

- Continued development of the storm water management system and continued qualitative drainage measures.
- Provide support in public safety to maintain current response time and professionalism, to limit injury, loss of life, and property.
- Funding of emergency preparedness training, including CERT.

Overall, Solvang has indirectly referenced mitigation and hazard reduction principles throughout many of the aforementioned documents, plans, and policies. Integrating more direct language referencing mitigation and hazard reduction will help to reinforce Solvang's commitment to these principles. The indirect references can also indicate that the responsibility for hazard reduction is shared among numerous departments within Solvang, making it a challenge to identify a particular department to take the lead in these efforts.

Table 5 shows specific financial and budgetary tools available to Solvang such as community development block grants; capital improvements project funding; authority to levy taxes for specific purposes; fees for water and sewer services; impact fees for developers for new development; ability to incur debt through general obligations bonds; and withholding spending in hazard-prone areas.

Table 5
Solvang's Fiscal Capability

Financial Resources	Accessible or Eligible to Use (Yes/No)
• Community Development Block Grants (CDBG)	Y
• Capital improvements project funding	Y
• Authority to levy taxes for specific purposes	Y – Vote required
• Fees for water and wastewater service	Y
• Impact fees for developers for new developments/homes	Y
• Incur debt through general obligation bonds	Y
• Incur debt through special tax and revenue bonds	Y – Vote required
• Incur debt through private activity bonds	N
• Withhold spending in hazard-prone areas	N
• Other – SANDAG Grant	N
• Other – Other Grants	N

16.4.6 Relevant Plans, Policies, and Ordinances

Solvang has a range of guidance documents and plans for each of its departments. These include a General Plan, Public Works Water/Sewer Plans, Capital Improvement Plans, Storm Water Management Program, Parks & Recreation Master Plan, and Standardized Emergency Management Plan. Relevant information from each of these Plans was incorporated into Solvang's Hazard Mitigation Plan during the Local Planning Team Process. Solvang adopts building codes, zoning ordinances, subdivision ordinances, and various planning strategies to address how and where development occurs. One of the essential ways Solvang guides its future is through policies laid out in the General Plan.

It is important to note that during the LHMP update planning process these plans, programs, codes, and policies were evaluated to determine their effectiveness to expand and improve risk education and reduction efforts, as well as, its usefulness to implement mitigation measures. Any shortfalls or areas where the plans, programs, codes, and policies could be improved or expanded were identified and captured under annual review, the annual planning process and Mitigation Actions chapter of this plan.. If no mitigation actions were identified, then it can be assumed that the planning team determined that no shortfalls or areas for improvement are needed.

16.4.6.1 City of Solvang General Plan

Land Use Element
The majority of land within the City boundaries has been developed, with a bulk of the land zoned for residential use. Solvang is separated from neighboring communities by a greenbelt of agricultural and open space areas. The Santa Ynez River, Alamo Pintado Creek, Alisal Creek, and Adobe Creek are sources of flooding concern for the City of Solvang. The land surrounding these water bodies will be held as riparian and publicly owned open space. The City provides water and wastewater services and also designs and manages roadway and pedestrian facilities to minimize conflicts between

automobiles, pedestrians, and bicyclists. To ensure that the demand for public facilities and services does not exceed the City's ability to provide these facilities and services, the City periodically reviews projected municipal service and public facility demands.

Development in the City of Solvang over the last five years, much like the county as a whole, has been limited to infill type projects. No new commercial development has occurred in any hazard prone area within the city limits, therefore the vulnerability has not changed in those areas. Any new development must adhere to adopted building codes, zoning ordinances and subdivision ordinances. Before approving new development; Solvang determines that public services and resources are available to serve the new development. Public safety services are provided through a contract with the County of Santa Barbara's Fire and Sheriff's departments.

Housing Element
Conserving and improving existing housing and residential neighborhoods in Solvang is regarded as an important goal. Sixty percent of the City's housing stock is 30 years or older. The City will support and encourage neighborhood preservation and upgrading through participation in the CDBG Urban County Partnership (County and cities of Buellton, Carpinteria, Lompoc and Solvang) and the HOME Consortium (Urban County members plus Goleta and Santa Maria). These partnerships receive federal affordable housing and community development funding under three programs administered by the U.S. Department of Housing and Urban Development (HUD):

- Community Development Block Grant (CDBG)
- HOME Investment Partnerships Program (HOME)
- Emergency Solutions Grant (ESG)

The City's participation is in an effort to pursue funds for housing repair assistance and residential rehabilitation assistance. The City also operates a code enforcement program. Code enforcement is a means to ensure that the character and quality of neighborhoods is enhanced and maintained. Code enforcement efforts in Solvang will focus on bringing substandard units into compliance with current building and development codes. The City also contracts with California Code Check for the enforcement of building codes. The development review process is another important tool in ensuring that new housing meets safety codes and zoning regulations is able to be served by all necessary utilities and infrastructure before a development permit is issued.

Development in the City of Solvang is subject to the Zoning Ordinance and the California Building Code that establishes minimum standards for all classes of construction.

Safety Element
The Safety Element identifies existing conditions and issues involving potential hazards and public safety considerations relevant to Solvang. It sets forth goals, objectives, and policies to provide for public health, safety, and welfare. The key issues that affect Solvang are hazards associated with seismicity, slope stability, flooding, structural fires, and wildfires. By identifying the nature and location of potential hazards, Solvang has adopted a land use plan that reflects such hazards and has been able to establish appropriate programs to prevent or minimize death, injuries, damage to property, and economic and social dislocation resulting from public safety hazards.

Physical constraints affect potential land development in Solvang. Development along the Santa Ynez River, Alamo Pintado Creek, and Adobe Creek is constrained due to flood hazard and biological resource considerations. Similarly, steep slopes and other areas of potential geologic hazards limit the extent of development in hillside areas within and around the City. In an effort to reduce the damages from flooding, new structures must be set back at least 50 feet from the top of the

banks of the creeks mentioned above, except where culverted. Development that is mapped in flood prone areas is subject to FEMA requirements and any new development must minimize flood problems that are identified by the National Flood Insurance Rate Program. To prevent dam inundation, evacuations plans should be in place.

Flooding

Areas potentially subject to inundation by 100-year floods should be limited to land uses that do not interfere with the capacity of the drainage course and that minimize hazards posed to people and property. Thus, agricultural and recreation/open space land uses are considered the most appropriate land uses for the 100 year flood zone. The only area in Solvang where development has occurred within a 100-year flood zone is along Alamo Pintado Creek near State Route 246, and portions of the Alisal Golf Course. No new urban development should be permitted within any 100-year flood zone unless it can be demonstrated that building pads will be located above the 100-year flood level and/or flood-proofing measures are incorporated into project design. Information prepared by a civil or hydrological engineer that certifies compliance with development standards must be submitted to the City prior to construction. To minimize the adverse effects of urbanization on drainage and flood control facilities, the City will require the implementation of adequate erosion control measures for development projects. Solvang will maintain its open space preserves and require developers to provide adequate open space to minimize impermeable surfaces throughout the city which can promote flooding. Urban land uses may be permitted within the 500-year floodplain with the understanding that some degree of risk is assumed for potential damage resulting from infrequent and typically shallow flooding. The only area in Solvang where development has occurred within a 500-year flood zone is the eastern portion of the Creekside neighborhood along Alamo Pintado Creek.

Seismic/Geologic Hazards

The suitability of land for development is influenced strongly by the presence of certain geologic and seismic hazards. These hazards range from the direct and indirect effects associated with earthquakes to problems associated with slope stability and soil conditions that are not conducive to development. To ensure that geologic hazards in areas for human use or habitation are mitigated properly or avoided prior to development, the City will require geotechnical investigations by an engineering geologist and civil engineer for all grading and construction proposed within any area of potential slope instability and/or areas subject to severe seismic hazards. All construction will be required to be in conformance with the California Building Code as it provides regulations for earthquake-resistant design and excavation and grading, and with the City's adopted hillside development ordinance. The development of critical facilities is restricted in areas determined to be high risk geologic hazard zones.

Fire

The Solvang Municipal Code includes adoption of the Uniform Fire Code which contains specific development regulations for areas of high and severe fire hazard. Site plans for any development proposed in high hazard areas are subject to the review of the Fire Marshal during the City's site plan review process. Such plans must show that the site provides adequate emergency access, has adequate water supply and pressure to meet fire flow needs, and provides an adequate fuel break or buffer zone to prevent the spread of structural fires to wild land areas. Further, strict enforcement of building codes will minimize potential fire hazards resulting from inappropriate building materials or structural design. The City will enforce an ordinance that establishes criteria for land development in hillside areas with an emphasis on fire-retardant construction materials, access for fire-fighting personnel and equipment, and removal of combustible vegetation. Fire prevention and control measures include the removal or reduction of vegetation that constitutes fuel for fires in or near developed areas, controlled burning, and the development of a network of firebreaks that reduce the potential spread of wildfires.

Maintaining adequate emergency response capabilities is also necessary to ensure that fires are controlled. The Solvang Fire Department should be provided with sufficient financial resources to maintain its facilities, equipment, and personnel at a level appropriate to the needs identified by the City's Emergency Services Coordinator. City and County roads to access high fire hazard areas should remain unobstructed and in adequate condition so that emergency vehicles will continue to have access to these areas.

Hazardous Materials and Aircraft Hazards

Aside from natural hazards, the Safety Element identifies hazardous material incidents and aircraft hazards as man-made hazards. Aircraft hazards do not seem to pose a serious threat to the City due to the fact that Solvang is located outside the Santa Ynez Valley Airport's area of influence. Therefore, no special planning measures are documented in the General Plan to manage potential aircraft hazards. Goals, policies, and mitigation measures to reduce the negative effects of hazardous material incidents are described in detail in the SafetyElement.

Hazardous materials, such as household products, asbestos, lead-based paint, and aerially-deposited lead, can be found in the City. In order to reduce the negative effects of household products, Solvang participates in a quarterly Household Hazardous Waste and Electronics Collection and Recycling Day, when such materials are accepted free of charge. Santa Barbara County also has a hazardous waste management plan.

Solvang will respond to the unlikely event of a contaminant release from all City water treatment facilities in accordance with the City's emergency response procedures.

Disaster Preparedness

Disaster preparedness involves the development of response procedures, identification of evacuation routes, design and installation of warning systems, purchase of emergency equipment, and training of emergency personnel. Mitigation programs are akin to preparedness actions in that they are measures to reduce or eliminate the adverse effects of future hazard events. The principal forms of mitigation are: land use controls to prevent or limit the location of development and populations in areas that are susceptible to hazard events, enforcement of building codes, and the installation of structural barriers, such as dams and levees, to shield people and development from harm. The City of Solvang's Director of Emergency Services is responsible for overseeing the City's disaster preparedness program. Key aspects of Solvang's local emergency management program involve disaster evacuation and the operation of emergencyshelters.

Public Facilities and Services

A shortage of critical materials, such as a clean water supply, is a hazard that jurisdictions strive to avoid. In Solvang, water is supplied by the City of Solvang Water Division. Potable water sources in Solvang include local groundwater wells and State water. The City's Water Master Plan and EIR indicate that the City has adequate water and sewer capacity to meet expected build-out needs. The water and sewer infrastructure varies in age. Both water and sewer facilities undergo regular maintenance activities to ensure the systems are operational.

Another hazard that jurisdictions strive to avoid is a utility mishap. All new development is required to underground all utilities. The undergrounding of utility cables can prevent a power/utility service outage in Solvang during flooding, high winds, and earthquakes.

Fire and police protection is also a concern of Solvang, as ensuring the capabilities of these departments helps aid hazard mitigation. The City of Solvang contracts with the Santa Barbara County Sheriff's Department for law enforcement services. The Sheriff's department responds to growth by assigning additional deputies to an area in direct proportion to its increase in population.

To provide an adequate level of police protection throughout the City, a minimum of one full-time police officer per every 1,500 residents is required.

16.4.6.2 Zoning and Subdivision Ordinances

The State of California has empowered all cities and counties to adopt zoning ordinances. Solvang's original Zoning Ordinance was adopted on July 22, 1993, and has been amended several times. It is codified in Title 11 of the Municipal Code. Solvang adopted a Subdivision Ordinance on April 17, 1966, reference Solvang Municipal Code Title 12.

Solvang has a five member Planning Commission, which is an advisory body to the City Council. The Commission was established under State law to provide relief in special cases where the exact application of the terms of the ordinance would be unduly restrictive and cause a hardship, in addition to generally reviewing zoning and subdivision proposals. The Planning Commission hears and decides upon the interpretation and the application of the provisions of the Zoning and Subdivision Ordinances. Although the Commission has certain discretionary powers in making its decisions, the Commission must always abide by and comply with the powers granted to it by the local Zoning and Subdivision Ordinances and the State's enabling acts. Additionally, the Planning Commission may recommend actions to the City Council and the Planning Commission's actions may be appealed to the City Council.

16.4.6.3 Building Codes

The State of California has adopted the most recent California Building Codes, which have been adopted and are enforced in Solvang. Reference Title 10 of the Municipal Code.

Solvang has its own Building Department for permit processing services, but contracts with a private company for plan check and inspection services. The Building Department is principally responsible for enforcing State, City, and County Codes for building residential and commercial structures, and enforcing environmental codes and guidelines for maintaining existing structures.

16.4.6.4 Floodplain Management Ordinance

The City participates in the National Flood Insurance Program (NFIP) and will continue to comply with NFIP requirements by maintaining Floodplain Management Ordinance No. 93-140 which was updated in August of 1995 and July of 2015. It is codified in Title 13 of the Municipal Code. The City contracts with the County for a Joint Exercise of Powers Agreement for flood control. When a project is proposed within the City of Solvang and lies within a FEMA defined Special Flood Hazard Area (SFHA), the project review is contracted out to the Santa Barbara County Flood Control District and recommendations are given back to the City of Solvang.

When reviewing projects for new construction within a SFHA, the County Flood Control District will establish the Base Flood Elevation (BFE) and recommend that the lowest finished floor of the building be elevated to two feet above the BFE for a habitable structure. For those structures that are not habitable, (i.e. storage, detached garage, etc.) Flood Control recommends that those structures be flood proofed according to FEMA standards. The County Flood Control District reviews plans according to the Santa Barbara County Code Chapter 15A "Floodplain Management".

Additionally, floodplain districts identified in the FIRMs include the following flood hazard zones and definitions:

- **Zone A** is the flood insurance rate zone that corresponds to the 100-year floodplains that are determined in the Flood Insurance Study (FIS) by approximate methods. Because detailed hydraulic analysis is not performed for such areas, no Base Flood Elevations or flood hazard factors are determined.
- **Zone AO** is the flood insurance rate zone that corresponds to areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; average depths of inundation are shown, but no flood hazard factors are determined.
- **Zone A1-A30** is the flood insurance rate zone that corresponds to areas of 100-year flood; base flood elevations and flood hazard factors are determined.
- **Zone B** is the flood insurance rate zone that corresponds to areas between limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths less than one (1) foot or where the contributing drainage area is less than one square mile; or areas protected by levees from the base flood.
- **Zone C** is the flood insurance rate zone that corresponds to areas of minimal flooding.

16.4.6.5 Repetitive Loss (RL) Properties

Repetitive loss properties are defined as property that is insured under the NFIP that has filed two or more claims in excess of $1,000 each within any consecutive 10-year period since 1978. The City has no identified repetitive loss properties.

16.4.6.6 City of Solvang Storm Water Management Program

In California, the State Water Resources Control Board (SWRCB) has determined that urban runoff is a leading cause of pollution through the state, with impacts on both human health and aquatic ecosystems. The SWRCB identified the City of Solvang as a small municipal separate system requiring coverage under the National Pollutant Discharge Elimination System (NPDES) *General Permit for Storm Water Discharges from Small Municipal Separate Storm Sewer Systems (MS4s)*, Water Quality Order No. 2003-0005-DWQ (General Permit). A requirement of the General Permit is development of a Storm Water Management Program (SWMP) to reduce the discharge of pollutants.

The General Permit also requires the development and implementation of Best Management Practices (BMPs) to address six Minimum Control Measures (MCMs). This includes the following: 1) Public Education and Outreach on Storm Water Impacts; 2) Public Involvement and Participation; 3) Illicit Discharge Detection and Elimination; 4) Construction Site Storm Water Runoff Control; 5) Post-Construction Storm Water Management in New Development and Redevelopment; and 6) Pollution Prevention/Good Housekeeping for Municipal Operations.

The Storm Water Management Plan has been prepared by the City of Solvang and describes the City's program necessary to comply with the General Permit. It also serves as a framework for identifying, assigning, and implementing control measures and BMPs intended to reduce the discharge of pollutants and protect downstream water quality.

Its purpose is to serve as a planning and guidance document to be used by the City's regulatory body; to define techniques and measureable goals for measuring BMP effectiveness; and to define a five-year schedule for SWMP implementation to comply with the General Permit requirements.

Following a description on the City of Solvang the document comprehensively describes the Minimum Control Measures. They comprise the most substantive section of the Storm Water

Management Program:

1. *Public Outreach and Education*

This measure is intended to ensure greater public support and compliance for the storm water management program. Specifically, they teach the public the importance of protecting stormwater quality. The City has already begun and will continue to partner with other local municipalities, such as the County of Santa Barbara and the Cities of Lompoc, Santa Maria, Solvang, Goleta, Santa Barbara, and Carpinteria to develop materials and host civic events.

The City also implements BMPs, including the use of: 1) Brochures; 2) Web Pages; 3) Events; 4) Educational programs for children; 5) Storm Drain Markings; 6) Stormwater Hotlines; 7) Direct Mail/Media campaigns; 8) Business outreach programs; 9) Botanical garden exhibits; 10) Public surveys; and 11) Ongoing assessments of social marketing strategies. The SWMP also includes effectiveness measures and measurable goals for each respective BMP.

2. *Public Participation and Involvement*

The goal is to foster active community support for the SWMP. The City implements BMPs, including: 1) Regular public meetings; 2) Regular coordination efforts among amongst local agencies/stakeholders; 3) Community clean-ups; 4) Water quality hotlines; 5) and Lists of interested parties. The SWMP also includes effectiveness measures and measurable goals for each respective BMP. Its purpose is to assure that the program will be supported by City residents and will provide input to guide development of the program in the future.

3. *Illicit Discharge Detection and Elimination*

The City will enhance its current system to identify and eliminate illicit discharges throughout the permit area. A map identifying "trouble spots and potential illegal dumping areas" in the City has been developed and will be updated as needed.

The City implements BMPs, including: 1) Maps of the storm drain system; 2) Storm water ordinances; 3) Education and outreach programs; 4) Education/Training of municipal employees; 5) Identification and elimination of illicit discharge sources; 6) Drain filters for commercial connections; 7) Wastewater programs; and a 8) Pet waste disposal program. The city intends to maintain ongoing efforts to control illicit discharge at current levels by implementing these BMPs. The SWMP also includes effectiveness measures and measurable goals for each respective practice.

4. *Construction Site Runoff Control*

The purpose of construction site runoff controls is to prevent soil and construction waste from entering the storm water. The City will review its current Excavation and Grading Code and standard practices for compliance with the minimum requirements – according to the USEPA. It will also require all construction projects to collect construction waste and materials on site and dispose of it in a legal and proper manner.

The City implements BMPs, including: 1) Construction Site Enforcement, Inspections; 2) Development of construction site inspection and enforcement procedures; 3) Development of procedures for review of grading/erosion control/construction site plans; 4) Discretionary projects – conditions of approval; 5) Staff training; 6) Construction workshop; 7) Construction site stormwater control ordinance; and 8) Procedures for receipt and consideration of information from the public. The SWMP also includes effectiveness measures and measurable goals for each respective BMP.

5. *Post-Construction Runoff Control*

This minimum control measure focuses on site planning and design considerations, which are most effective when addressed in the early stages of project development. The goal of the program is to integrate basic and practical storm water management techniques into new development to protect water quality.

The City adopted and is implementing/applying water quality protection policies related to hydro-modification control criteria (post construction requirements – PCRs) to new development and redevelopment projects. The City has adopted/developed guidance for PCRs, including: design, monitoring, maintenance, and inspection requirements and guidance to assist developers in the selection, design, and maintenance of hydro-modification control measures.

The City implements BMPs, including: 1) Review of regulations; 2) Staff training; 3) Plan review; 4) inspection of post-construction stormwater BMPs; 5) Long-term monitoring of post-construction stormwater BMPs; 6) Master drainage plan; 7) Long-term watershed protection and plan; 8) Use of low impact development in project design; 9) Adoption of hydro-modification control criteria; and10) Education and outreach efforts. The SWMP also includes effectiveness measurable goals for each respective practice.

6. *Pollution Prevention Control and Good Housekeeping for Municipal Operations*

The purpose of this minimum control measure for Municipal Operations/Good Housekeeping Practices is to assure that the City's delivery of public services occurs in a manner protective of storm water quality to the maximum extent practical and protect overall water quality. In this way the City may serve as a model to the community.

The City implements BMPs, including: 1) Training of employees on stormwater pollution prevention; 2) Street sweeping; 3) Storm drain cleaning; and 4) Trash, green waste and recycling. Data collected for each measurable goal will be compiled, reviewed and summarized as part annual report to the Regional Water Quality Control Board (RWQCB).

<u>Monitoring and Reporting Requirements</u>

The purpose of monitoring and reporting is to document successful implementation of the SWMP and determining the program's effectiveness at reducing pollutants to the MEP and protect water quality. The General Permit requires that annual reports be submitted annually upon approval of the City's SWMP. The City intends these annual reports to cover the fiscal year immediately prior to the reporting period.

16.4.6.7 City of Solvang Waste Water Treatment Plant

The City of Solvang is located in northern Santa Barbara County and operates a publicly owned treatment works facility whose discharge influences the Santa Ynez River. In recognition of this important asset, the city has developed an examination to determine the true operating capacity of the existing wastewater treatment plant and to plan for the future. Its scope includes a forecast of demographic and planning development through General Plan build-out and an estimation of the respective wastewater flow characteristics.

16.4.6.8 City of Solvang Emergency Operations Plan

The 2014 Emergency Operations Plan (EOP) for the City of Solvang addresses the planned response to emergency situations associated with natural disasters, technological incidents and national security emergencies that occur within or affect the City. The plan does not address normal day-to-day emergencies.

The Plan:

- Establishes the emergency management organization required to respond to and mitigate any significant emergency or disaster affecting the City;
- Identifies the policies, responsibilities and procedures required to protect the health and safety of the city community, public and private property, and the environmental effects of natural and technological emergencies and disasters; and
- Establishes the operational concepts and procedures associated with field response to emergencies, the City's Emergency Operations Center (EOC) activities, and the recovery process.

It establishes the framework for implementation of the California Standardized Emergency Management System (SEMS) and the National Incident Management System (NIMS) in the City of Solvang. The document is a concept of operations guide, intended to facilitate multi-agency and multi-jurisdictional coordination in emergency operations particularly between the City of Solvang, Special Districts, and the Santa Barbara County Operational Area.

The scope presented in the EOP applies to all elements of the City's Emergency Organization during all phases of emergency management. Its primary audience is intended for emergency management staff from the city and other interested parties (e.g. the Federal government, other State or local governments, and volunteer agencies).

The EOP is organized in three sections.

- **Part One - Basic Plan**. The overall organizational and operational concepts relative to response and recovery are described in this section. Its intended audience is the Emergency Operations Center (EOC) Management Team.
- **Part Two - Emergency Organization Functions**. It is a description of the emergency response organization and emergency action checklists. The intended audience is EOC staff.
- **Part Three – Supporting documents to the City's Emergency Operations Plan**. These documents identify both SEMS and NIMS compliance information.

Hazard mitigation is discussed in *Part One- Basic Plan* and includes a series of programs and best management practices to efficiently minimize the risks to natural hazards. They are:

1) Enhance public awareness and understanding;
2) Create a decision tool for management;
3) Promote compliance with State and Federal program requirements;
4) Enhance local policies for hazard mitigation capability;
5) Provide inter-jurisdictional coordination of mitigation-related programming;
6) Achieve regulatory compliance.

There are three emergency management goals set forth in the Emergency Operations Plan, which include:

- Provide effective life safety measures, reduce property loss, and protect the environment
- Provide for the rapid resumption of impacted businesses and community services
- Provide accurate documentation and records required for cost recovery efforts

Through use of these practices and the acknowledgement of Federal and State Hazard Mitigation Programs, the City of Solvang is cognizant of the resources available and the method by which to leverage them -- before, during, and after an event.

16.4.6.9 SEMS Multi-Hazard Functional Plan

In early July 2008, Solvang adopted its first Emergency Operations Plan including the integration of the Standardized Emergency Management System (SEMS) and the National Incident Management System (NIMS) Multi-Hazard Functional Plan into the Emergency Management System. The Plan discusses mitigation in the form of training and exercises, which are essential at all levels of government to make emergency operations personnel operationally ready. All emergency plans should include provision for training. The objective is to train and educate public officials, emergency response personnel and the public. The best method for training staff to manage emergency operations is through exercises. Exercises are conducted on a regular basis to maintain the readiness of operational procedures. Exercises provide personnel with an opportunity to become thoroughly familiar with the procedures, facilities and systems which will actually be used in emergency situations. There are several forms of exercises:

- Tabletop exercises provide a convenient and low-cost method designed to evaluate policy, plans and procedures and resolve coordination and responsibilities. Such exercises are a good way to see if policies and procedures exist to handle certain issues.
- Functional exercises are designed to test and evaluate the capability of an individual function such as evacuation, medical, communications or public information.
- Full-scale exercises simulate an actual emergency. They typically involve complete emergency management staff and are designed to evaluate the operational capability of the emergency management system.

The SEMS Multi-Hazard Functional Plan will be updated to reflect the current hazard risk assessment and mitigation activities identified in this hazard mitigation plan annex.

16.5 HAZARD ASSESSMENT

The City of Solvang had their LPT review the hazard listings developed by the MAC. The listing was modified by the LPT based on the hazards that impact the City. After reviewing the County's MAC listing, the LPT for the City of Solvang determined that flooding, wildfire, earthquakes, landslides, dam failure, and climate change (associated with wildfire and flooding) are the major hazards that affect the critical facilities within the City. Table 6 provides the hazard ranking for the City of Solvang. Rankings were determined by the LPT based on knowledge of the area. The full description of these hazards county-wide is contained in the County portion of the document.

The LPT determined, based on the LPT's knowledge of the City, that the following hazards, while some may exist, do not pose a threat to the critical facilities within the City of Solvang and have not been analyzed in this annex: expansive soils/land subsidence, tsunami, sea level rise/coastal flooding, severe weather and storms, extreme heat, freeze, hailstorm, tornado, windstorm, agriculture pests and disease, marine invasive species, epidemic/pandemic/vector borne disease, levee failure, hazardous material release, energy shortage and energy resiliency, natural gas pipeline/storage, oil spill, radiological accident, terrorism, cyber threats, commercial/military aircraft crash, civil disturbance, train accident, and well stimulation/hydraulic fracking. Most of these additional hazards are being addressed in the more comprehensive THIRA document.

Table 6
City of Solvang - Hazard Ranking and Planning Consideration 2016

Hazard Type and Ranking	Probability and Impact Based on Hazard Level
Flooding	High / Medium Impact
Wildfire	High / Medium Impact
Earthquake	Medium / High Impact
Landslide	Medium / Low Impact
Dam Failure	Low / Medium Impact

16.5.1 Flood

The City of Solvang ranked flood hazard as being a significant risk to the City. Coastal Storm Surge is not a concern to the City of Solvang as it is located inland from the coast.

In Solvang, hazardous flooding events are most commonly associated with the Santa Ynez River, Adobe Canyon Creek, Alisal Creek, and Alamo Pintado Creek.

In accordance with Title 13 of the Municipal Code (Flood Plain Management), when a project is proposed within the City of Solvang and lies within a FEMA defined Special Flood Hazard Area (SFHA), the project review is contracted out to the Santa Barbara County Flood Control District and recommendations are given back to the City of Solvang.

When reviewing projects for new construction within a Special Flood Hazard Area, the County Flood Control District will establish the Base Flood Elevation (BFE) and recommend that the lowest finished floor of the building be elevated to two feet above the BFE for a habitable structure. For those structures that are not habitable, (i.e. storage, detached garage, etc.) Flood Control recommends that those structures be flood proofed according to FEMA standards. The County Flood Control District reviews plans according to the Santa Barbara County Code Chapter 15A “Floodplain Management”.

16.5.2 Wildfire

The City of Solvang ranked wildfire hazard as being a significant risk to the City.

The threat of a wildland fire affecting Solvang is high due to the presence of dense, flammable vegetative fuels on land surrounding the City adjacent to the City’s wildland urban interface and especially in the hills surrounding the north and northwest portions of the City. The wildland urban interface is where structures and other human development meet or intermingle with wildland or vegetative fuels. The threat is particularly significant during dry summer months and when there are strong Santa Ana winds. The fire season extends approximately 5 to 6 months, from late spring through fall.

Solvang is part of the Santa Barbara County Fire District. Fire Station No. 30 is located at the City’s Municipal Center. Response times within the City are 3 to 5 minutes. All high fire zones within Solvang are mapped. The Fire Department, as well as the California Building Code, requires that all new habitable development install indoor sprinklers and use fire resistant building materials. Within the unincorporated areas surrounding Solvang , the Fire Department has a vegetation management program that annually inspects all lots in early spring and advises property owners that all brush must

be removed by July 1. Within the City Limits, the Solvang Code Enforcement Officer and County Fire undertake a weed abatement program in the Spring.

16.5.3 Earthquake

The City of Solvang ranked earthquake hazard as being a moderate risk to the City.

The City is located in the Santa Ynez Valley, a wedge-shaped topographic depression bounded by the Santa Ynez Mountains on the south, the San Rafael Mountains to the east and north, and the Purisima Hills on the west. It is a down-dropped structural block between two major faults. On the south, the east-west trending Santa Ynez Fault forms the base of the uplifted Santa Ynez Mountains and extends from Ventura County across the entire width of Santa Barbara County.

The City and its planning area are located in Seismic Zone 4, which is the highest potential status for earthquake activity in the state of California. Solvang's fault lines and liquefaction zones are mapped. The City previously examined all structures within the City limits and all un-reinforced masonry buildings located within Solvang have received seismic retrofitting.

The Uniform California Earthquake Rupture Forecast (UCERF) suggests that the Solvang area has between a 5% - 10% probability of experiencing an earthquake of magnitude 6.7 over the next 30 years.

Title 10, Chapter 1 of the Solvang Municipal Code (Building Codes) regulates construction activities within the City to protect the health, safety, and general welfare of the public and natural environment. All construction is required to be in conformance with the California Building Code (CBC), specifically Chapter 23 as it proves for earthquake-resistant design, Chapter 70 as it provides for excavation and grading, and with the City's adopted hillside development ordinance.

16.5.4 Landslide

The City of Solvang ranked the landslide as being a moderate risk to the City.

Several landslides have been mapped in the hillside area east of Alisal Creek which is outside the City limits and Plan area.

Solvang's critical facilities are not located within areas susceptible to landslides.

16.5.5 Dam Failure

The City of Solvang ranked the dam failure hazard as being a limited risk to the City. Solvang lies downstream of Bradbury Dam (Lake Cachuma) and Gibraltar Dam and reservoir.

Flooding associated with dam failure on one of the local or upstream dams has a low probability for occurrence. Solvang could experience flooding via the Santa Ynez River. A significant seismic retrofit of Bradbury Dam was completed in 2006 which brought the dam up to federal standards for seismic safety.

16.5.6 Climate Change

The City of Solvang is not located along the coast so sea level rise associated with climate change would not occur. However, storms with increased severity could exacerbate flooding impacts within

the City as well as increase fire hazards. Drought is also associated with climate change, however, drought does not pose a threat to the operation of the City's critical facilities. We will not assess Climate Change as a hazard, as the related flood and fire vulnerabilities are assessed in the following section.

16.6 VULNERABILITY ASSESSMENT

The purpose of this section is to estimate the potential vulnerability (impacts) of hazards within the City of Solvang on the built environment (residential, non-residential, critical facilities, etc.) and population. To accomplish this, three (3) different approaches will be used: 1) application of scientific loss estimation models; 2) analysis of exposure of critical facilities to hazards; and 3) a qualitative estimate of the impacts to hazards. It is important to note that the first two approaches can only be applied to hazards that have an exposure area (footprint). The City of Solvang identified 28 critical facilities to be included in the Risk Assessment portion of the plan. These facilities primarily included utilities, government, educational, and healthcare structures. Of the data that was available, it was shown that these buildings are worth approximately $12 million in structure value and $1.2 million in contents. However, additional dollar values (structure or content) were missing from half of the facilities supplied for further risk assessment.

16.6.1 Hazus Software and Inventory Data

To assess potential impacts on infrastructure and the population in the County and incorporated cities, earthquake and flood scenarios have been analyzed using Hazus[1], FEMA's geographic information system (GIS) based, standardized, multi-hazard earthquake, flood and hurricane loss estimation methodology and software. The latest version of Hazus (Hazus 3.0, released in November, 2015) has been used to conduct the county-wide earthquake and flood risk assessments. Hazus' standard configuration allows for "out-of-the-box" regional or community-wide loss assessment using default ("Level 1") building inventory databases, aggregated to the census tract (earthquake) or census block (flood) level. A summary of Hazus' default building inventory data for Santa Barbara County, and the City of Solvang, are given in **Table 7** (by general occupancy) and **Table 8** (by general building type). The distribution of buildings across the various construction classes given in **Table 8** is estimated using Hazus' default relationships (e.g., x percent of offices may be built of concrete frame, y% of offices may be built of reinforced masonry, etc.). The actual distribution of building across these construction types may be different. For example, the California Seismic Safety Commission (CSSC) published results of unreinforced masonry building surveys (CSSC, 2006), which indicate that 2 URM buildings in Solvang, vs. 18 URM buildings predicted by the default database.

[1] For more information on Hazus, see: http://www.fema.gov/hazus

Table 9 provides a summary of the default data for police stations, fire stations and public schools contained in the Hazus essential facilities database for Santa Barbara County, and Solvang areas. **Table 9** also indicates the construction type and design level assumed by Hazus for these facilities; all are assumed to be wood frame of either High or Moderate code design level. A more accurate risk assessment could be conducted if additional facility information was collected, such as structural system, number of stories, year of construction/seismic code used for design, building square footage, building replacement value, and content replacement value. It should be noted that the Hazus default database represents each school campus with a single building record of an assumed construction type. In reality, most public schools are multi-building campuses, built over a period of years (i.e., buildings may be designed to different seismic codes). To improve the risk assessment for public schools, information on each individual building would need to be collected.

Table 7: Hazus 3.0 Default Building Inventory Data for Santa Barbara County and the Unincorporated County Areas, by General Occupancy

Jurisdiction	General Occupancy	Building Replacement Value ($1,000)	Contents Replacement Value ($1,000)	Building Square Footage (1,000 Sq. Ft.)	Building Count
Santa Barbara County	Residential	$34,724,716	$17,364,871	231,312	116,304
	Commercial	$6,387,442	$6,837,941	38,617	7,325
	Industrial	$1,307,134	$1,815,947	9,609	1,934
	Other	$1,805,563	$1,905,059	11,455	1,810
	Total	**$44,224,855**	**$27,923,818**	**290,993**	**127,373**
City of Solvang	Residential	$672,200	$336,163	4,303	2,086
	Commercial	$191,843	$210,000	1,086	195
	Industrial	$20,391	$26,830	159	43
	Other	$28,970	$29,666	178	46
	TOTAL	**$913,404**	**$602,659**	**5,726**	**2,370**
	% of County Total	0.02%	0.021%	0.019%	0.018%

Table 8: Hazus 3.0 Default Building Inventory Data for Santa Barbara County and the Unincorporated County Areas, by General Building Type

Jurisdiction	General Building Type	Building Replacement Value ($1,000)	Building Replacement Value (%)	Estimated Building Count	% of Building Count
Santa Barbara County	Concrete	$2,492,739	5.6%	2,396	2%
	Manufactured Housing	$415,023	0.9%	7,669	6%
	Precast Concrete	$1,556,413	3.5%	2,005	2%
	Reinforced Masonry	$3,088,459	7.0%	3,858	3%

	Steel	$2,461,502	5.6%	2,614	2%
	Unreinforced Masonry	$614,394	1.4%	727	1%
	Wood Frame (Other)	$1,733,790	3.9%	2,001	2%
	Wood Frame (Single-family)	$31,862,522	72.0%	106,108	83%
	TOTAL	**$44,224,842**		**127,378**	
City of Solvang	Concrete	$58,634	6.4%	57	2%
	Manufactured Housing	$7,269	0.8%	135	6%
	Precast Concrete	$33,126	3.6%	47	2%
	Reinforced Masonry	$74,062	8.1%	87	4%
	Steel	$54,421	6.0%	63	3%
	Unreinforced Masonry	$15,606	1.7%	18	1%
	Wood Frame (Other)	$56,108	6.1%	55	2%
	Wood Frame (Single-family)	$614,177	67.2%	1,908	81%
	TOTAL	**$913,403**		**2,370**	
	% of County Total	**0.02%**		**0.021%**	

Table 9: Hazus 3.0 Default Essential Facilities Data for Santa Barbara County and the City of Solvang

Essential Facility Type	Hazus Default Structural Class and Design Level	Santa Barbara County	City of Solvang
Fire Stations*	W1 (Wood Frame ≤ 5,000 Sq.Ft.), Moderate Code Design Level	41	1
Police Stations	W1 (Wood Frame ≤ 5,000 Sq.Ft.), Moderate Code Design Level	16	1
Public Schools	W1 (Wood Frame ≤ 5,000 Sq.Ft.), High Code Design Level	123	1

* For the current assessment, the default fire station data has been revised to include missing stations.

16.6.2 Analysis of Exposure of Critical Facilities to Hazards

The Local Planning Team and the Mitigation Advisory Committee (MAC) reviewed and updated its list critical facilities and a generated a summary of the facilities by major categories: Law, Fire, Public Works, Health and Human Services, Administrative, Communications, and Other (**Table 10**). This list of critical facilities presents the buildings and structures that are the County's primary concern for ensuring resiliency; they include both County owned or operated facilities as well as some privately owned and operated facilities. Information for County owned or operated facilities (building replacement cost and building content costs) were reviewed and updated as needed; where available the same information was reviewed and updated for the privately owned or operated facilities.

Using Geographic Information Systems (GIS) software, each critical facility was geolocated on maps to illustrate the geographic location of each facility. Based on each facility's geolocation, GIS software was then used to identify facilities within the hazard exposure area (footprint). The results were a map and a table summarizing the total number of exposed critical facilities by the major categories; and a total of the building replacement cost and building content costs for county owned or operated facilities. This approach was done for Wildfire, Dam Failure, Landslides/Earth Movements.

Table 10: Solvang Critical Facilities

Map ID	Critical Facility	Category of Facility	Bldg Value	Contents Value
1	Sewer Force Main	Public Works		
2	Fjord Lift Station	Public Works	$321,375	
3	Well 3	Public Works		
4	Wellhead Treatment Bldg	Public Works	$2,515	$42,798
5	WasteWater Treatment Plant	Public Works	$406,240	$276,422
6	WWTP Awnings/Belt Press	Public Works	$8,377	$359,499
7	WWTP Tanks/Pumps/Blowers	Public Works	$3,145,693	
8	WWTP Digester/Equipment	Public Works	$237,641	
9	WWTP Butler Bldg	Public Works	$79,215	
10	WWTP Pump/Generator Bldg	Public Works	$167,579	$85,596
11	Alisal Lift Station	Public Works	$132,664	
12	Well 7A	Public Works		
13	State Water Pump Station	Public Works		
14	Well 4	Public Works		
15	Municipal Center/City Hall	Administrative	$2,633,060	$187,241
16	Solvang School/Upper& Lower	Other		
17	Veteran's Memorial Bldg	Other	$2,310,572	$105,349
18	Santa Barbara Co Sheriffs Dept	Law		
19	Reservoir No. 1	Public Works	$1,339,060	
20	Santa Ynez Cottage Hospital	Health and Human Services		
21	Reservoir No. 2	Public Works	$736,483	
22	Alisal Ranch Reservoir	Public Works	$535,623	
23	Alisal Bridge	Other		
24	County Fire Station 30	Fire		$225,767
25	PHD Community Health Clinic & PHP	Health and Human Services		$12,065
26	Atterdag Village	Health and Human Services		
27	Sansum Clinic	Health and Human Services		
28	Hwy 246-Alamo Pintado Creek Bridge	Other		

16.6.3 Qualitative Estimate of Impacts

The approach used to complete this effort involves utilizing readily available data (i.e., Census) to extrapolate and estimate potential vulnerability. In some cases, the estimation will build upon historic events but it may also include projecting worst case potentials. The MAC and the Local Planning Team summarized the remaining hazards to which the City of Solvang is vulnerable and assessed the amount and type of damage that could be expected.

16.6.4 Scientific Loss Estimation Analysis

16.6.4.1 Earthquake and Liquefaction (High Impact/Medium Probability)

The entire geography of Santa Barbara County is exposed to some risk of shaking from an earthquake. The many fault lines, soil types, and construction types lead to a complicated assessment of vulnerability to earthquake. However, most of the land-based faults are either inactive or potentially active. Nearly all of the seismicity has been in the Santa Barbara Channel.

16.6.4.1.2 HAZUS-MH Earthquake Risk Assessment

Two earthquake scenarios developed by the United States Geological Survey (USGS), as shown in **Figure 6.1** and **Figure 6.2**, were selected to assess the range of impacts across the county. City-level maps of ground shaking for the same scenarios are shown in **Figure 6.3** and **Figure 6.4**.

Figure 16.1 Figure 16.2

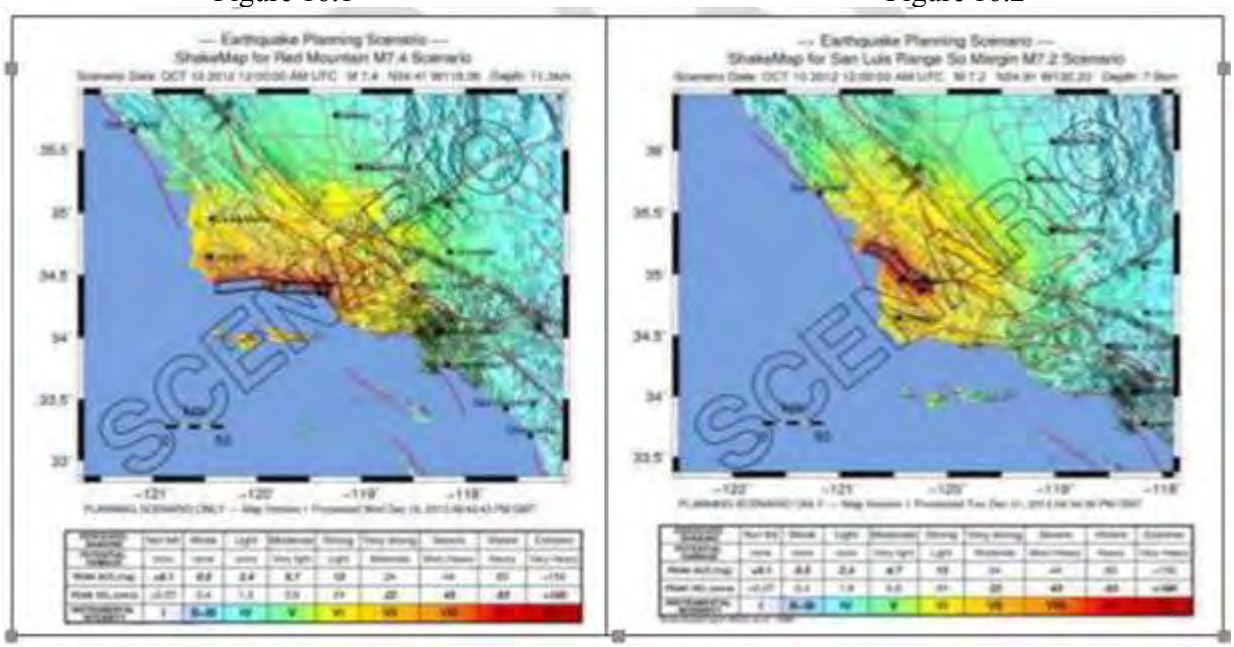


Figure 1: Scenario 1 (Left) – M7.4 Earthquake on the Red Mountain Fault (Source: USGS, http://earthquake.usgs.gov/earthquakes/shakemap/sc/shake/red_mountain_m7.4_se/) and Scenario 2 (Right) M7.2 Earthquake on the San Luis Range Fault, South Margin (Source: USGS, http://earthquake.usgs.gov/earthquakes/shakemap/sc/shake/san_luis_range_so_margin_m7.2_se/)

Figure 16.3

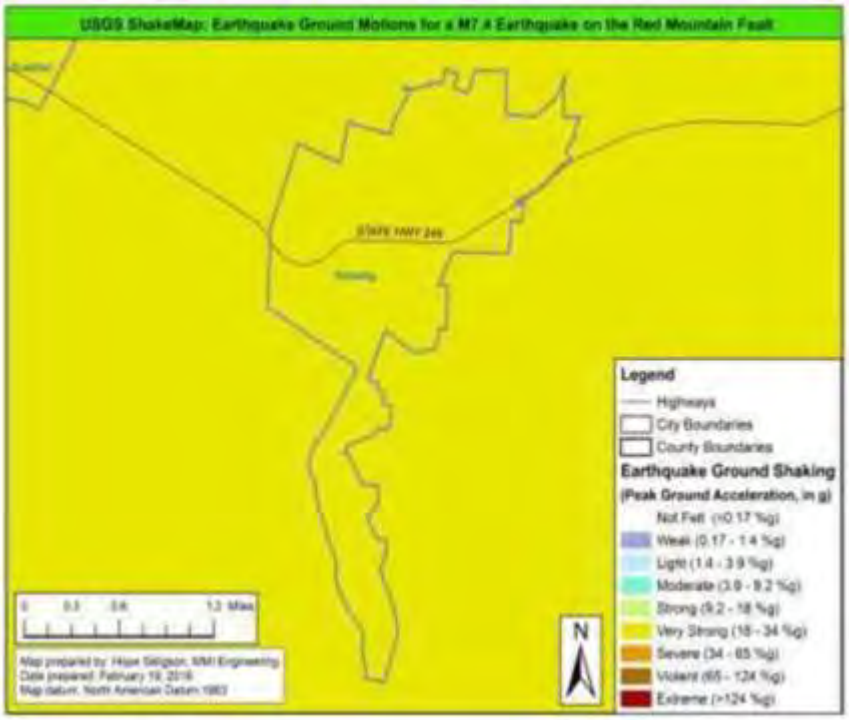
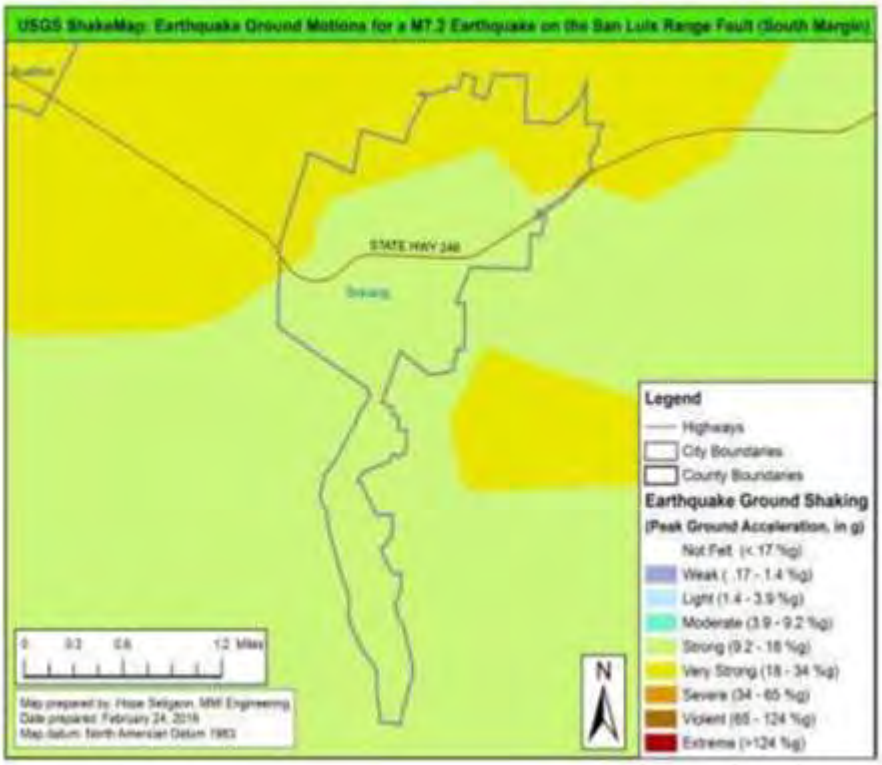


Figure 16.4



As noted above, the latest version of Hazus (Hazus 3.0, released in November, 2015) was used to conduct county-wide earthquake risk assessments. Hazus results, computed at the census tract level, were aggregated to produce city-level impact summaries. An overview of the county-wide results for both scenarios is provided in **Table 11**, along with the sub-set of results that represent the City of Solvang. As shown, the M7.4 Red Mountain Fault earthquake scenario generates more building damage and loss in the City of Solvang than the M7.2 San Luis Range Fault earthquake scenario.

Table 12 provides a breakdown of estimated building damage (building count by Hazus damage state) by general building type, allowing for an understanding of the distribution of predicted damage in the modeled scenarios.

Functionality of essential facilities included in the Hazus default database (with additional fire station facilities added) in the two scenario earthquakes is summarized in **Table 13** for Santa Barbara County and the City of Solvang.

Table 11: Estimated Impacts for Two Earthquake Scenario Events Affecting Santa Barbara County & City of Solvang

		Santa Barbara County		City of Solvang	
	Scenario	M7.4 Red Mountain	M7.2 San Luis Range South Margin	M7.4 Red Mountain	M7.2 San Luis Range South Margin
Direct Economic Losses for Buildings ($1,000)					
	Total Building Exposure Value	44,224,855		913,404	
Capital Stock Losses	Cost of Structural Damage	434,128	92,238	1,145	486
	Cost of Non-Structural Damage	1,782,698	431,791	8,316	4,603
	Total Building Damage (Str. + Non-Str.)	2,216,826	524,029	**9,461**	**5,089**
	Building Loss Ratio %	5.0%	1.2%	1.0%	0.6%
	Cost of Contents Damage	688,049	176,643	4,047	2,365
	Inventory Loss	15,507	3,463	65	40
Income Losses	Relocation Loss	186,261	39,827	402	123
	Capital-Related Loss	129,318	23,692	387	118
	Rental Income Loss	116,283	21,160	349	134
	Wage Losses	157,673	31,615	475	142
	Total Direct Economic Loss	**3,509,917**	**820,429**	**15,187**	**8,011**
	% Of Countywide Loss	100.0%	100.0%	**0.4%**	**1.0%**
Casualties					
Day Casualties	**Casualties - 2 pm**				
	Level 1 - minor injuries, basic first aid	1,163	288	1	0
	Level 2 - hospital treat & release	297	63	0	0
	Level 3 - injuries requiring hospitalization	47	9	0	0
	Level 4 - fatalities	**87**	**17**	**0**	**0**
	Total Casualties	**1,594**	**377**	**1**	**0**

Night Casualties	**Casualties - 2 am**				
	Level 1 - minor injuries, basic first aid	467	138	1	0
	Level 2 - hospital treat & release	94	20	0	0
	Level 3 - injuries requiring hospitalization	11	2	0	0
	Level 4 - fatalities	**21**	**3**	**0**	**0**
	Total Casualties	**593**	**163**	**1**	**0**
Shelter					
Shelter	Displaced Households	2,485	355	0	0
	People Requiring Short-term Shelter	1,719	367	0	0
Debris (thousands of tons)					
Debris	Brick, Wood & Other (Light) Debris	240	61	0.7	0.3
	Concrete & Steel (Heavy) Debris	592	99	0.7	0.2
	Total Debris	**832**	**160**	**1.4**	**0.5**

Table 12: Estimated Building Damage (Bldg Count by General Building type, by Damage State) for Two Earthquake Scenario Events Affecting Santa Barbara County & Solvang

		Santa Barbara County		City of Solvang	
		M7.4 Red Mountain	M7.2 San Luis Range South Margin	M7.4 Red Mountain	M7.2 San Luis Range South Margin
Concrete	None	1,035	1,922	42	49
	Slight	502	258	11	6
	Moderate	479	140	4	1
	Extensive	255	59	0	0
	Complete	125	18	0	0
	TOTAL	**2,396**	**2,397**	**57**	**56**
Manuf. Housing	None	3,266	3,767	51	83
	Slight	1,044	1,320	52	38
	Moderate	991	1,560	28	13
	Extensive	1,705	841	3	0
	Complete	665	184	0	0
	TOTAL	**7,671**	**7,672**	**134**	**134**
Precast Concrete	None	795	1,524	33	39
	Slight	320	242	11	7
	Moderate	541	178	4	2
	Extensive	265	48	0	0
	Complete	80	10	0	0
	TOTAL	**2,001**	**2,002**	**48**	**48**
Reinforced Masonry	None	1,978	3,231	75	81
	Slight	672	330	10	5
	Moderate	815	222	3	1

		Santa Barbara County		City of Solvang	
		M7.4 Red Mountain	M7.2 San Luis Range South Margin	M7.4 Red Mountain	M7.2 San Luis Range South Margin
	Extensive	300	64	0	0
	Complete	93	12	0	0
	TOTAL	**3,858**	**3,859**	**88**	**87**
Steel	None	977	1,985	41	52
	Slight	322	260	14	9
	Moderate	605	241	7	2
	Extensive	534	101	1	0
	Complete	170	22	0	0
	TOTAL	**2,608**	**2,609**	**63**	**63**
Unreinforced Masonry	None	259	534	11	14
	Slight	110	99	5	3
	Moderate	154	63	1	1
	Extensive	119	23	0	0
	Complete	84	8	0	0
	TOTAL	**726**	**727**	**17**	**18**
Wood Frame (Other)	None	888	1,604	41	491
	Slight	521	257	12	55
	Moderate	419	111	2	16
	Extensive	139	25	0	1
	Complete	32	4	0	0
	TOTAL	**1,999**	**2,001**	**55**	**563**
Wood Frame (Single-family)	None	64,022	86,952	1612	1762
	Slight	34,839	17,301	291	145
	Moderate	7,180	1,846	6	2
	Extensive	68	12	0	0
	Complete	1	0	0	0
	TOTAL	**106,110**	**106,111**	**1,909**	**1,909**
ALL BUILDING TYPES	None	73,220	101,519	1,906	2,128
	Slight	38,330	20,067	406	219
	Moderate	11,184	4,361	55	22
	Extensive	3,385	1,173	4	0
	Complete	1,250	258	0	0
	TOTAL	**127,369**	**127,378**	**2,371**	**2,369**

Table 13: Predicted Essential Facility Functionality in Two Earthquake Scenario Events Affecting Santa Barbara County & City of Solvang

	Earthquake Scenario	
FACILITY TYPE	**M7.4 Red Mountain Scenario**	**M7.2 San Luis Range South Margin Scenario**
Santa Barbara County Fire*		
Total Number of Facilities in Hazus Default Database**	**1 (Station 30)**	
Default Structural Class and Design Level	**W1 (Wood Frame ≤ 5,000 SqFt), Moderate Code Design Level**	
Damage:		
# Facilities with >50% Probability of Moderate or Greater Damage	0	0
# Facilities with >50% Probability of Complete Damage	0	0
Functionality:		
Functionality < 50 % on Day 1	0	0
Functionality 50 - 75% on Day 1	0	0
Functionality >75% Day 1	1	1
Santa Barbara County Sheriff*		
Total Number of Facilities in Hazus Default Database	**1 (Solvang Substation)**	
Default Structural Class and Design Level	**W1 (Wood Frame ≤ 5,000 SqFt), Moderate Code Design Level**	
Damage:		
# Facilities with >50% Probability of Moderate or Greater Damage	0	0
# Facilities with >50% Probability of Complete Damage	0	0
Functionality:		
Functionality < 50 % on Day 1	0	0
Functionality 50 - 75% on Day 1	1	0
Functionality >75% Day 1	0	1
Solvang Elementary School District		
Total Number of Facilities in Hazus Default Database	**1**	
Default Structural Class and Design Level	**W1 (Wood Frame ≤ 5,000 SqFt), High Code Design Level**	
Damage:		
# Facilities with >50% Probability of Moderate or Greater Damage	0	0
# Facilities with >50% Probability of Complete Damage	0	0
Functionality:		
Functionality < 50 % on Day 1	0	0
Functionality 50 - 75% on Day 1	0	0
Functionality >75% Day 1	1	1

** County Fire Station and County Sheriff Station performance is also reported on the Unincorporated County Risk Assessment Report*

*** The default fire station database was revised to include missing stations*

16.6.4.2 Flood

16.6.4.2.1 HAZUS-MH Flood Risk Assessment

Hazus 3.0 was used to develop a flood depth grid for the 1-percent annual chance (100-year) flood, using Hazus' built-in, basic (i.e., Level 1) flood depth estimation methodology. The Hazus flood hazard assessment methodology uses available information and local river and floodplain characteristics, such as frequency, discharge and ground elevation to estimate flood elevation, and ultimately flood depth. Digital elevation model (DEM) data with 30-meter resolution, available from the USGS' National Elevation Dataset (see: http://nationalmap.gov/elevation.html) has been utilized in the current assessment.

It should be noted that the flood depth grid generated by Hazus ***is not*** equivalent to regulatory floodplain data contained in FEMA's Digital Flood Insurance Rate Maps (DFIRMs), which are the result of extensive, detailed engineering study. The Hazus-generated flood depth grid is a hypothetical representation of a potential flooding scenario, intended for non-regulatory uses. Further, it should also be noted that the DEM data used in the default analysis do not reflect the presence of channels and levees. A more detailed assessment would utilize higher resolution DEM data, such as LIDAR-based DEM data, and/or would require GIS-based revisions to the DEM to better reflect local flood control structures. Given that the Hazus Level 1 approach does not consider the presence of levees, Hazus loss and damage estimates produced for areas with levees (e.g., along the Santa Maria River) should be considered "worst-case" flood losses, reflecting potential flood damage that could occur in the event that the levees fail. Hazus-estimated flood depths across Santa Barbara County are provided in **Figure 16-5**. Hazus-estimated flood depths across Santa Barbara County are provided in **Figure 16-6**.

An overview of the county-wide Hazus results for the 100-year flood scenario is provided in **Table 14**, along with the sub-set of results that represent the City of Solvang. **Table 15** provides a breakdown of estimated building damage (building count by percent damage range) by general occupancy. As shown, most of the flood-damaged buildings are single family homes. Functionality of essential facilities included in the Hazus default database (with additional fire station facilities added) in the flood scenario is summarized in **Table 16** for Santa Barbara County and the City of Solvang.

Figure 16-5: Hazus-Estimated Flood Depths for a 1-percent Annual Chance (100-year Flood)

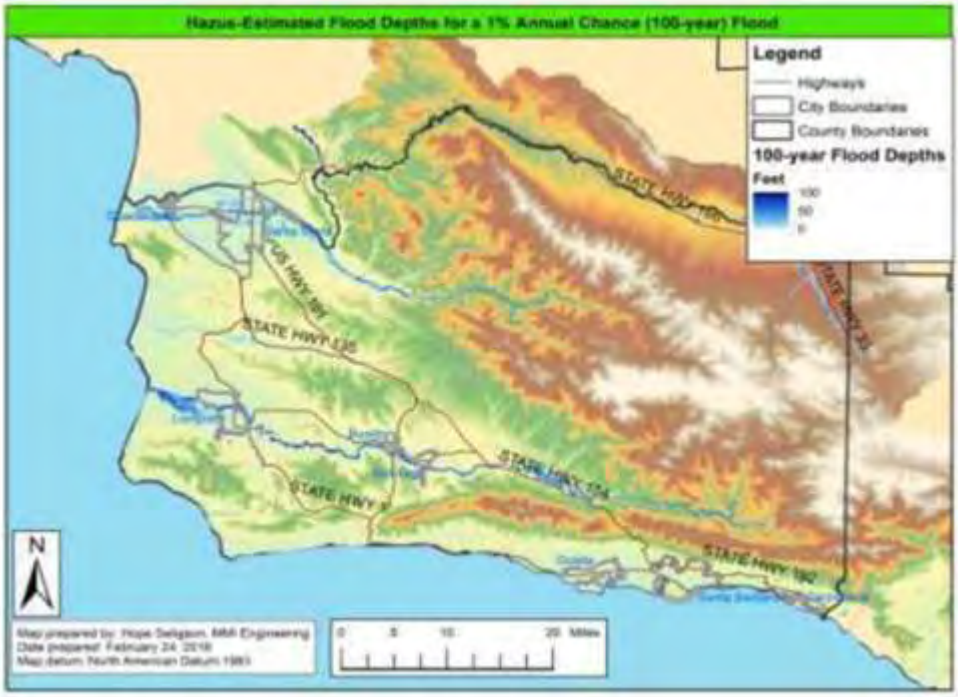


Figure 16-6: Solvang Hazus-Estimated Flood Depths for a 1-percent Annual Chance (100-year Flood)

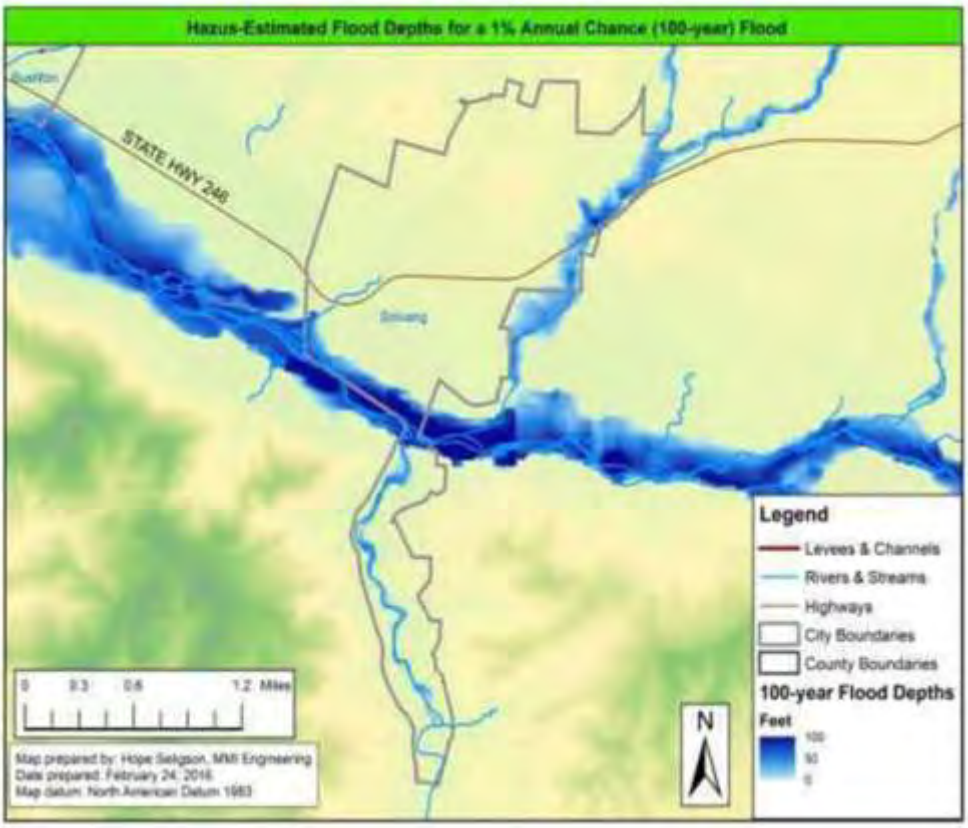


Table 14: Hazus-Estimated Impacts for the 1-Percent Annual Chance (100-Year) Flood Scenario Affecting Santa Barbara County

		Santa Barbara County	City of Solvang
Direct Economic Losses for Buildings ($1,000)			
	Total Building Exposure Value	**44,224,855**	**913,404**
Capital Stock	Total Building Damage	549,710	22,401
	Building Loss Ratio %	1.2%	2.5%
	Cost of Contents Damage	566,373	23,028
	Inventory Loss	9,022	198
Income Losses	Relocation Loss	1,624	29
	Capital-Related Loss	1,736	43
	Rental Income Loss	472	9
	Wage Losses	2,880	93
	Total Direct Economic Loss	**1,131,817**	**45,801**
	% Of Countywide Loss	100.0%	4.0%
Shelter			
Shelter	Displaced Population	57,963	358
	Number of People Requiring Short-term Shelter	54,248	254
Debris (thousands of tons)			
Debris	Finishes	41.3	1.2
	Structures	7.8	1.0
	Foundations	7.7	0.9
	Total Debris	**56.7**	**3.1**

Table 15: Estimated Building Damage (Building Count by General Occupancy, by Percent Damage Range) for a 1-percent Annual Chance (100-year) Flood Scenario Affecting Santa Barbara County

		Santa Barbara County	City of Solvang
Building Damage Count in Flooded Census Blocks by Occupancy			
Single Family Homes	None	2,344	2
	1 - 10%	1,775	4
	11 - 20%	2,472	11
	21 - 30%	867	13
	31 - 40%	662	11
	41 - 50%	276	6
	Substantial Damage	196	29
	TOTAL	**8,592**	**76**

Manufactured Housing	None	208	0
	1 - 10%	14	0
	11 - 20%	29	0
	21 - 30%	31	0
	31 - 40%	0	0
	41 - 50%	19	0
	Substantial Damage	76	0
	TOTAL	**377**	**0**
Other Residential	None	70	0
	1 - 10%	8	0
	11 - 20%	23	0
	21 - 30%	8	0
	31 - 40%	0	0
	41 - 50%	0	0
	Substantial Damage	0	0
	TOTAL	**109**	**0**
Commercial	None	16	0
	1 - 10%	42	0
	11 - 20%	47	1
	21 - 30%	4	0
	31 - 40%	0	0
	41 - 50%	0	0
	Substantial Damage	0	0
	TOTAL	**109**	**1**

		Santa Barbara County	Unincorporated County
Industrial	None	0	0
	1 - 10%	1	0
	11 - 20%	4	0
	21 - 30%	0	0
	31 - 40%	0	0
	41 - 50%	0	0
	Substantial Damage	1	0
	TOTAL	**6**	**0**
Other Occupancies	None	4	0
	1 - 10%	6	0
	11 - 20%	1	0
	21 - 30%	0	0
	31 - 40%	0	0
	41 - 50%	0	0

	Substantial Damage	1	0
	TOTAL	**12**	**0**
ALL OCCUPANCIES	None	2,642	2
	1 - 10%	1,846	4
	11 - 20%	2,576	12
	21 - 30%	910	13
	31 - 40%	662	11
	41 - 50%	295	6
	Substantial Damage	274	29
	TOTAL	**9,205**	**77**

Table 16: Predicted Essential Facility Functionality for a 1-percent Annual Chance (100-year) Flood Scenario Affecting Santa Barbara County

Essential Facility Type	Functionality	Santa Barbara County	City of Solvang
Fire Stations	# facilities located within flooded areas	5	0
	# facilities with Moderate or Greater Damage	2	0
	# facilities expected to be non-functional on Day 1	4	0
Police Stations	# facilities located within flooded areas	2	0
	# facilities with Moderate or Greater Damage	2	0
	# facilities expected to be non-functional on Day 1	2	0
Public Schools	# facilities located within flooded areas	12	0
	# facilities with Moderate or Greater Damage	2	0
	# facilities expected to be non-functional on Day 1	5	0

16.6.5 Critical Facilities Analysis

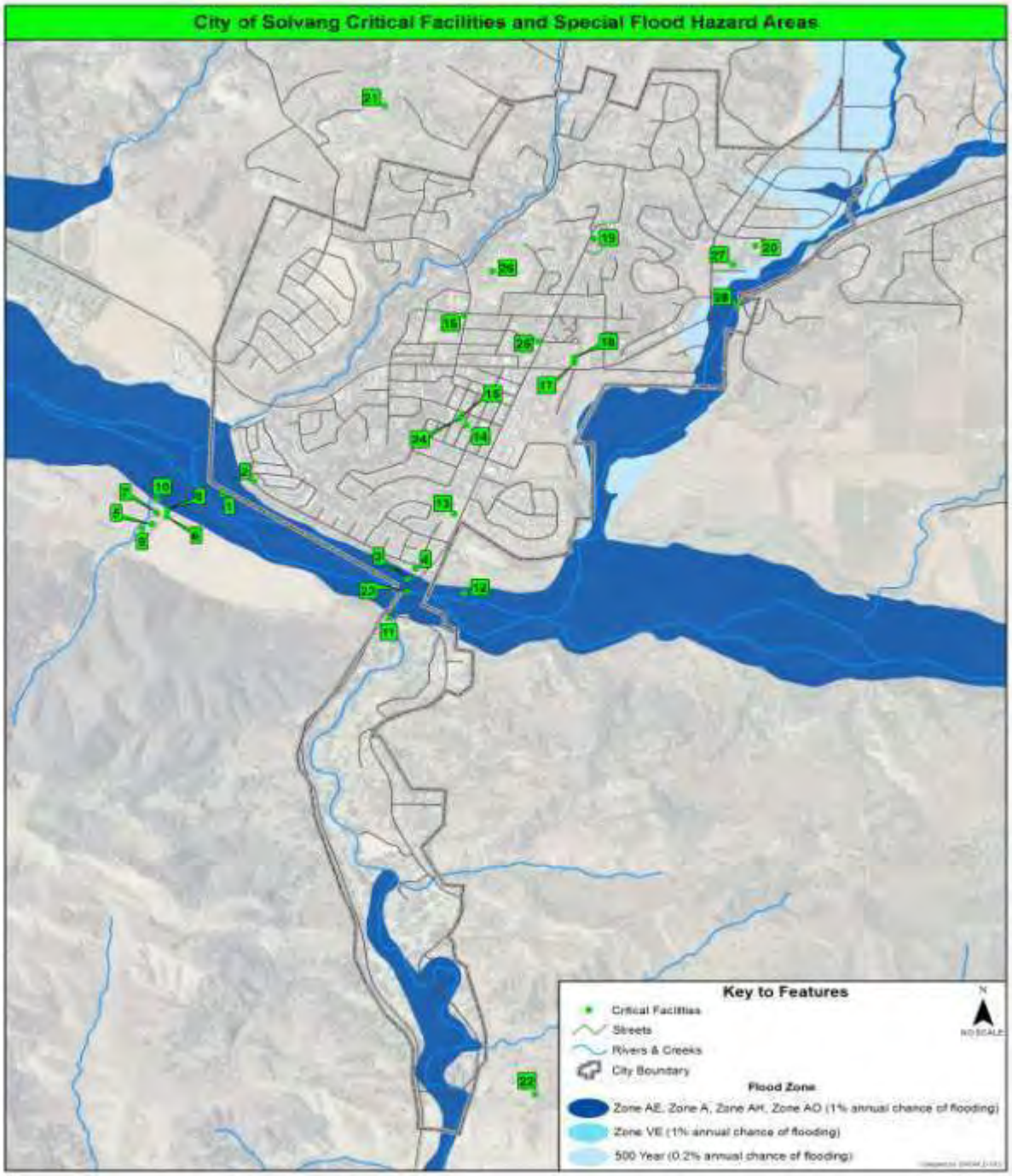
16.6.5.1 Flood Vulnerability (High Probability / Medium Impact)

Although Flood damage was well delineated in the previous section (Scientific Loss Estimation modeling), the Local Planning Team and the MAC wanted to include additional vulnerability data for the Critical Facilities. The exposure of the critical facilities to flood zones is summarized in **Table 17** and depicted on **Figure 16-7**.

Table 17 Critical Facilities by Category in Flood Zones

Critical Facility Category	100 Year	500 Year
Administrative	0	0
Communication	0	0
Fire	0	0
Health and Human Services	0	0
Law	0	0
Public Works	4	0
Other	2	0

Figure 16-7 Critical Facilities in Special Flood Hazard Areas



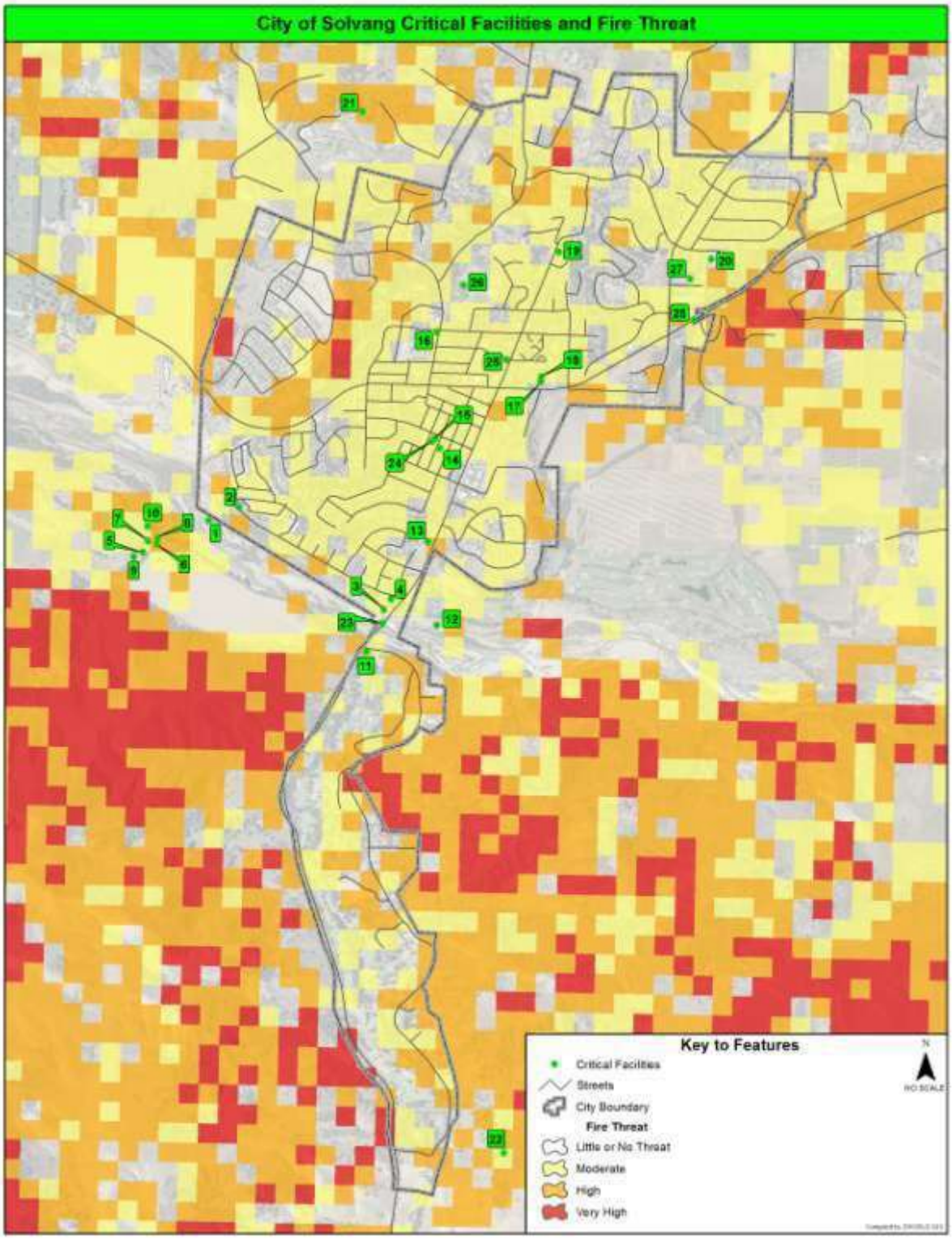
16.6.5.2 Wildfire Vulnerability (Medium Impact/High Probability)

Although Wildfire damage was well delineated in the previous section (Scientific Loss Estimation modeling), the Local Planning Team and the MAC wanted to include additional Wildfire vulnerability data for Critical Facilities. The City of Solvang does not have a digitized Fire Hazard Severity Zone map, however, Santa Barbara County Fire has synthesized the data at a more local level to convey communities at risk. These are presented in the County section of the wildfire hazard profile. The entire City of Solvang is within the Wildland Urban Interface area and has therefore been designated as a WUI community at risk. The exposure of the critical facilities to wildfire threat is summarized in Table 16-18 and depicted in Figure 16-8.

Table 18 Critical Facilities by Category and Wildfire Threat

Critical Facility Category	Moderate	High	Very High
Administrative	0	0	0
Communication	0	0	0
Fire	0	0	0
Health and Human Services	0	0	0
Law	0	0	0
Public Works	10	0	0
Other	0	0	0

Figure 16-8 Critical Facilities in Wildfire Threat Areas



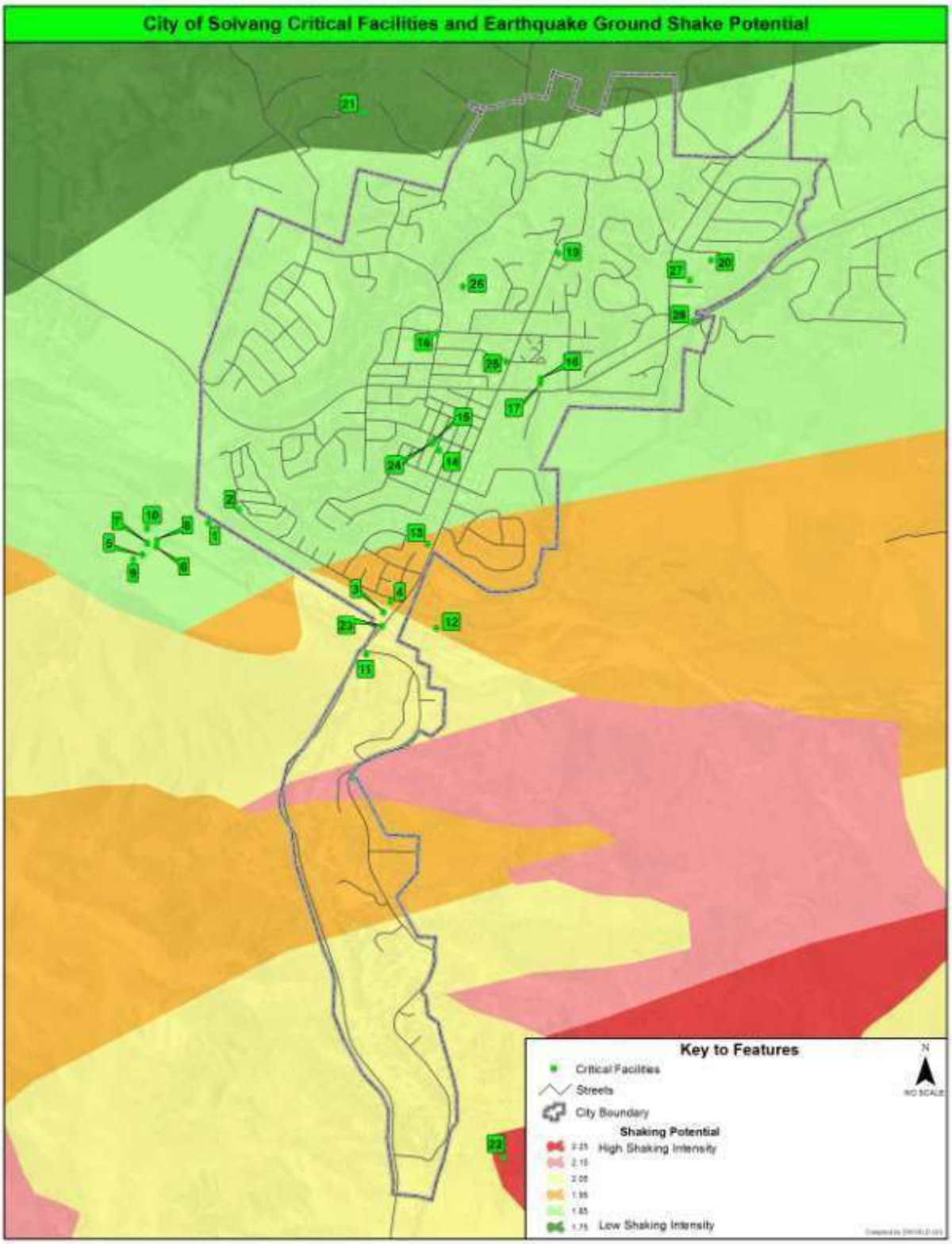
16.6.5.3 Earthquake (Medium Probability/High Impact)

Although earthquake scenario damage was well delineated in the previous section (Scientific Loss Estimation modeling), the Local Planning Team and the MAC wanted to include additional Wildfire vulnerability data for Critical Facilities. The exposure of the critical facilities to earthquake is summarized in Table 19 and depicted in Figure 16-9.

Table 19 Critical Facilities by Category Type and Earthquake

Critical Facility Category	2.25 Shaking Intensity	2.05 Shaking Intensity	1.95 Shaking Intensity	1.85 Shaking Intensity	1.75 Shaking Intensity
Administrative	0	0	0	1	0
Communication	0	0	0	0	0
Fire	0	0	0	0	0
Health and Human Services	0	0	0	4	0
Law	0	0	0	1	0
Public Works	1	2	3	10	1
Other	0	1	0	3	0

Figure 16-9 Critical Facilities and Earthquake Ground Shake Potential



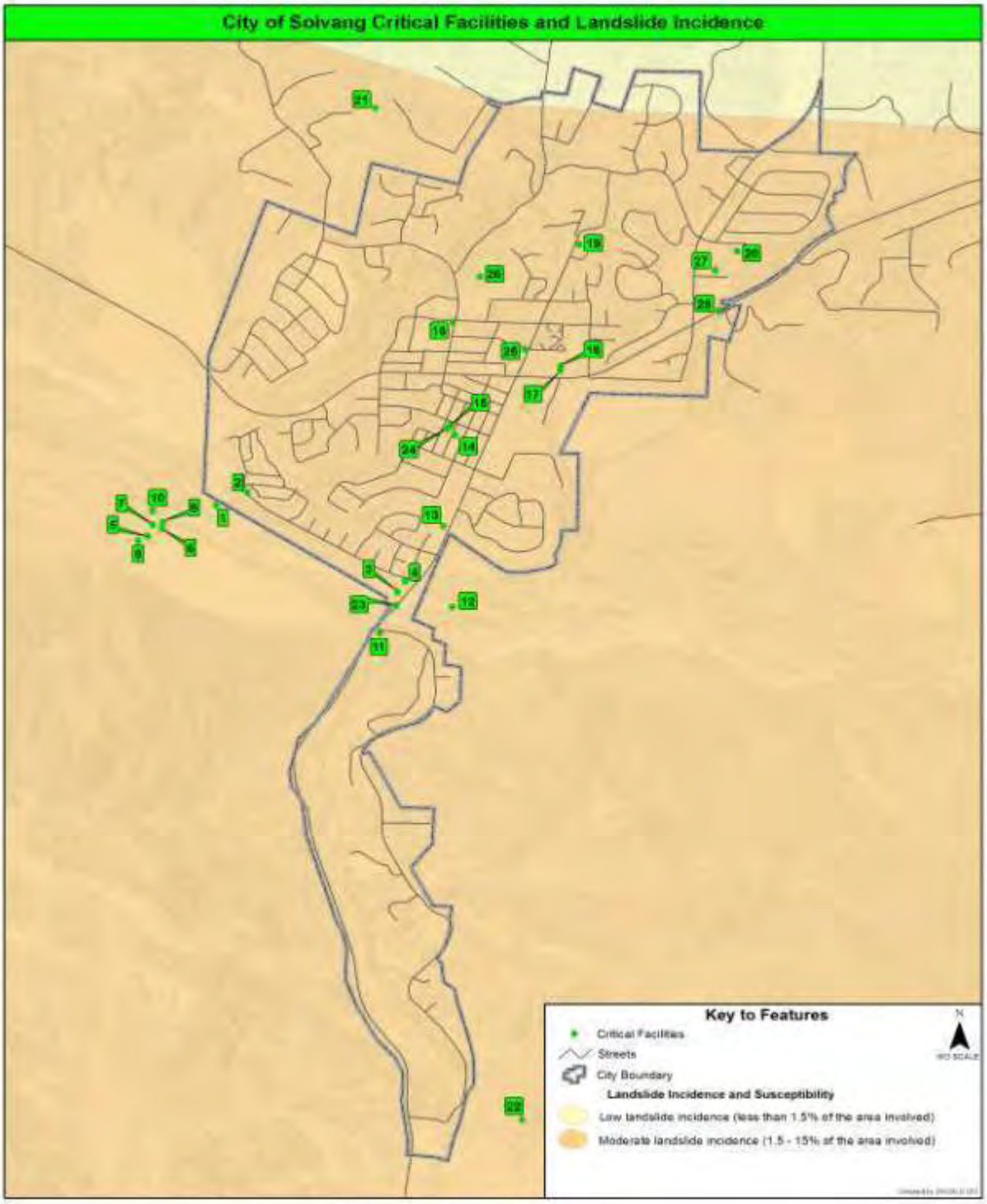
16.6.5.4 Landslide/Earth Movement (Medium Probability/Low Impact)

In an effort to assess vulnerability for landslides, data was collected from the United States Geological Survey (USGS) that represents landslide incidence and susceptibility. The geographies impacted are categorized into low, moderate, and high zones. The table below (**Table 16-20**) summarizes the total exposure and **Figure 16-10** depicts the location of those facilities that fall into a moderate risk. None of the City's critical facilities have a high risk of landslide vulnerability. All facilities not shown fall into the low risk category.

Table 20 Critical Facilities by Category in Landslide Zones

Critical Facility Category	Low	Moderate
Administrative	0	1
Communication	0	0
Fire	0	1
Health and Human Services	0	4
Law	0	1
Public Works	0	17
Other	0	4

Figure 16-10 Critical Facilities and Landslide Incidence



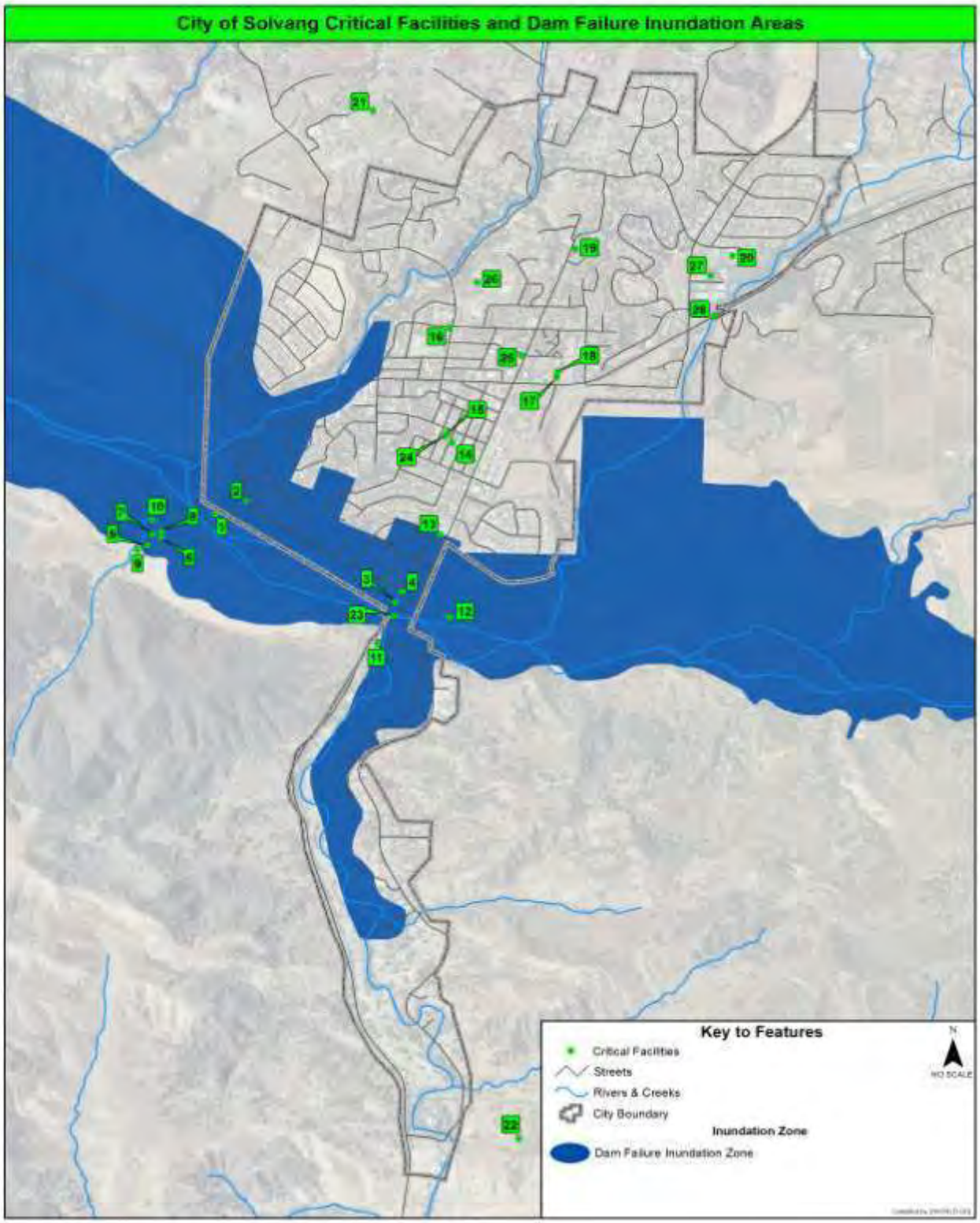
16.6.5.5 Dam Failure Vulnerability (Low Probability / Medium Impact)

Bradbury Dam is of the largest concern to the City of Solvang. Figure 16-11 depicts the location of the critical facilities in relation to the dam failure inundation zones.

Table 21 Critical Facilities by Category in Dam Failure Inundation Zone

Critical Facility Category	In the Inundation Zone
Administrative	0
Communication	0
Fire	0
Health and Human Services	0
Law	0
Public Works	13
Other	1

Figure 16-11 Critical Facilities and Dam Failure Inundation Areas



16.7 MITIGATION STRATEGY

16.7.1 Mitigation Priorities

The City of Solvang identified several strengths and weaknesses regarding the implementation of hazard mitigation strategies. The following strengths, weaknesses and priorities were identified.

General Observations — Strengths

- The City of Solvang has several policies that deal with hazard mitigation elements such as existing development and building code regulations including the Floodplain Ordinance, updated in 2016, and the Zoning Ordinance.
- The General Plan has been consistently updated and contains policies and programs for hazard mitigation. The Safety element of the General Plan was revised and adopted in 2016.
- A revised Housing Element was adopted 2015.
- Existing codes will ensure that new development (including tear down and rebuild projects) will be built to modern standards. With the current trend of replacing existing substandard buildings with new ones, through attrition a safer community will be constructed.
- Better mapping of floodplains and other hazard areas are now available.
- The Bradbury Dam has been mapped for inundation.
- Area fault lines and liquefaction zones have been mapped.
- All flooding areas have been mapped.
- All high fire areas have been mapped.
- All unreinforced masonry buildings within the City limits have been brought up to code.
- The County Fire Department has a vegetative program whereby all lots are inspected in the spring and property owners are required to cut vegetation by July 1 for unincorporated areas surrounding the City. Solvang's Code Enforcement Program and County Fire handle weed abatement within the City Limits in the Spring.
- The City, in partnership with the Santa Barbara County Fire Department and the City of Buellton has conducted CERT Training for citizens throughout the Santa Ynez Valley utilizing a shared grant.

General Observations — Weaknesses

- The City of Solvang is located along the Santa Ynez River, downstream from Bradbury Dam, and could sustain substantial flooding in the event of a dam failure.
- Solvang is surrounded by mountains with steep terrain that is covered with brush and trees. During fire season, Solvang is susceptible to wildfire damage.
- Solvang is located in Seismic Zone 4, which is the highest potential status for earthquake activity in the state of California.
- Solvang is a tourist town and sheltering and evacuation of those transient visitors could pose a large problem in case of major flooding or earthquake for major egress and accessing the area. County OES and the Santa Barbara County Sheriff's Department, however, have completed a countywide evacuation plan. Solvang City staff and the Solvang Conference & Visitors Bureau also completed a Crisis Communication Plan.

General Observations — Priorities

During the presentation of findings for the hazard identification and risk assessment and capabilities assessment, the LPT provided preliminary input and ideas for mitigation strategies. In formulating goals, the following priorities were identified:

- Top priorities for Solvang are public safety, public education, and reducing the potential economic impacts of disasters.
- Experiences from past disasters should be built upon.
- Outreach and training should be a major component, to include Community Emergency Response Team Training (CERT) and early warning & evacuation plans.
- Create defensible space around high fire areas by strategically managing vegetation to decrease the fuel available for fires adjacent to the structures. This is relatively inexpensive, accomplished quickly and is effective as long as the vegetation is managed.
- Solvang should develop and maintain a disaster warehouse or additional CERT trailers for storage of emergency supplies.

The goals and objectives were developed by considering the risk assessment findings, localized hazard identification and loss/exposure estimates, and an analysis of the jurisdiction's current capabilities assessment. These preliminary goals, objectives and actions were developed to represent a vision of long-term hazard reduction or enhancement of capabilities. To help in further development of these goals and objectives, the LPT compiled and reviewed current jurisdictional sources including Solvang's planning documents, codes, and ordinances and specifically discussed hazard-related goals, objectives and actions as they related to the overall Plan.

Goal 1: Promote disaster-resistant future development
Objective 1.A: Facilitate the development or updating of the City's General Plan and zoning ordinances to limit (or ensure safe) development in hazard areas.
Objective 1.B: Facilitate the adoption of building codes and development regulations that protect existing assets and require disaster resistant design for new development in hazard areas.
Objective 1.C: Facilitate consistent enforcement of the general plan, zoning ordinances, and building and fire codes.
Objective 1.D: Address identified data limitations regarding the lack of information about new development and build-out potential in high hazard areas.
Objective 1.E: Educate the professional community on design and construction techniques that will minimize damage from the identified hazards
Notes: This goal focuses on the programmatic/policy approaches to reducing risk to future new development. Building and fire codes are updated on a regular basis in California. The MAC agreed the objectives for this goal are ongoing to ensure that the best and most recent building and fire codes are adopted in each of the participating jurisdictions. New building codes were adopted in 2014.

Goal 2: Build and support capacity and commitment for existing assets, including people, critical facilities/infrastructure, and public facilities, to become less vulnerable to hazards.
Objective 2.A: Increase awareness and knowledge of hazard mitigation principles and practice among local government officials.
Objective 2.B: Provide technical assistance to local governments to implement their mitigation plans.
Objective 2.C: Address data limitations identified in Hazard Profiling and Risk Assessment
Objective 2.D: Decrease the vulnerability of public infrastructure including facilities, roadways, and utilities.
Objective 2.E: Protect existing structures with the highest relative vulnerability to the effects of identified hazards through structural mitigation projects.
Notes: This goal focuses on the programmatic and structural approaches to reducing risk to existing development. The term "local government" is used to refer to city, county, and special districts.
Goal 3: Enhance hazard mitigation coordination and communication.
Objective 3.A: Educate the public to increase awareness of hazards, potential impact, and opportunities for mitigation actions.
Objective 3.B: Monitor and publicize the effectiveness of mitigation actions implemented countywide.
Objective 3.C: Participate in initiatives that have mutual hazard mitigation benefits for the County, cities, state, tribal, and federal governments.
Objective 3.D: Encourage other organizations, within the public, private, and non-profit sectors, to incorporate hazard mitigation activities into their existing programs and plans.
Objective 3.E: Continue partnerships between the state, local, and tribal governments to identify, prioritize, and implement mitigation actions.
Objective 3.F: Continuously improve the County's capability and efficiency at administering pre- and post-disaster mitigation programs, including providing technical support to cities and special districts.
Objective 3.G: Support a coordinated permitting activities process and consistent enforcement.
Note: This goal focuses on communication and coordination required for successful mitigation of risk.

16.7.2 Mitigation Progress

The City's Local Planning Team reviewed the mitigation actions listed in the 2011 plan to determine the status of each action. The following table includes only the actions that have been completed or were underway as of January 2016.

Ultimately, all of these projects will be completed and are no longer necessary for consideration by the LPG regarding implementation approaches. Mitigation actions identified for future implementation are presented in the following section.

Table 21 Completed and In-Progress Mitigation Actions

2011 Plan Action #	Mitigation Action Description	Status	Completion Date	Comments
2011-1	Slope Stabilization – Wastewater Treatment Plant	Complete	2013	
2011-2	Drainage / Pine Street	Complete	2012	
2011-3	Drainage / Oak Street	Complete	2012	

16.7.3 Mitigation Approach

Table 22 Mitigation Actions for Future Implementation

Action #	Mitigation Action Description	Status	Completion Date	Comments/Priority
2017-1	Provide hazard mitigation training for all residents to include Community Emergency Response Training (CERT)	Ongoing	Ongoing	CERT training continues to be provided in conjunction with County Fire – Priority 1
2017-2	Alisal Road Bridge Seismic Retrofit	In Progress	2017	Federal funding obtained, construction beginning late July 2016 - Priority 1
2017-3	Second Street/Mission Drive Drainage Improvements	Not Started	2020	Priority 2
2017-4	Structural Upgrades to the Veterans Memorial Building (Emergency Shelter) and addition of Emergency Generator	Not Started	Considered for Future	Should be added to the 10-Year Capital Improvement Plan in 2017 - Priority 2
2017-5	Alisal Bridge Pier Repair Project	Not Started	Considered for Future	Should be added to the 10-Year Capital Improvement Plan in 2017 – Priority 3
2017-6	Tree Trimming and Weed Abatement in Hans Christian Andersen Park	Ongoing	Ongoing	Tree trimming and the use of goats each year for weed and poison oak abatement for fire prevention – Priority 1
2017-7	Upgrades to and Activation of Well 22	In Progress	2017-2018	Priority 2

16.7.4 Implementation Plan

Number # 2017-1	**Priority Rating: 1**
Action Title: **CERT Training**	
Action Description: **Continue to implement hazard mitigation training for all residents to include Community Emergency Response Team (CERT).**	
Relevant Objective	

■	Promote disaster resiliency for future development to reduce/eliminate vulnerability to hazards
■	Promote disaster resiliency for existing assets and people to reduce/eliminate vulnerability to hazards
■	Enhance hazard mitigation coordination and communication

Applicable Hazards:

	Earthquake
	Landslides and Other Earth Movements
	Wildfire
	Flood
	Dam Failure

Estimated timeline for completion: Ongoing

Estimated Cost/Funding Source: $1000/City Budget

Responsible Agency/Department: City Manager/City Clerk

Comments

Number # 2017-2	**Priority Rating: 1**

Action Title:

Alisal Road Bridge Seismic Retrofit

Action Description:

Seismic retrofit work to the Alisal Road bridge over the Santa Ynez River to ensure ingress/egress in the event of an earthquake.

Relevant Objective

■	Promote disaster resiliency for future development to reduce/eliminate vulnerability to hazards
■	Promote disaster resiliency for existing assets and people to reduce/eliminate vulnerability to hazards
■	Enhance hazard mitigation coordination and communication

Applicable Hazards:

	Earthquake
	Landslides and Other Earth Movements
	Wildfire
	Flood
	Dam Failure

Estimated timeline for completion: 2017

Estimated Cost/Funding Source: $1.7 million (Solvang received a Federal Grant for the construction totaling approximately $1,445,000.00.

Responsible Agency/Department: Public Works

Comments

Number # 2017-3	**Priority Rating: 2**

Action Title:

Second Street/Mission Drive Drainage

Action Description:

Upgrade approx. 1300 LF of existing storm drain and enlarge catch basins on Mission Dr. and Fir Ave.

Relevant Objective

■	Promote disaster resiliency for future development to reduce/eliminate vulnerability to hazards
■	Promote disaster resiliency for existing assets and people to reduce/eliminate vulnerability to hazards
■	Enhance hazard mitigation coordination and communication

Applicable Hazards:

	Earthquake
	Landslides and Other Earth Movements
	Wildfire
	Flood
	Dam Failure

Estimated timeline for completion: 2020/2021

Estimated Cost/Funding Source: $300,000.00/PDM Grant

Responsible Agency/Department: Public Works

Comments

Number # 2017-4	**Priority Rating: 2**

Action Title:

Upgrades to Emergency Shelter

Action Description:

Structural upgrades to the Veterans Memorial Building to increase the possibility of the building withstanding an earthquake, and the addition of a new emergency generator.

Relevant Objective

■	Promote disaster resiliency for future development to reduce/eliminate vulnerability to hazards
■	Promote disaster resiliency for existing assets and people to reduce/eliminate vulnerability to hazards
■	Enhance hazard mitigation coordination and communication

Applicable Hazards:

	Earthquake
	Landslides and Other Earth Movements
	Wildfire
	Flood
	Dam Failure

Estimated timeline for completion: Not Started

Estimated Cost/Funding Source: 4 m i l l i o n /PDM Grant

Responsible Agency/Department: Public Works

Comments:

To be considered for the future. The facility would act as an emergency shelter during any of the disaster types.

Project should be added to the 10-Year Capital Improvement Program.

Number # 2017-5	**Priority Rating: 3**

Action Title:

Alisal Bridge Pier Repair Project

Action Description:

Wrap/repair piers 4, 5, 6 & 7 of Alisal Bridge per recommendations of 2012 Alisal Bridge Structural Evaluation Report.

Relevant Objective

■	Promote disaster resiliency for future development to reduce/eliminate vulnerability to hazards
■	Promote disaster resiliency for existing assets and people to reduce/eliminate vulnerability to hazards
■	Enhance hazard mitigation coordination and communication

Applicable Hazards:

	Earthquake
	Landslides and Other Earth Movements
	Wildfire
	Flood
	Dam Failure

Estimated timeline for completion: 2023/2024

Estimated Cost/Funding Source: $500,000.00/PDM Grant

Responsible Agency/Department: Public Works

Comments:

Number # 2017-6	**Priority Rating: 1**

Action Title:

Tree Trimming and Weed Abatement at Hans Christian Andersen Park

Action Description:

Tree trimming and weed and poison oak eradication utilizing goats to aid in fire prevention.

Relevant Objective

■	Promote disaster resiliency for future development to reduce/eliminate vulnerability to hazards
■	Promote disaster resiliency for existing assets and people to reduce/eliminate vulnerability to hazards
■	Enhance hazard mitigation coordination and communication

Applicable Hazards:

	Earthquake
	Landslides and Other Earth Movements
	Wildfire
	Flood
	Dam Failure

Estimated timeline for completion: Ongoing

Estimated Cost/Funding Source: $5,000.00/Fire Safe Council Grant

Responsible Agency/Department: Parks Department

Comments:

Number #2017-7	**Priority Rating: 2**

Action Title:
Upgrades to and Activation of Well 22

Action Description:
Complete Well 22 and place it into regular service. Scope of work includes grading, fencing, installing a pump and motor, piping and control valves, connection to existing distribution system, electrical and control panels, disinfection facilities, and other related.

Relevant Objective

	Promote disaster resiliency for future development to reduce/eliminate vulnerability to hazards
	Promote disaster resiliency for existing assets and people to reduce/eliminate vulnerability to hazards
X	
	Enhance hazard mitigation coordination and communication

Applicable Hazards

x	Earthquake
x	Landslides and Other Earth Movements
x	Wildfire
	Flood
	Dam Failure

Estimated timeline for completion: 2017-2018

Estimated Cost: $ 1.1 million/HGMP Grant

Responsible Agency/Department:
Public Works

Comments:
Solvang, along with most of California, is experiencing a severe drought. This well will result in the improvement of water supply reliability. More secure water supply is critical in mitigating the impacts of many other types of hazard events such as wildfires and earthquakes.

16.8 PLAN MAINTENANCE

16.8.1 Monitoring,evaluating,updating the plan

Since the last Hazard Mitigation Plan written for the County in 2011, there has not been an official monitoring or maintenance program set in place for the City of Solvang. Instead, the project team discusses emergency hazard mitigation at its monthly staff meetings as needed. Even so, the City of Solvang was very successful in implementing the 2011 mitigation actions as noted in Table 21. Numerous mitigation actions set forth in the 2011 plan are ongoing by the time of this Update.

The City of Solvang City Manager and Emergency Coordinator will be responsible for ensuring that this annex is monitored on an annual basis. The City will continue to participate in the countywide Mitigation Advisory Committee and attend the annual meeting organized by the County Office of Emergency Management to discuss items to be updated/added in future revisions of this plan.

Major disasters affecting Solvang's community, legal changes, notices from Santa Barbara County (lead agency for the County-wide Plan), and other significant events may trigger revisions to this plan or a convening of the Local Planning Team. The City of Solvang's local planning team, in collaboration with Santa Barbara County, will determine how often and when the plan should be updated. The LHMP will also be utilized as a source document by the local planning team when any of its other plans (ie General Plan, Capital Improvement Plan, and Land-Use Plan) are reviewed or updated to insure the plans are consistent and symbiotic. In order to remain eligible for mitigation grant funding from FEMA, the City is committed to updating the plan at a minimum of every five years.

The City will contact the county four years after this plan is approved to ensure that the county plans to undertake the plan update process. The jurisdictions within Santa Barbara County should continue to work together on updating this multi-jurisdictional plan.

The public will continue to be involved whenever the plan is updated and as appropriate during the monitoring and evaluation process. Prior to adoption of updates, the City will provide the opportunity for the public to comment on the updates. A public notice will be published prior to the meeting to announce the comment period and meeting logistics. Moreover, the City will engage stakeholders in community emergency planning.

16.8.2 Point of Contact

Comments or suggestions regarding this plan may be submitted at any time to Lisa S. Martin, City Clerk/Executive Assistant/Emergency Coordinator.
Contact information:
City of Solvang
City Clerk/Executive Assistant
1644 Oak Street
Solvang, CA 93463
lisam@cityofsolvang.com
Phone: 805-688-5575 Fax: 805-686-2049

Appendix A

City Council Resolution No. 17-1020

RESOLUTION NO. 17-1020

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF SOLVANG, CALIFORNIA, ADOPTING THE 2017 CITY OF SOLVANG ANNEX FOR IDENTIFYING RISK ASSESSMENT AND MITIGATION STRATEGIES AND INTEGRATING BY REFERENCE INTO OTHE SAFETY ELEMENT OF THE GENERAL PLAN, AND APPROVING THE SANTA BARBARA COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

WHEREAS, The Federal Disaster Mitigation Act of 2000 (Act), as described in 44 CFR Section 201.6 mandates local governments to submit and maintain a Federal Emergency Management Agency (FEMA) approved local hazard mitigation plan; and,

WHEREAS, The City of Solvang has participated in a county-wide multi-jurisdictional plan with Santa Barbara County Office of Emergency Management as the lead agency; and,

WHEREAS, The Multi-Jurisdiction Hazard Mitigation Plan identifies each jurisdiction's risk assessment and mitigation strategies to reduce the impacts of natural disasters on the public and local government; and,

WHEREAS, Identification of hazards in the City assists with response planning, exercise development, public education, and awareness, and other emergency management functions; and,

WHEREAS, FEMA has given preliminary approval of the Santa Barbara County Multi Jurisdiction Hazard Mitigation Plan and requires that all cities adopt their annexes prior to final approval ; and

WHEREAS, the City Council of the City of Solvang adopted the revised Safety Element to the General Plan on May 23, 2016; and

WHEREAS, the Safety Element of the General Plan integrates the Local Hazard Mitigation Plan, in accordance with California Government Code Sections 8685.9 and 65302.6; and

WHEREAS, this Resolution enables the City of Solvang to qualify for additional mitigation funding after a disaster; and

NOW, THEREFORE, BE IT RESOLVED that the City Council of the City of Solvang California, hereby accepts and adopts the 2017 Solvang Annex of the Local Multi-Jurisdictional Hazard Mitigation Plan by reference into the Safety Element of the General Plan in accordance with the requirements of AB 2140, and it can be seen with certainty that there is no possibility that the activity in question may have a significant impact on the environment and is therefore exempt from the provisions of CEQA, General Rule Section 15061(b)(3); and

RESOLUTION NO. 17-1020

NOW, THEREFORE, BE IT FURTHER RESOLVED that the City Council of the City of Solvang, California, hereby accepts and adopts the Santa Barbara County Multi-Jurisdictional Hazard Mitigation Plan; and

NOW, THEREFORE, BE IT FURTHER RESOLVED that this Resolution is effective upon its adoption.

PASSED, APPROVED AND ADOPTED at a regular meeting of the City Council of the City of Solvang on the 24th day of July, 2017, by the following roll call vote:

AYES: Mayor Richardson, Council Members Duus, Jamieson, Toussaint, Zimmerman

NOES:

ABSTAIN:

ABSENT:

Jim Richardson, Mayor

ATTEST:

Lisa S. Martin, City Clerk