

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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Section 10 City of Carpinteria

Section 11 City of Goleta

Section 12 City of Guadalupe

Section 13 City of Lompoc

Section 14 City of Santa Barbara

Section 15 City of Santa Maria

Section 16 City of Solvang

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

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- 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

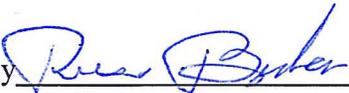
ABSENT: None



JOAN HARTMANN, CHAIR
BOARD OF SUPERVISORS

ATTEST:
MONA MIYASATO
CLERK OF THE BOARD

APPROVED AS TO FORM:
MICHAEL C. GHIZZONI
COUNTY COUNSEL

By 

Deputy

By 

Deputy

APPROVED AS TO FORM
RISK MANAGEMENT
RAY AROMATORIO

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

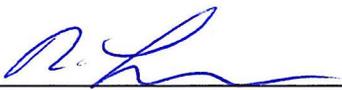
By: 

Date: 8/9/17

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

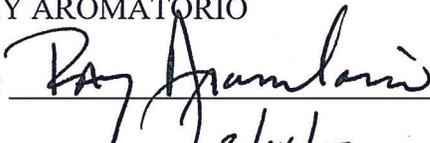
ATTEST:
MONA MIYASATO
CLERK OF THE BOARD

APPROVED AS TO FORM:
MICHAEL C. GHIZZONI
COUNTY COUNSEL

By 
Deputy

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
OFFICE OF EMERGENCY MANAGEMENT

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

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- 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	<p>Kick Off (in person)</p> <ul style="list-style-type: none"> • 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	<p>MAC Meeting (in person)</p> <ul style="list-style-type: none"> • 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	<p>MAC Meeting (conference call)</p> <ul style="list-style-type: none"> • Recap of previous MAC meeting • Review of Capabilities Assessment Section • Discussion of public outreach efforts • Preparation for next MAC meeting
February 2016	<p>MAC Meeting (in person)</p> <ul style="list-style-type: none"> • 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	<p>MAC Meeting (conference call)</p> <ul style="list-style-type: none"> • Recap of previous MAC meeting • Review of Capabilities Assessment and Vulnerability Assessment Sections • Preparation for next MAC meeting
April 2016	<p>MAC Meeting (in person)</p> <ul style="list-style-type: none"> • Recap of previous MAC meeting • Initial discussion of mitigation projects and actions
May 2016	<p>MAC Meeting (conference call)</p> <ul style="list-style-type: none"> • Recap of previous MAC meeting • Discussion of mitigation actions and projects • Discussion of update process • Preparation for next MAC meeting

Date	Purpose
June 2016	<p>MAC Meeting (in person)</p> <ul style="list-style-type: none"> • 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)

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- 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

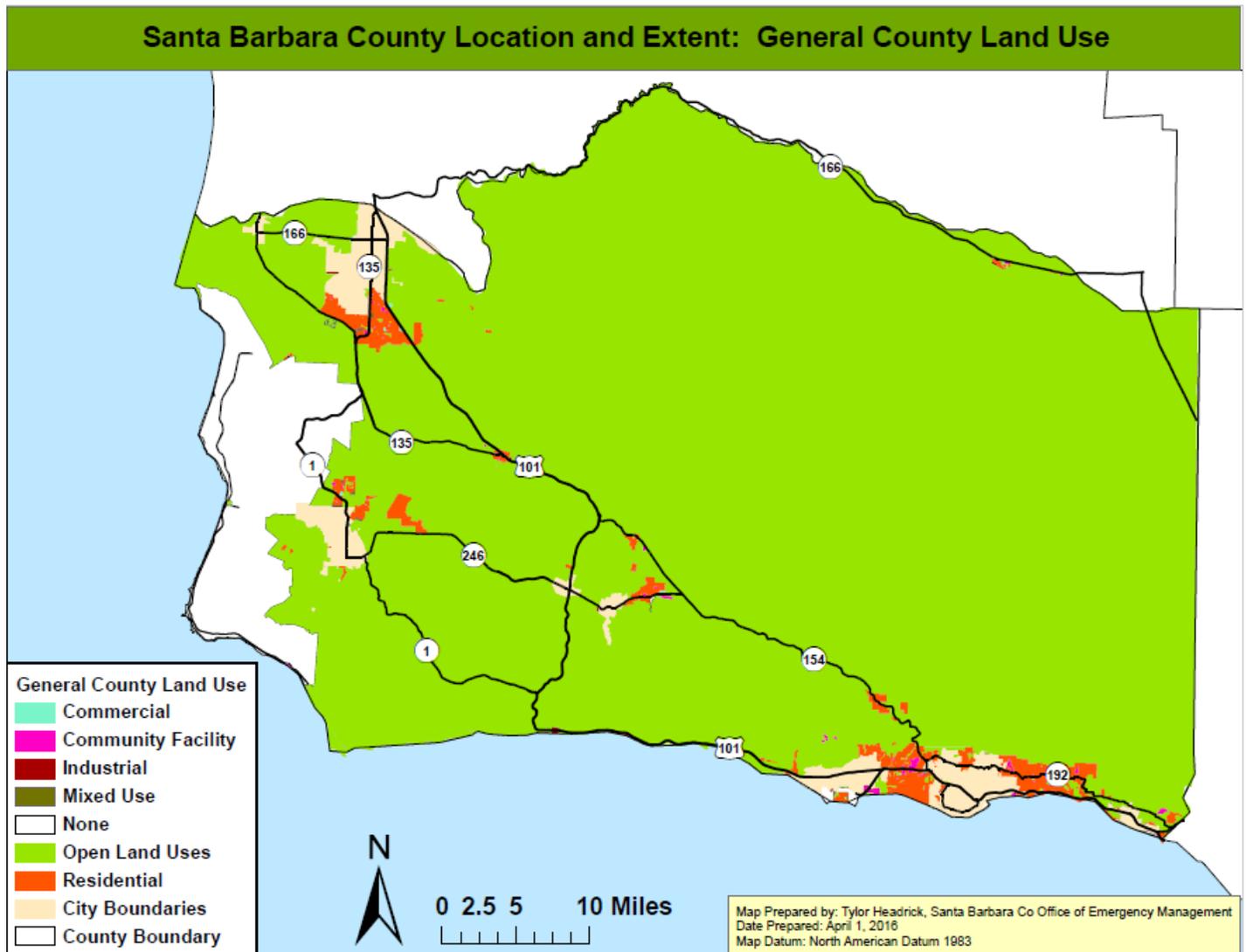
The infrastructure of Santa Barbara County supports its industries and residents. The Public Works Department maintains over 1,668 lane miles of major roads and local streets in the unincorporated portions of the County, including over 112 bridges. There are five airports in the County of Santa Barbara; 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 Gibraltar 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

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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 existing 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

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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.

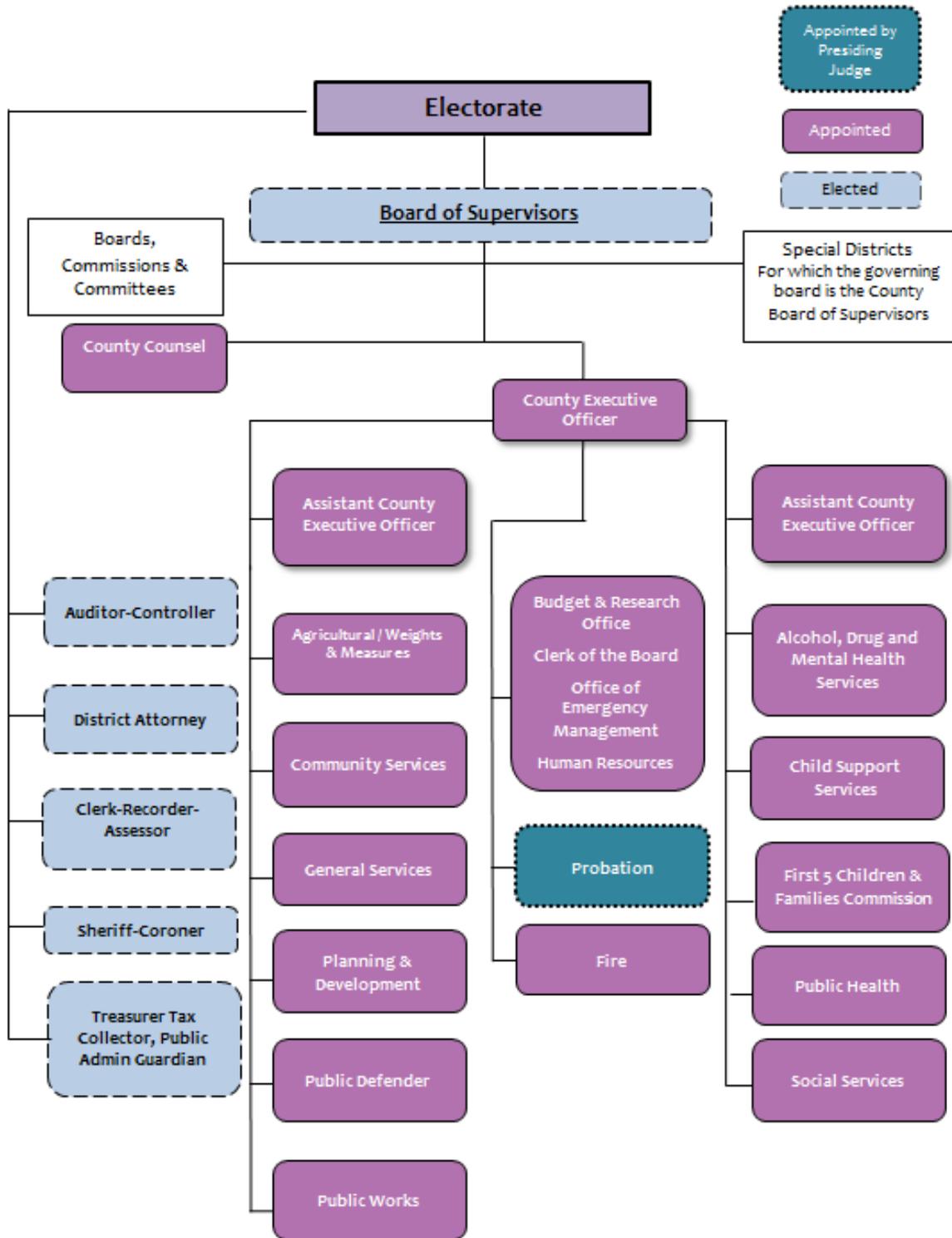
4.2.1 The Roles of County Departments in Hazard Mitigation

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

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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.

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- 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:

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- 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 steel pile retaining wall to replace the outdated wooden soldier 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 agencies to 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, cities 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 of 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.

Santa Barbara County
2017 Multi-Jurisdictional Hazard Mitigation Plan

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 River 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 event 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; <ul style="list-style-type: none"> • 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; <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • 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

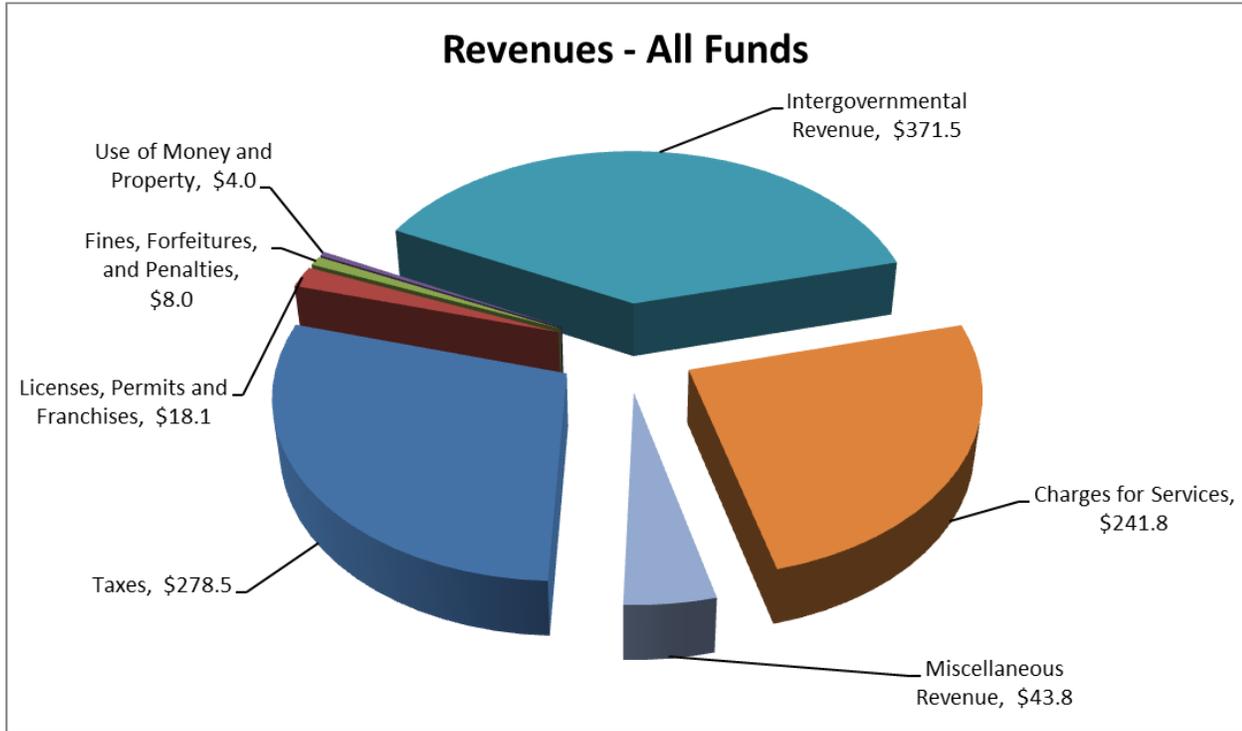
Regulatory Tools (ordinances, codes, plans)	Local Authority (Y/N)	State Prohibition (Y/N)
A. Building code	Y	N
B. Zoning ordinance	Y	N
C. Subdivision ordinance or regulations	Y	N
D. Special purpose ordinances (floodplain management, storm water management, hillside or steep slope ordinances, wildfire 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 further 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		<ul style="list-style-type: none"> • Drought/Water Shortage • Energy Shortage • Flooding • Landslide/Other Earth Movements • Oil Spill • Sea Level Rise/Coastal Flooding • Wildfire 	<ul style="list-style-type: none"> • Agricultural Pests/Disease • Train Accident
Medium Probability	<ul style="list-style-type: none"> • Earthquake 	<ul style="list-style-type: none"> • HazMat Release • Terrorism • Severe Weather 	<ul style="list-style-type: none"> • Commercial/Military Aircraft Crash • Cyber Threat
Low Probability	<ul style="list-style-type: none"> • Dam Failure • Radiological Accident 	<ul style="list-style-type: none"> • 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.

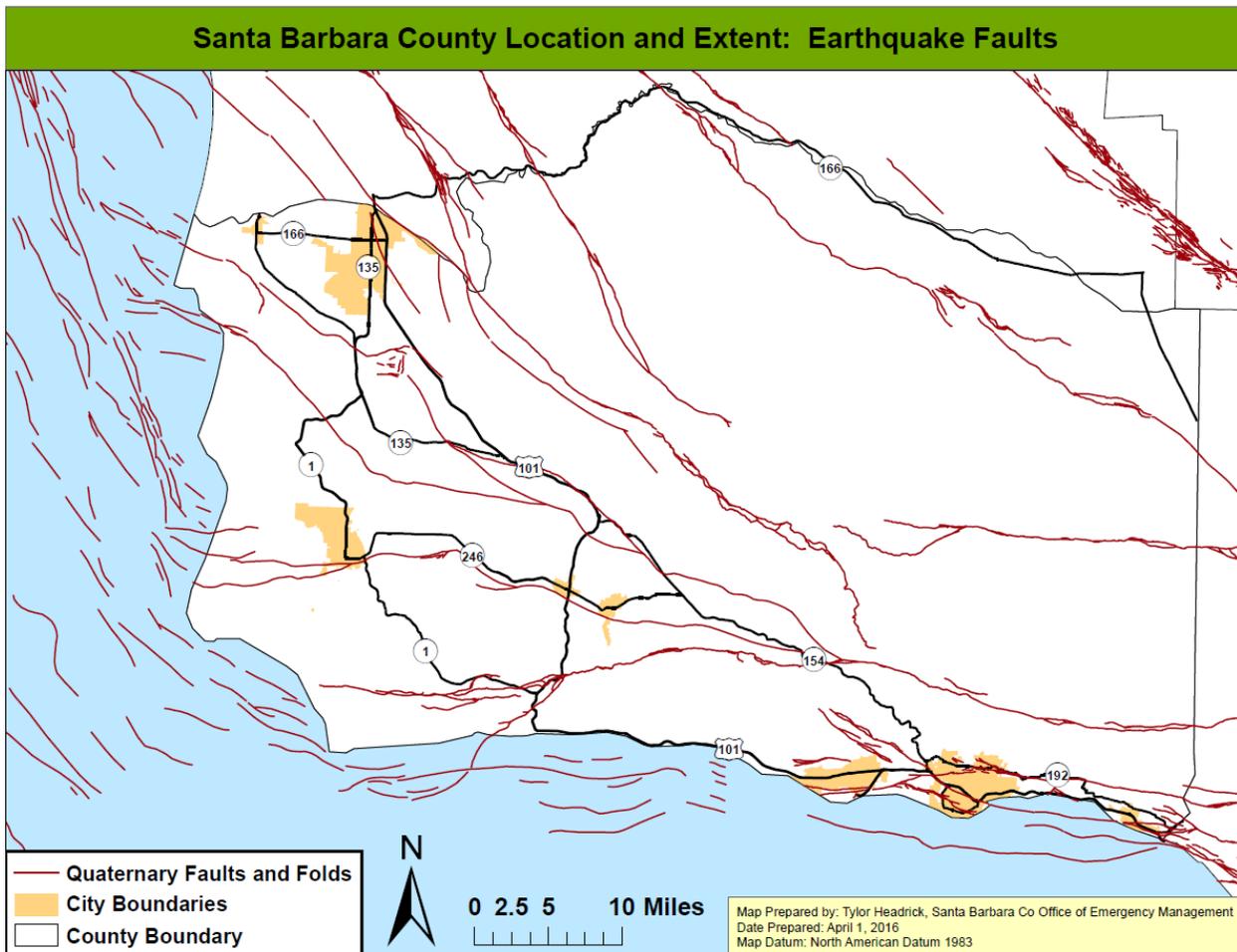
Peak ground acceleration (PGA) is a measure of the strength of ground shaking. Larger peak ground accelerations result in greater damage to structures. PGA is used to depict the risk of damage from future earthquakes by showing earthquake ground motions that have a specified probability (10%, 5%, or 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

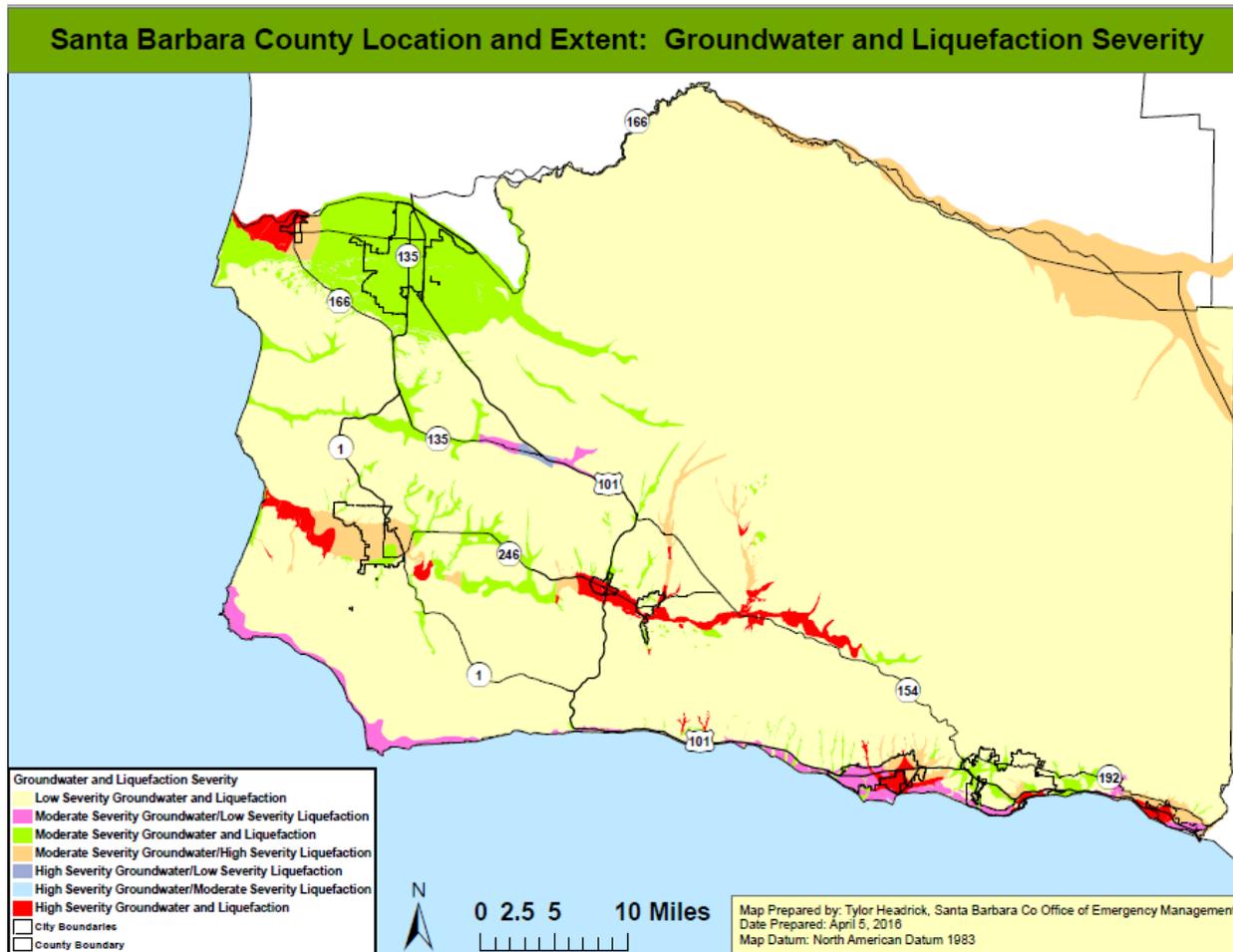
As previously mentioned, Santa Barbara County is located in a high seismic activity zone in the Transverse Range geologic province. Movement of continental plates manifest primarily along the San Andreas Fault system. The San Andreas Fault is situated seven miles northeast of Santa Barbara County; active 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 plain 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**).

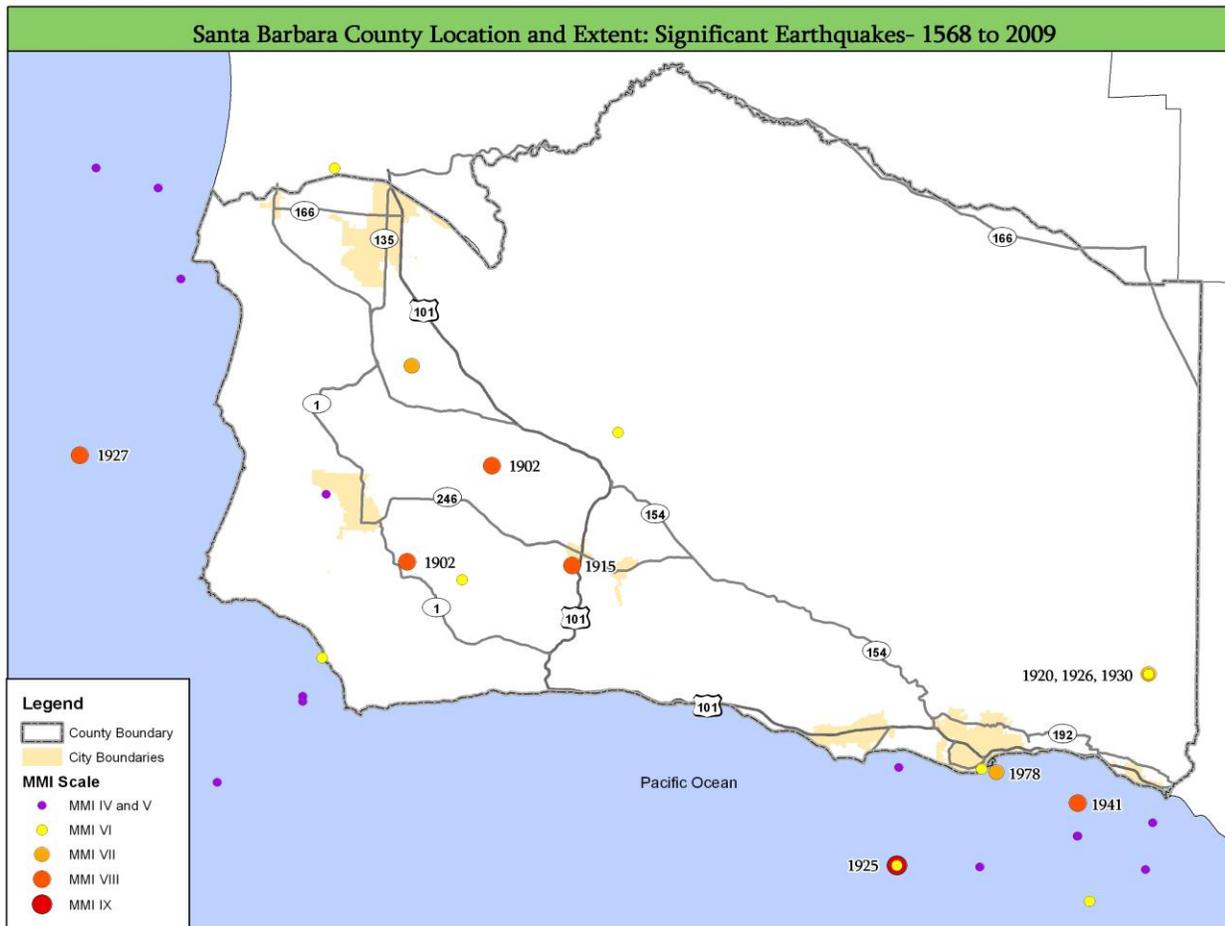
Figure 5.2 Groundwater and Liquefaction Severity



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:

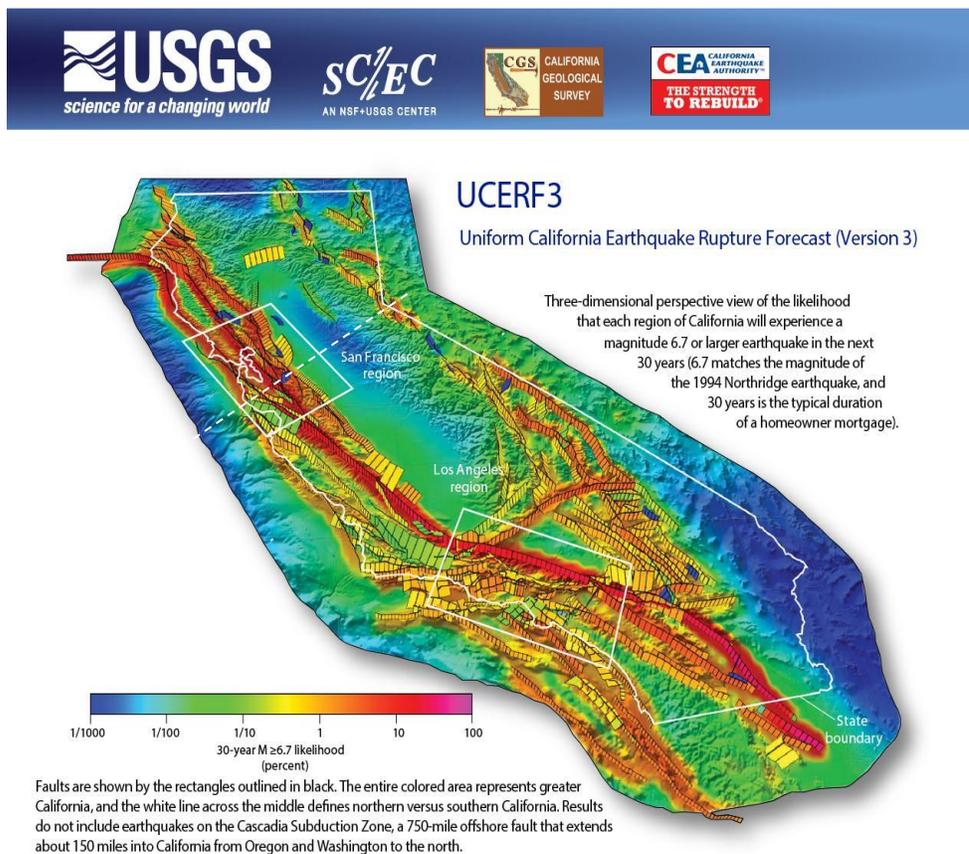
In March of 1978, and continuing sporadically through July of 1978, a swarm of small earthquakes, called micro-earthquakes occurred underneath the northeastern end of the Santa Barbara Channel. Toward the end of the micro-earthquake swarm, in July and early August of 1978, an unusually large amount of 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.

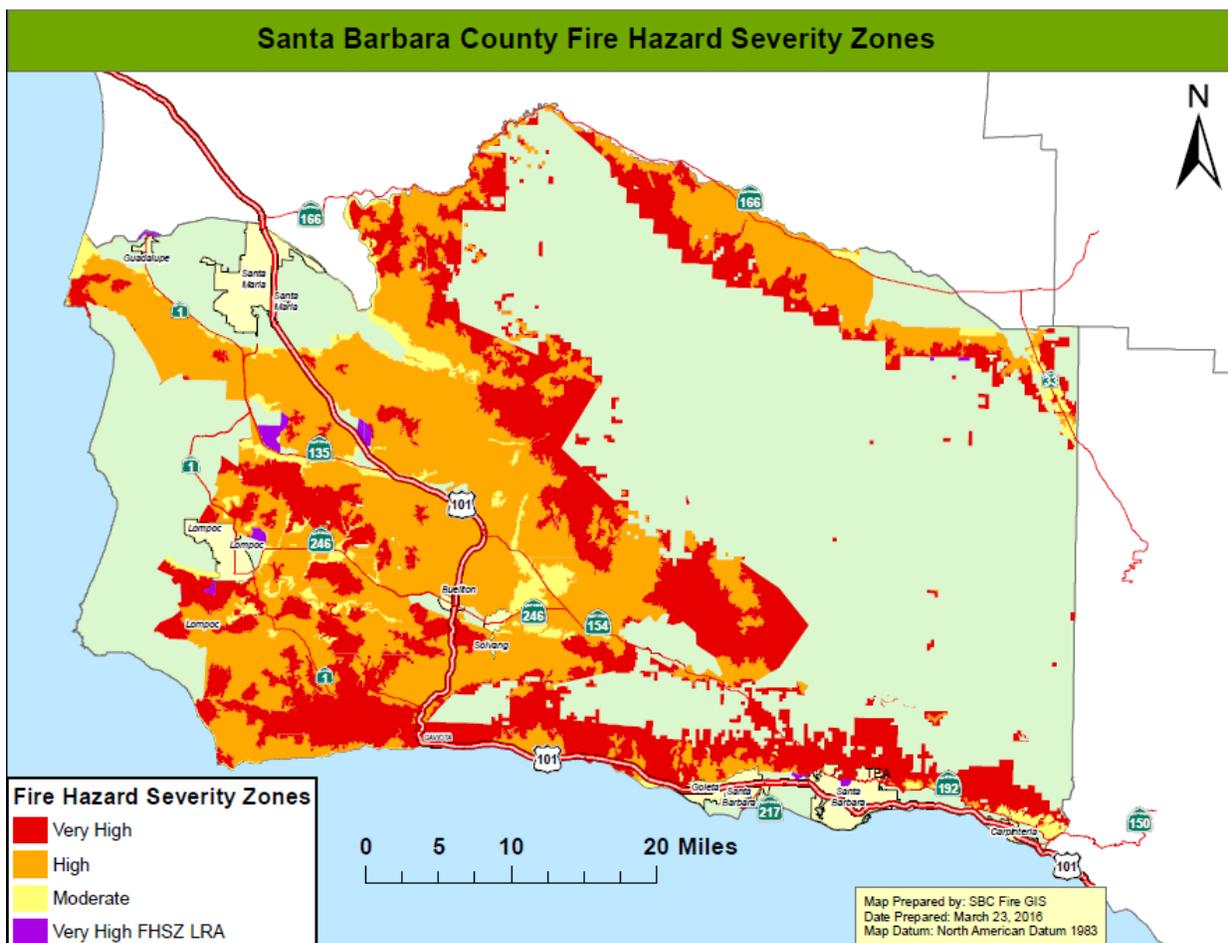
Certain conditions must be present for a wildfire hazard to occur; a large source of fuel must be present, the weather must be conducive (generally hot, dry, and windy), and fire suppression sources must not be able to easily suppress and control the fire. The cause of a majority of wildfires is human-induced 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

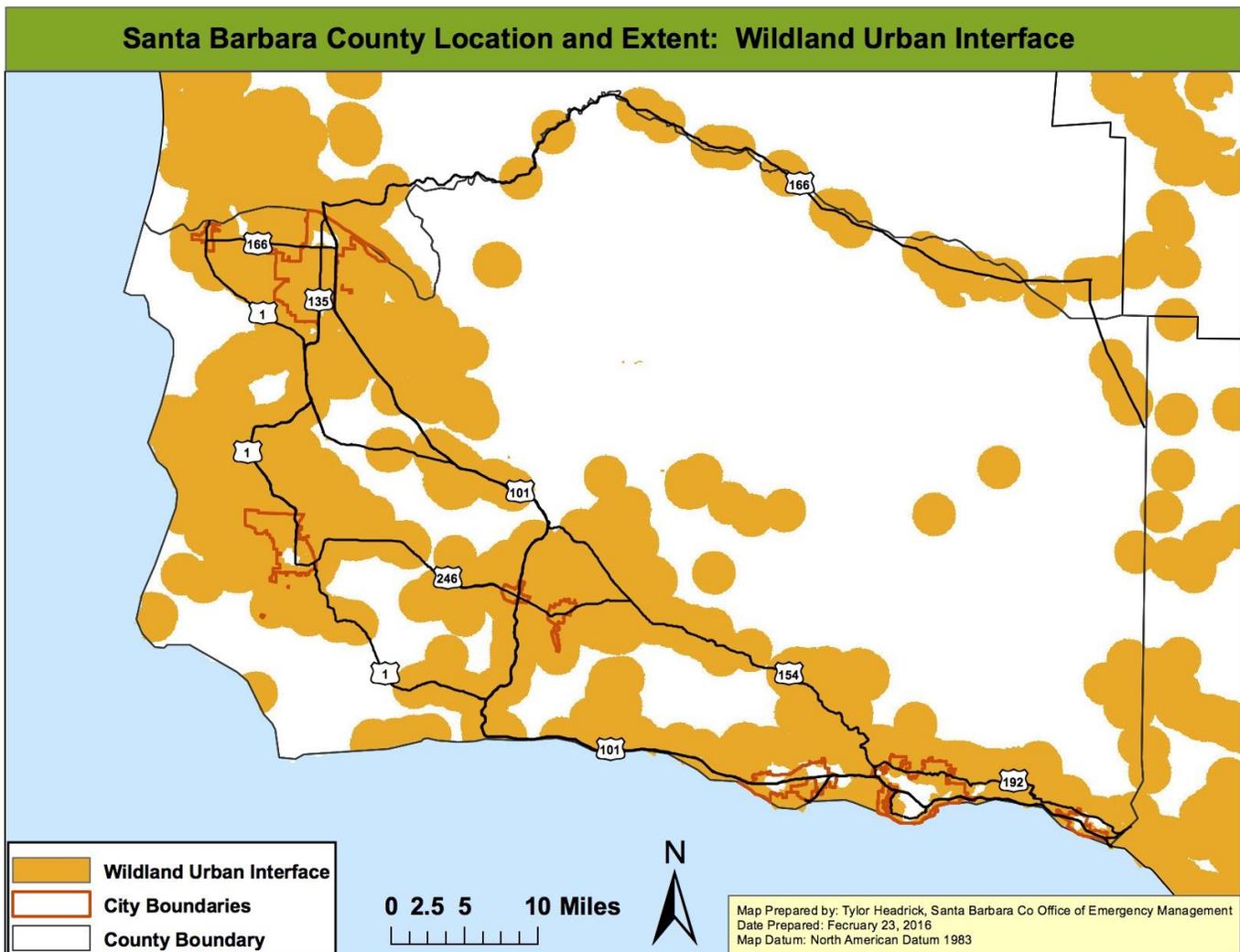
The climate, topography, and vegetation in Santa Barbara County is conducive to wildfires. California Department of Forestry and Fire Protection, Fire and Resource Assessment Program (CDF-FRAP) were mandated to map areas of significant fire hazards based on fuels (vegetation), terrain, weather, and other 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

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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

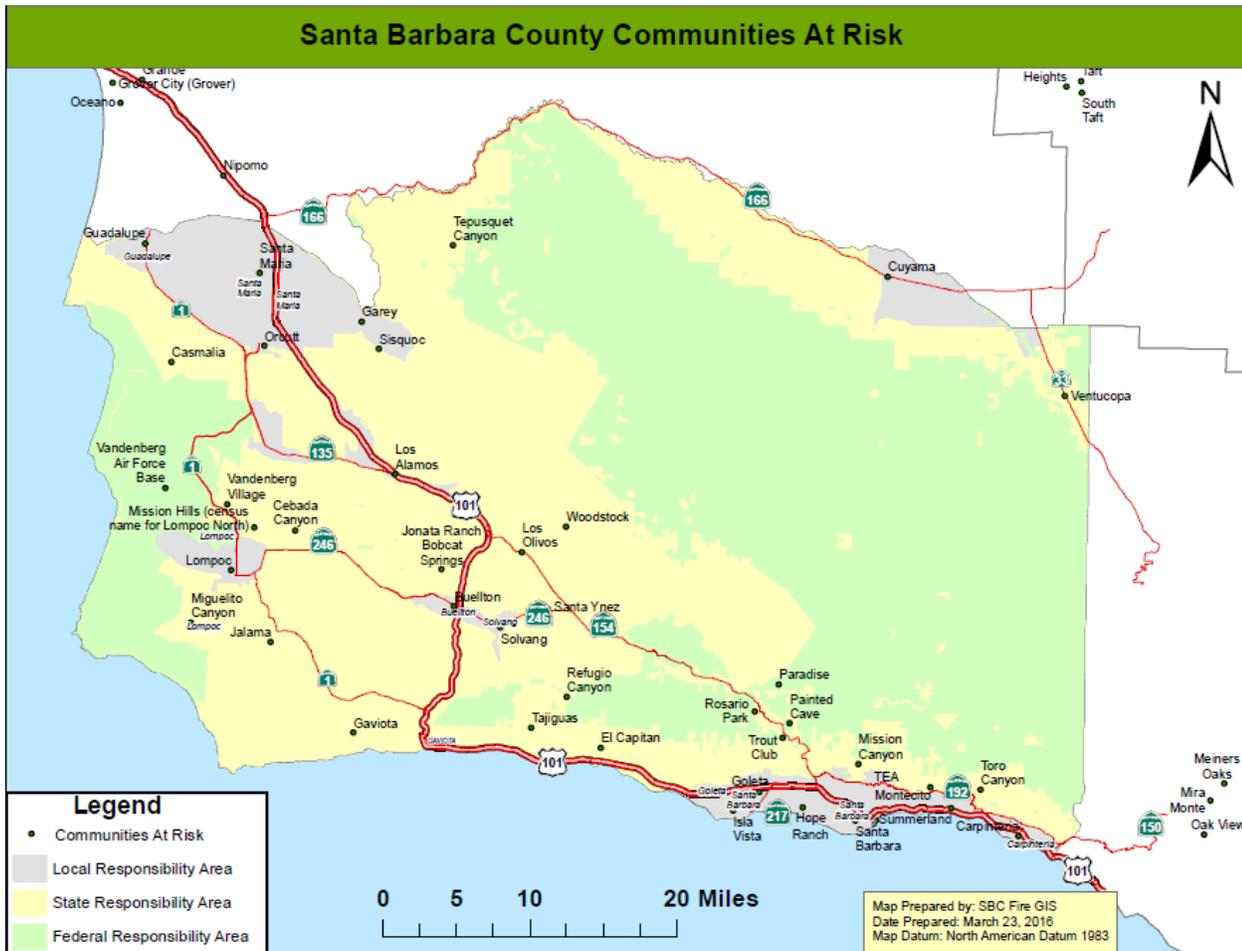
Combining both lists, there are currently 25 communities on the Communities at Risk List in Santa Barbara County. The California State Forester (CAL FIRE Director) has assigned the role of managing the list to the California Fire Alliance (Alliance). In addition to the 25 State and Federal recognized 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

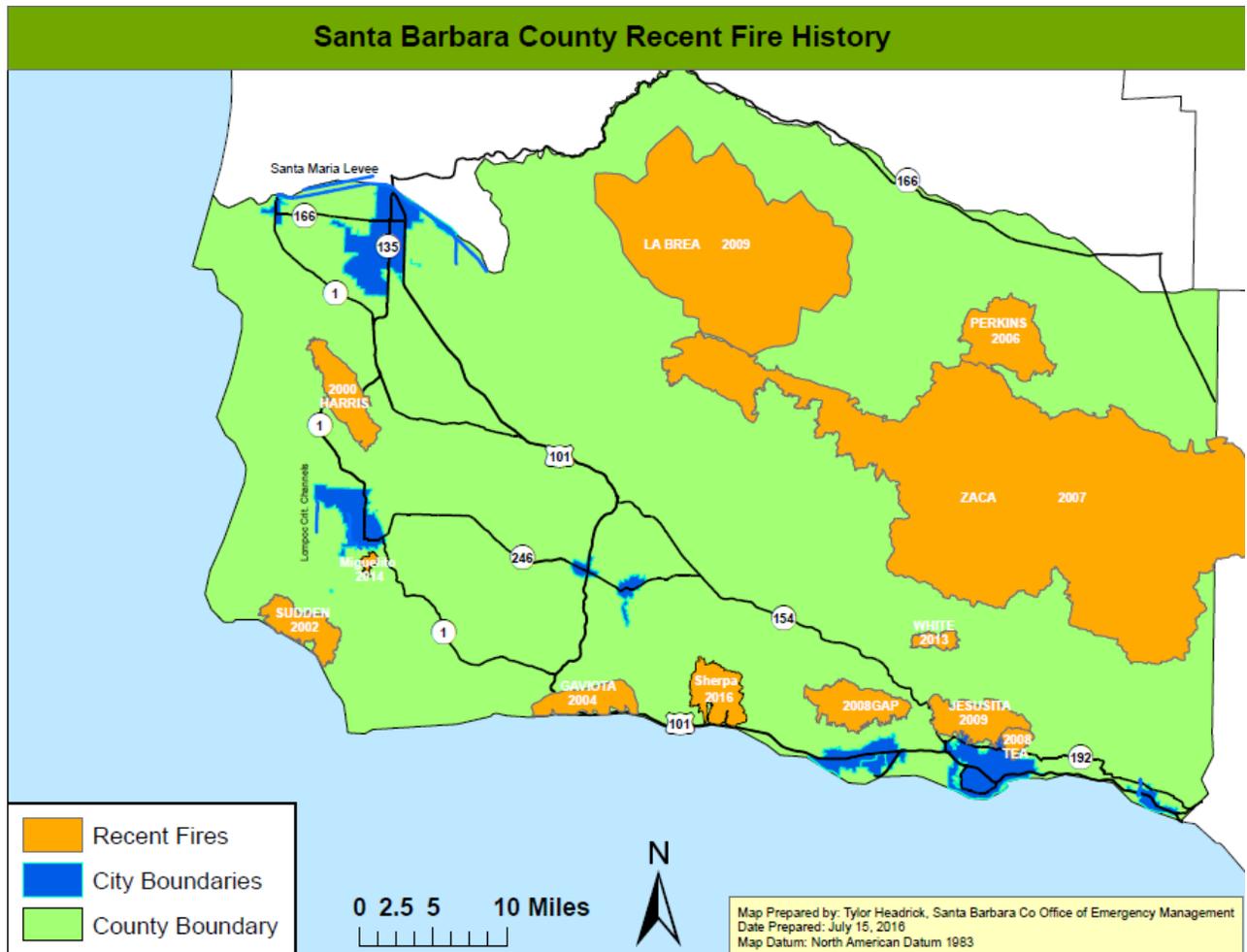
Because Santa Barbara County is prone to wildfires, there is a long history of wildfires in the County. **Table 5.5** lists the major wildfires in Santa Barbara County from 1922-2016.

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

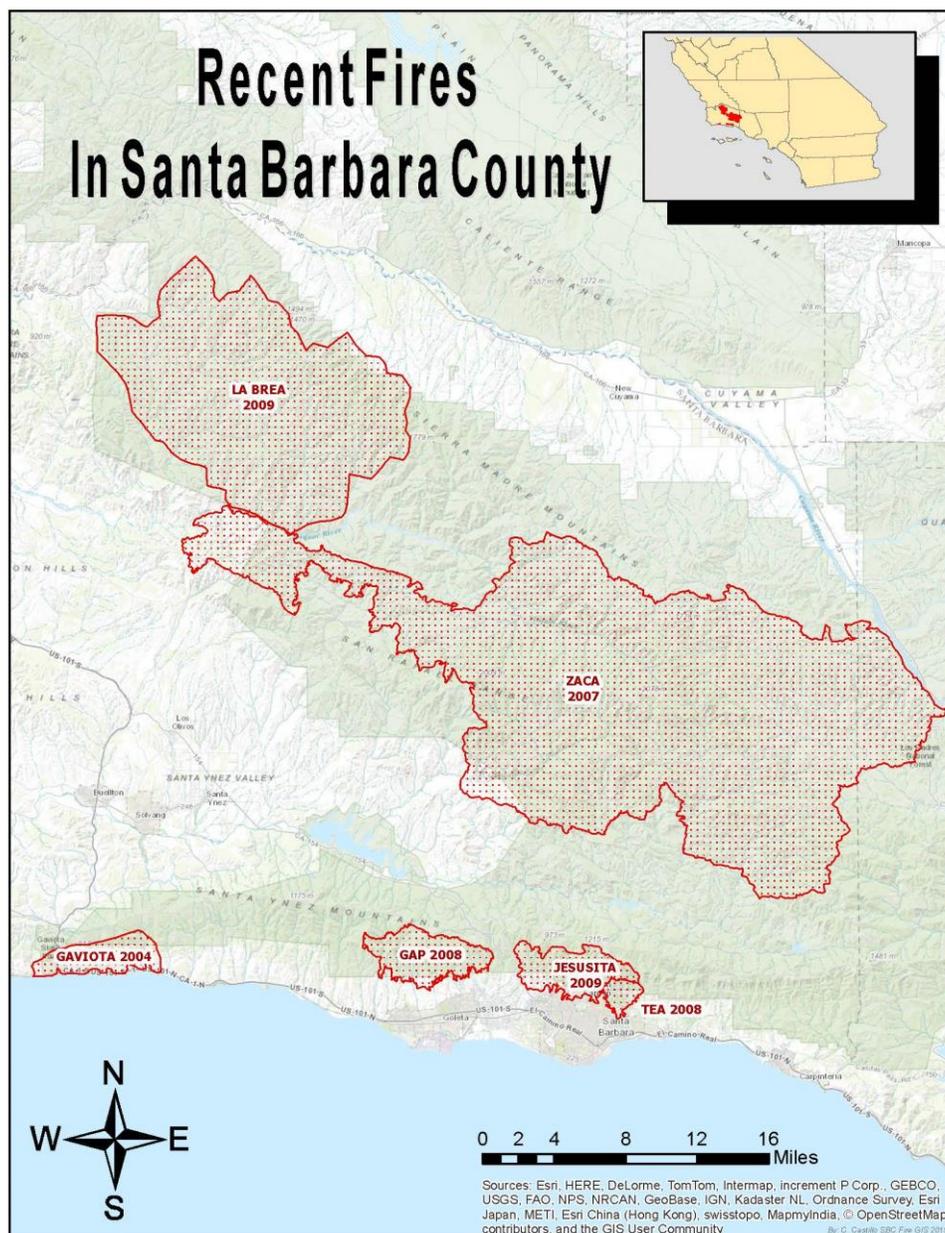


Over the last ten years, Santa Barbara County has experienced seven (7) major fires. Three of these fires; Gap, Tea, and Jesusita; directly threatened the heavily populated Santa Barbara Front Country. Two of these fires, Tea and Jesusita, destroyed close to three hundred structures and burned a total 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

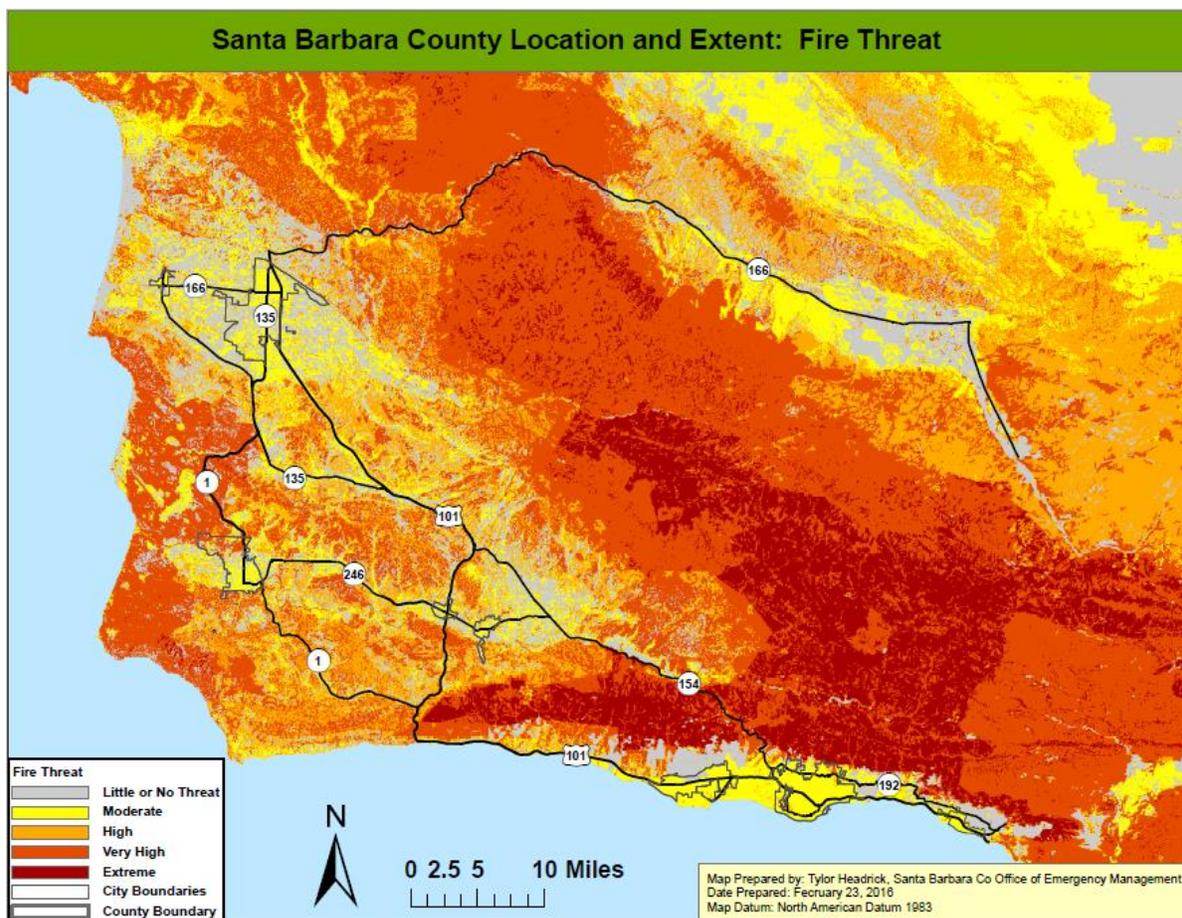


5.4.1.2.4 Probability of Occurrence

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.

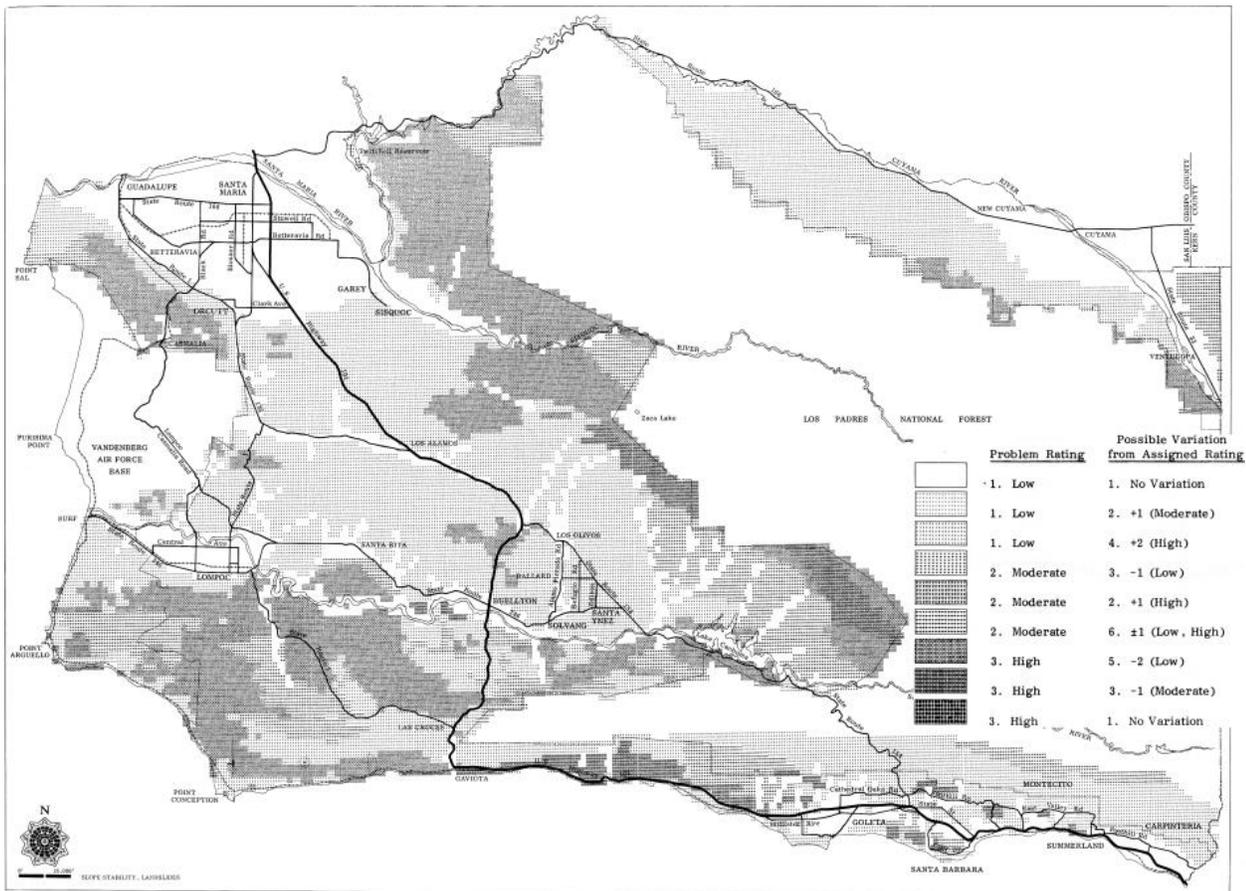
- Slope failure occurs when there is erosion of slopes by surface-water runoff. The intensity of slope wash is dependent on the discharge and velocity of surface runoff and on the resistance of surface materials to erosion.
- Mudflows are defined as flows or rivers of liquid mud down a hillside on the 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-steepening 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:

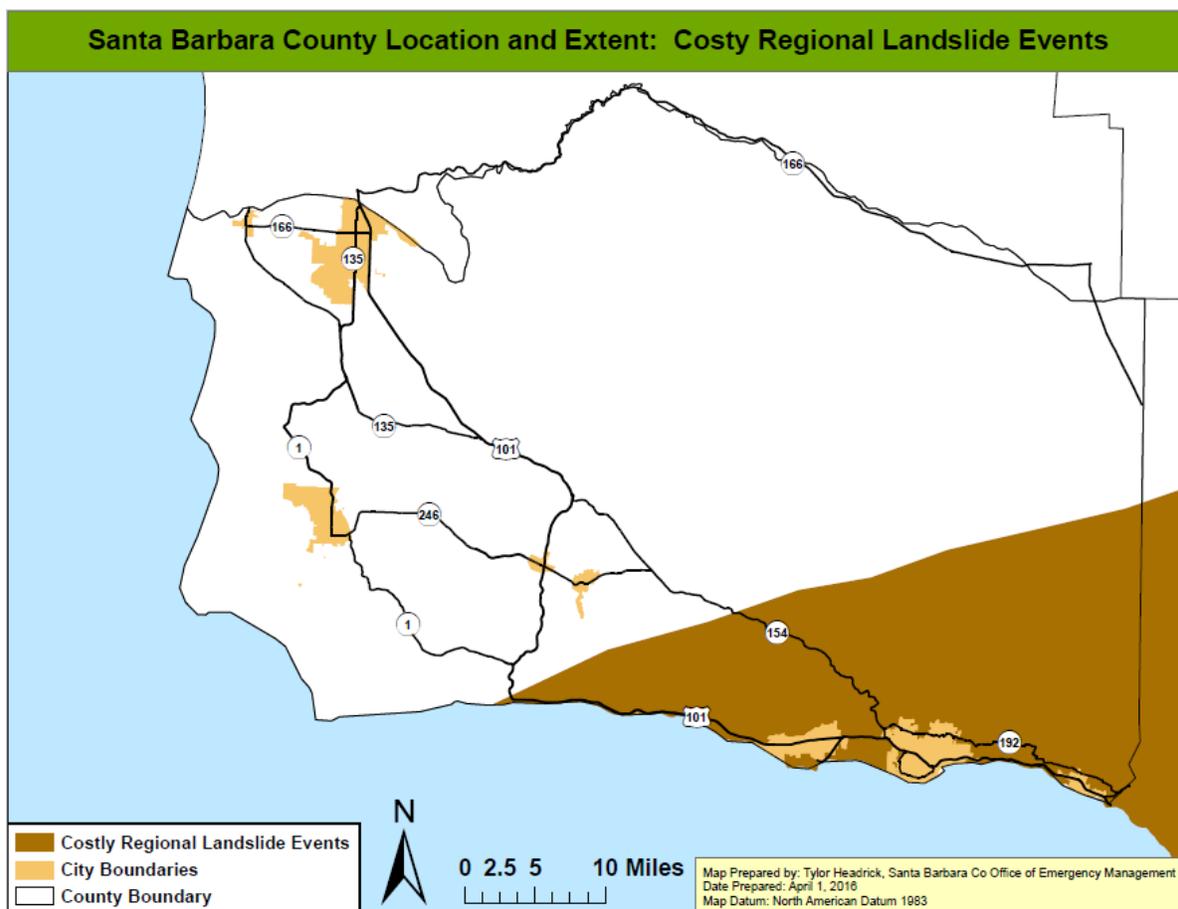
In January 2005, a powerful Pacific storm brought heavy rain, snow, flash flooding, high winds and landslides to Central and Southern California. During the 5 day event, rainfall totals ranged from 3 to 10 inches over coastal areas with up to 32 inches in the mountains. With such copious rainfall, flash 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

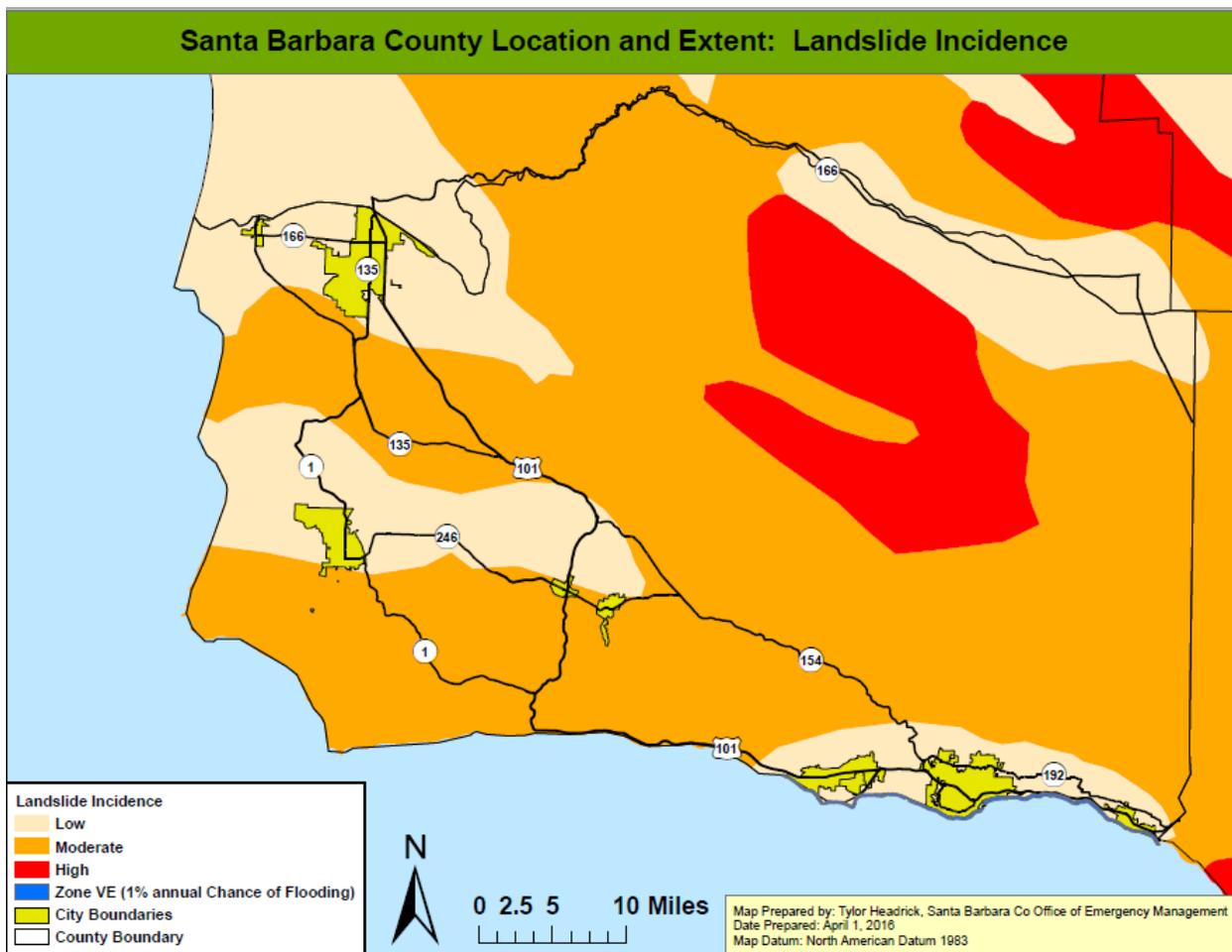


5.4.1.3.4 Probability of Occurrence

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

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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.

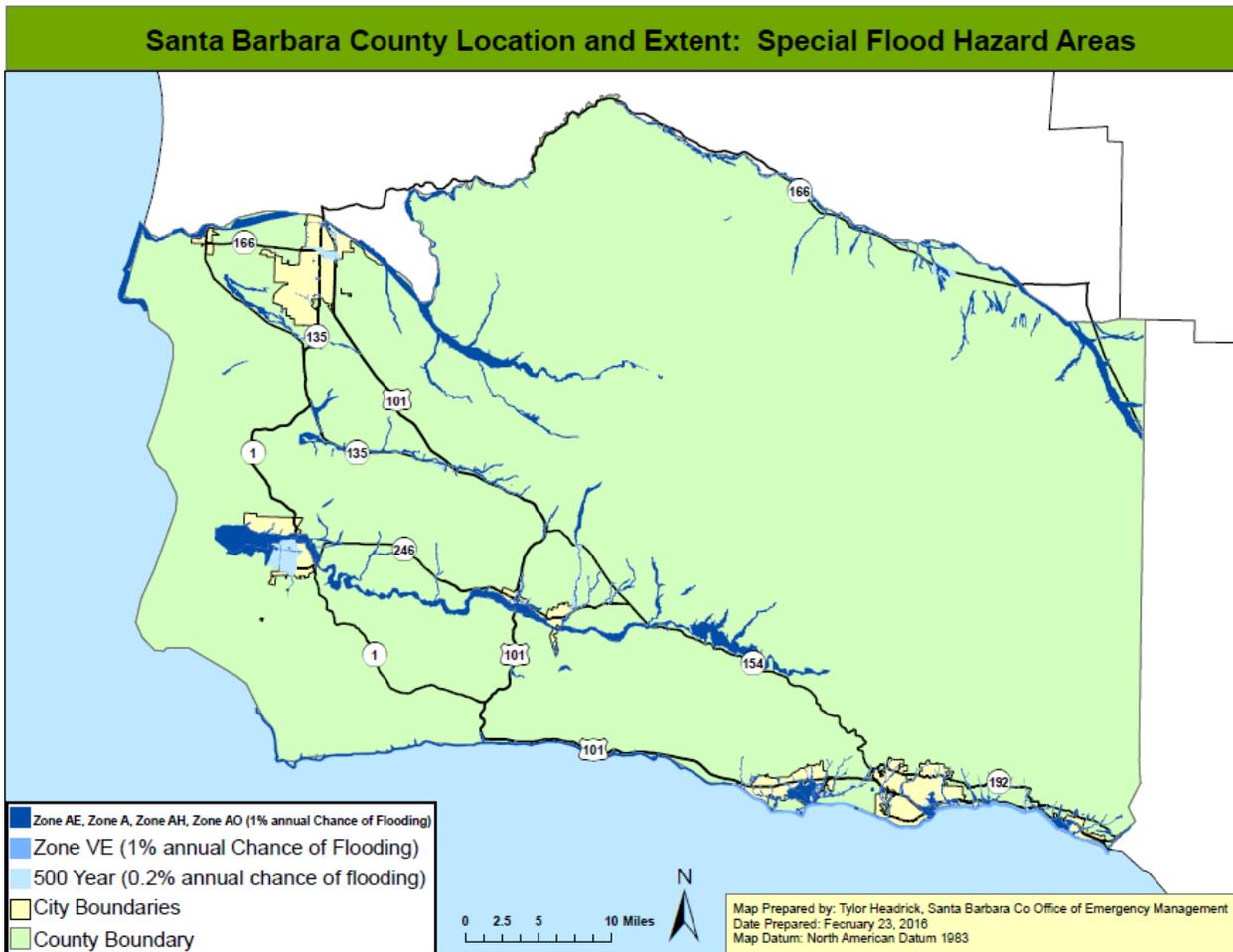
March 1st 2014- A strong winter storm caused significant damage to coastal properties on the south coast of Santa Barbara County

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 feet 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.

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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. Conversely, 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 largely due to Lake Cachuma being the primary source of water for the whole county. Lake Cachuma primarily receives its 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.

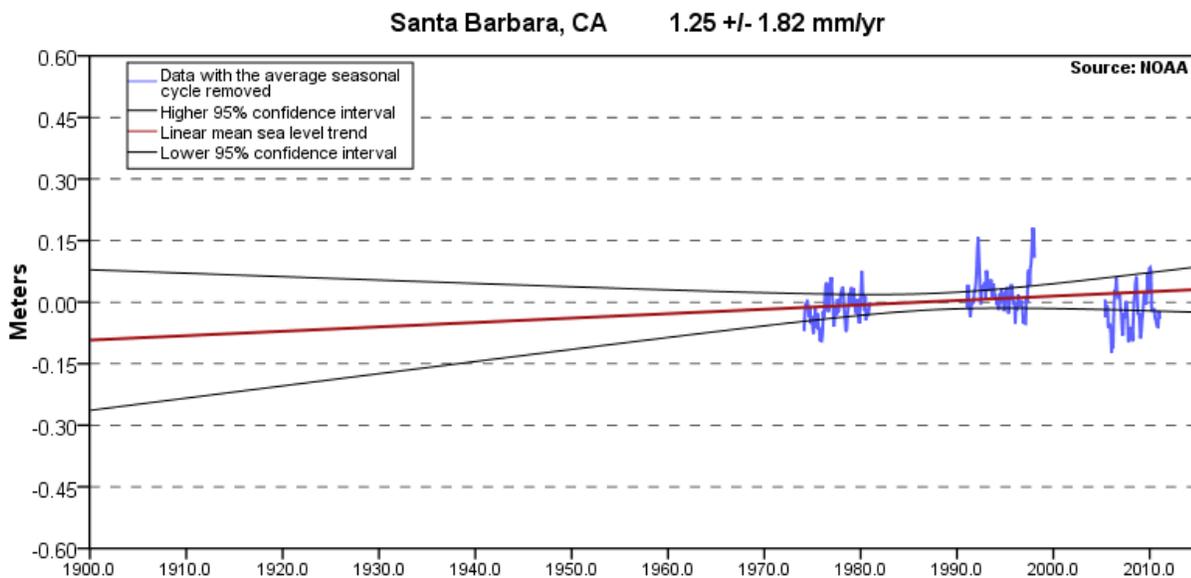
5.4.1.6.2 Location and Extent of Hazard in Santa Barbara County

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

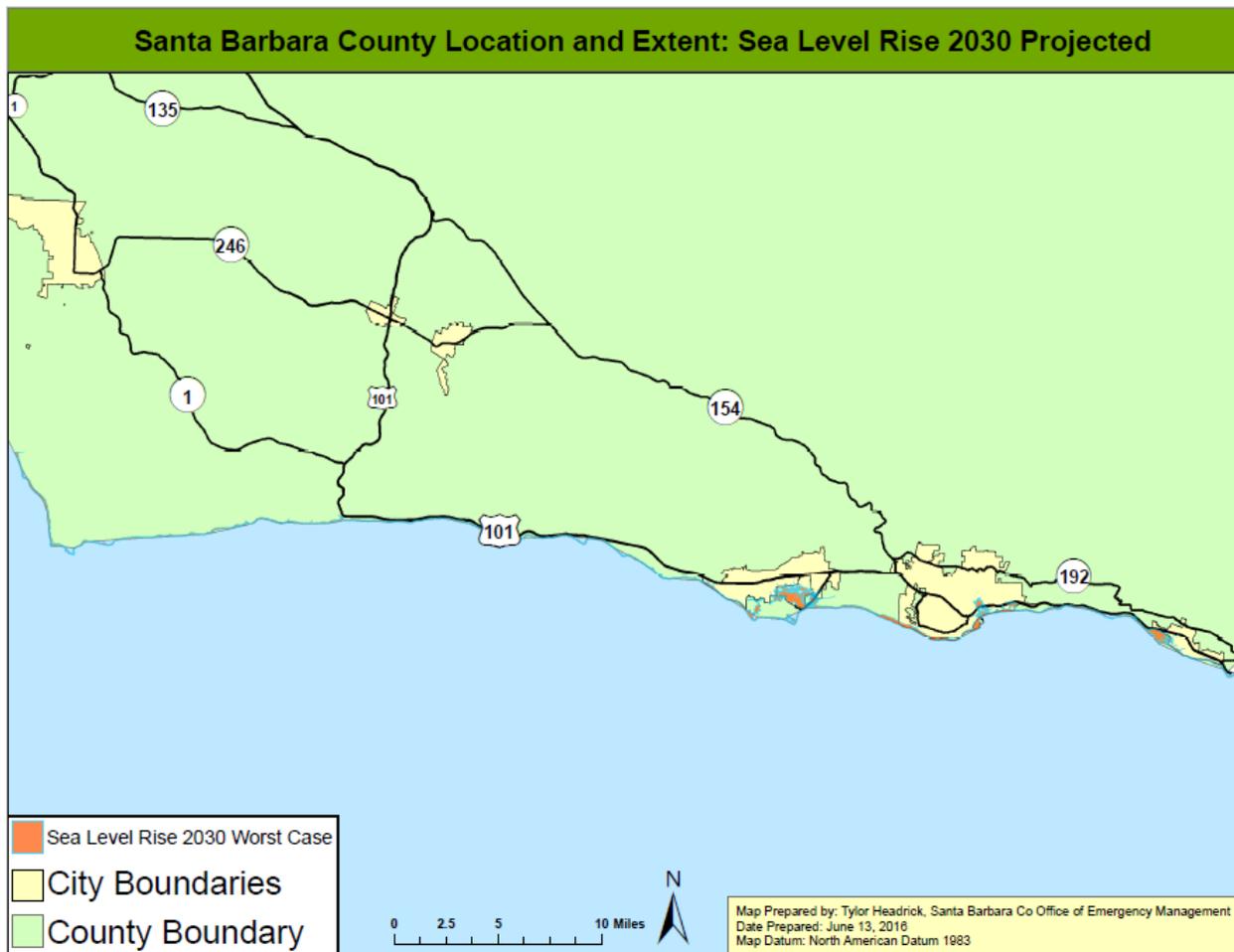
- East Mountain Drive at San Ysidro Creek (Bridge No 51C-0202) is listed as Scour Critical, with Extensive Foundation Scour
- Ashley Road at Montecito Creek (Bridge No 51C-0043) is listed as Scour Critical, with Extensive Foundation Scour

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, if 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

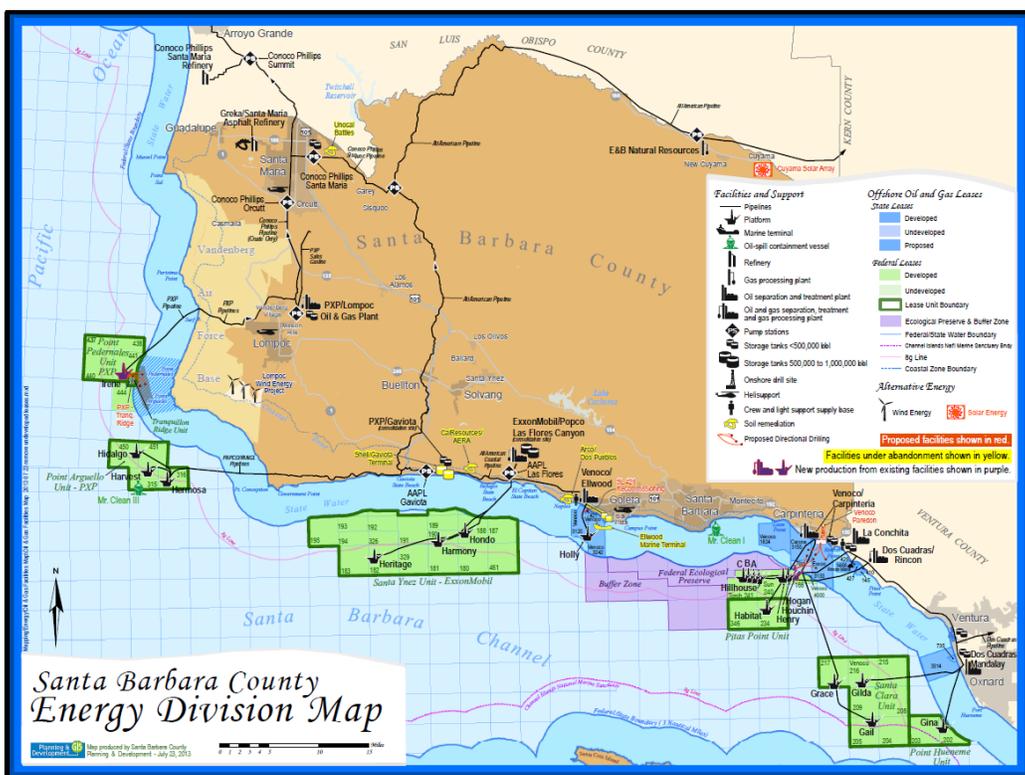
An oil spill is a release of liquid petroleum hydrocarbon into the environment due to human activity or technological error that results in pollution of land, water, and air. Oil releases also occur naturally through

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, Simoom, 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.

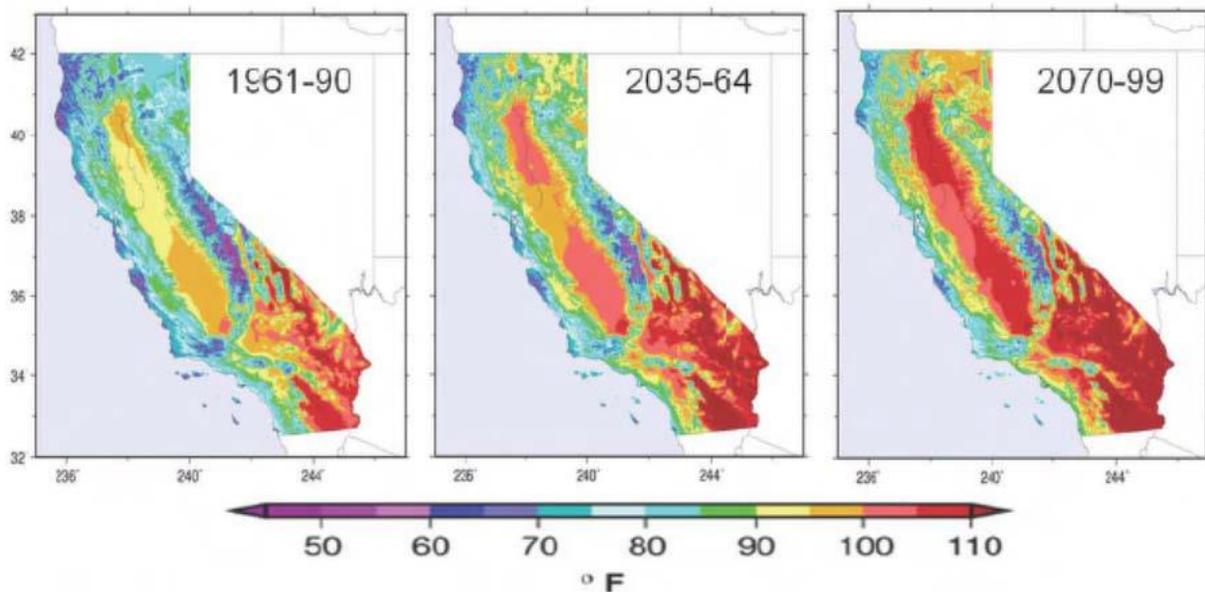
5.4.2.1.1.4 *Probability of Occurrence*

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 fahrenheit 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 January 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 prevalent 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 prevalent 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 descending 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 prevalent 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 calendar 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 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-foot long dam broke off and was carried away on the liquefied soil, spilling 30 million gallons of water. Damage estimates are unavailable.

5.4.2.3 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

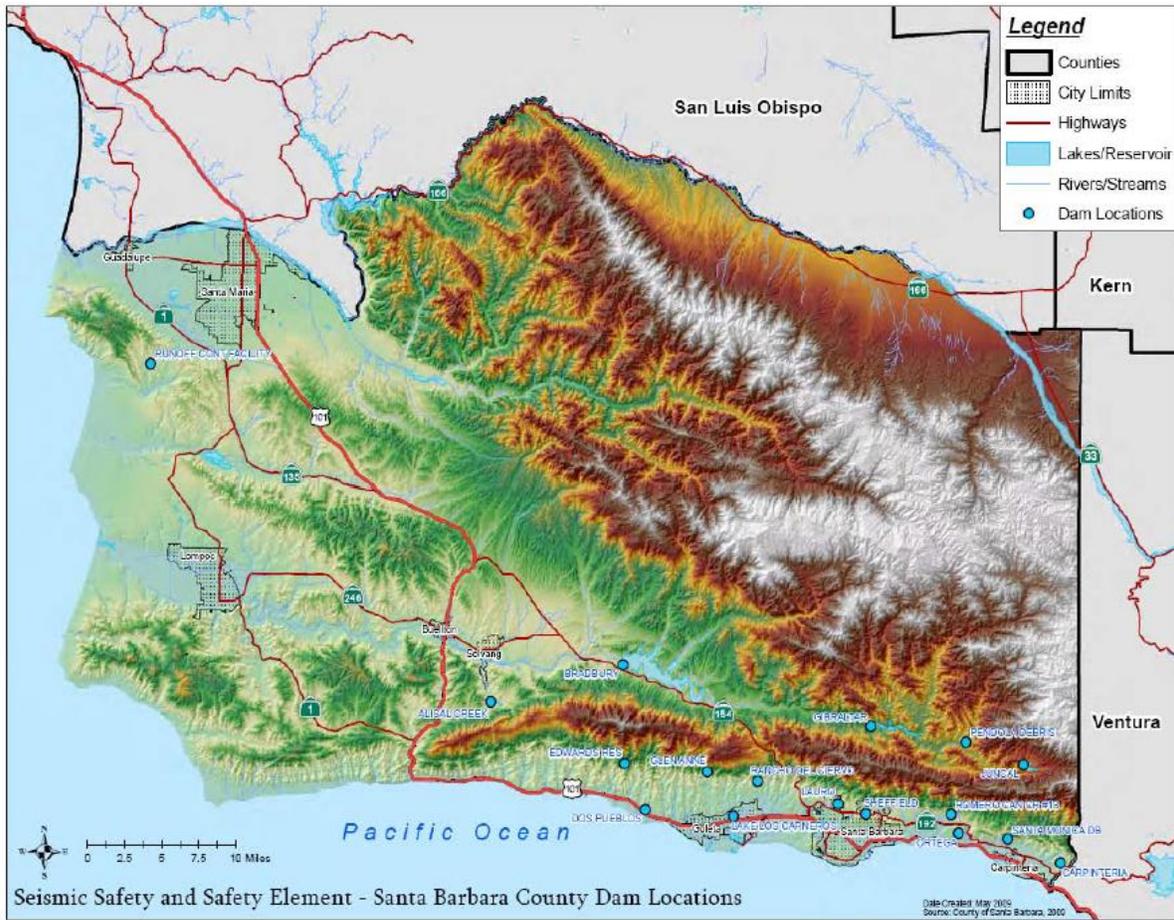
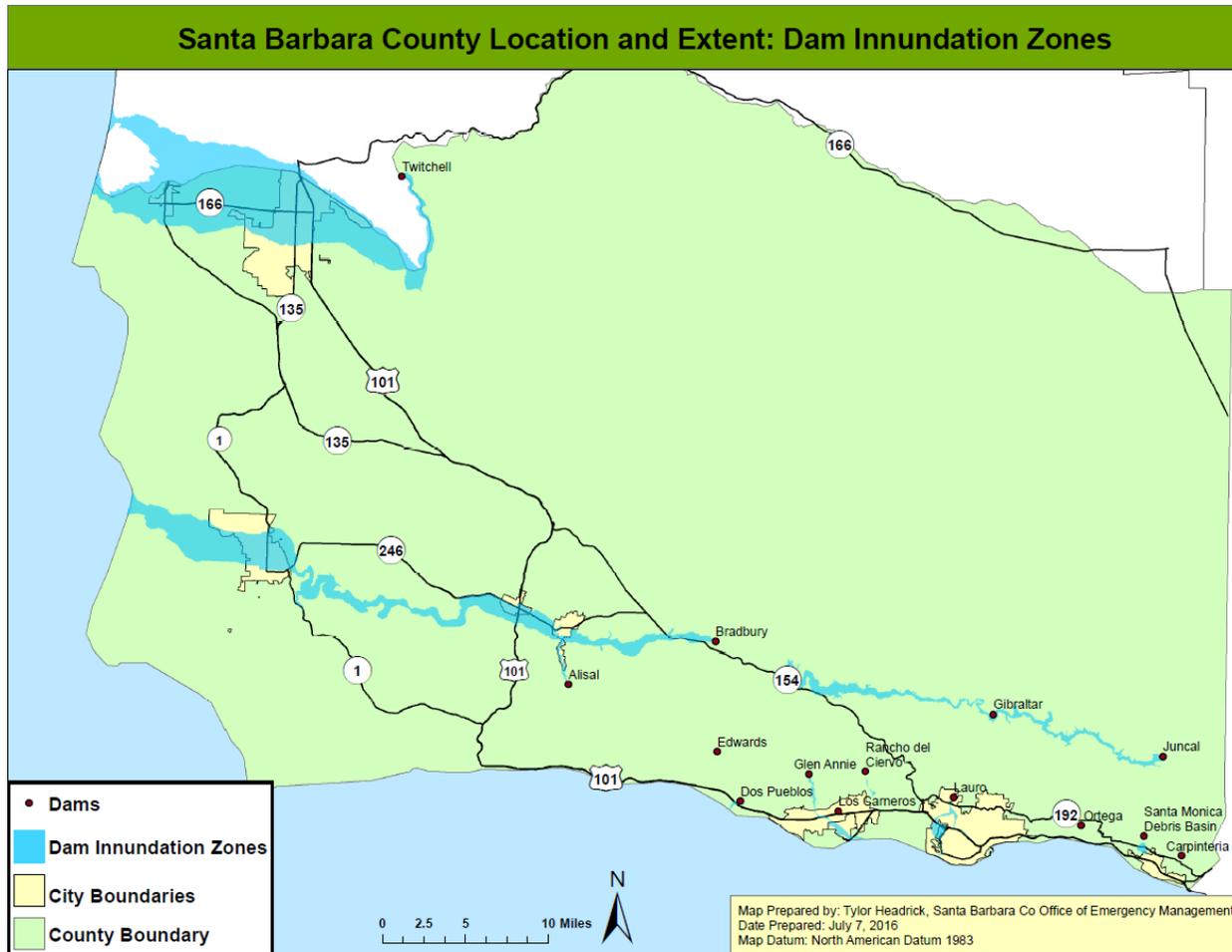


Figure 5.20 Dam Inundation Zones



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.

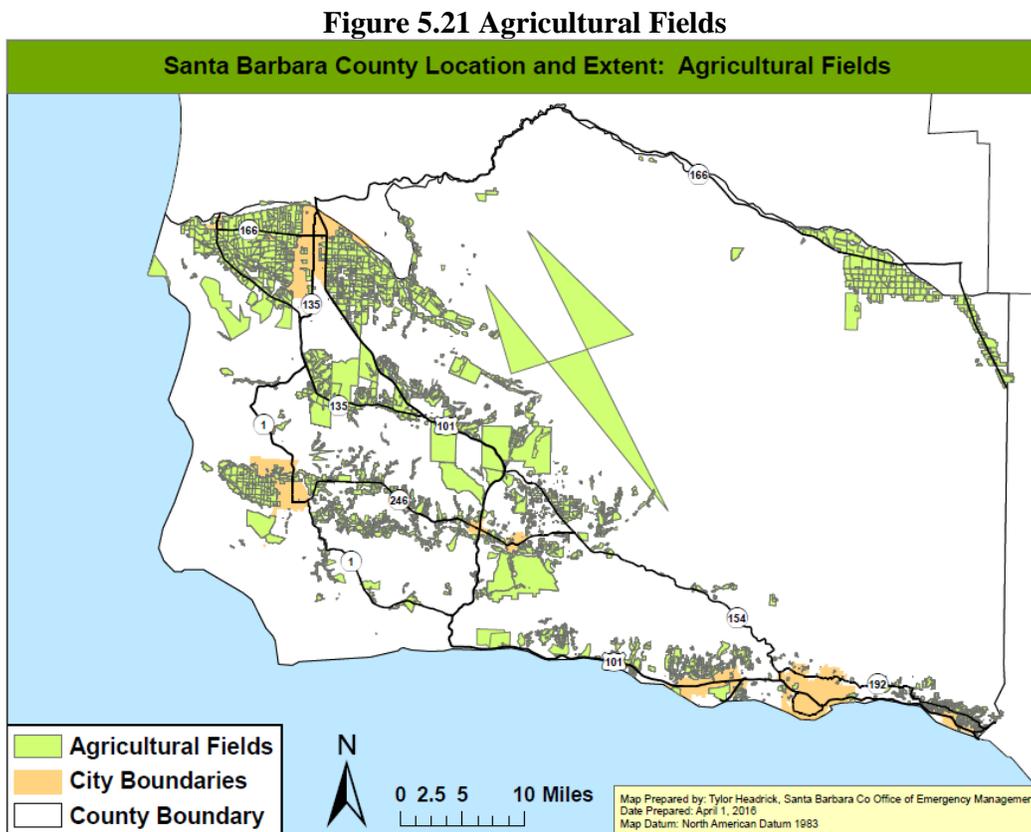
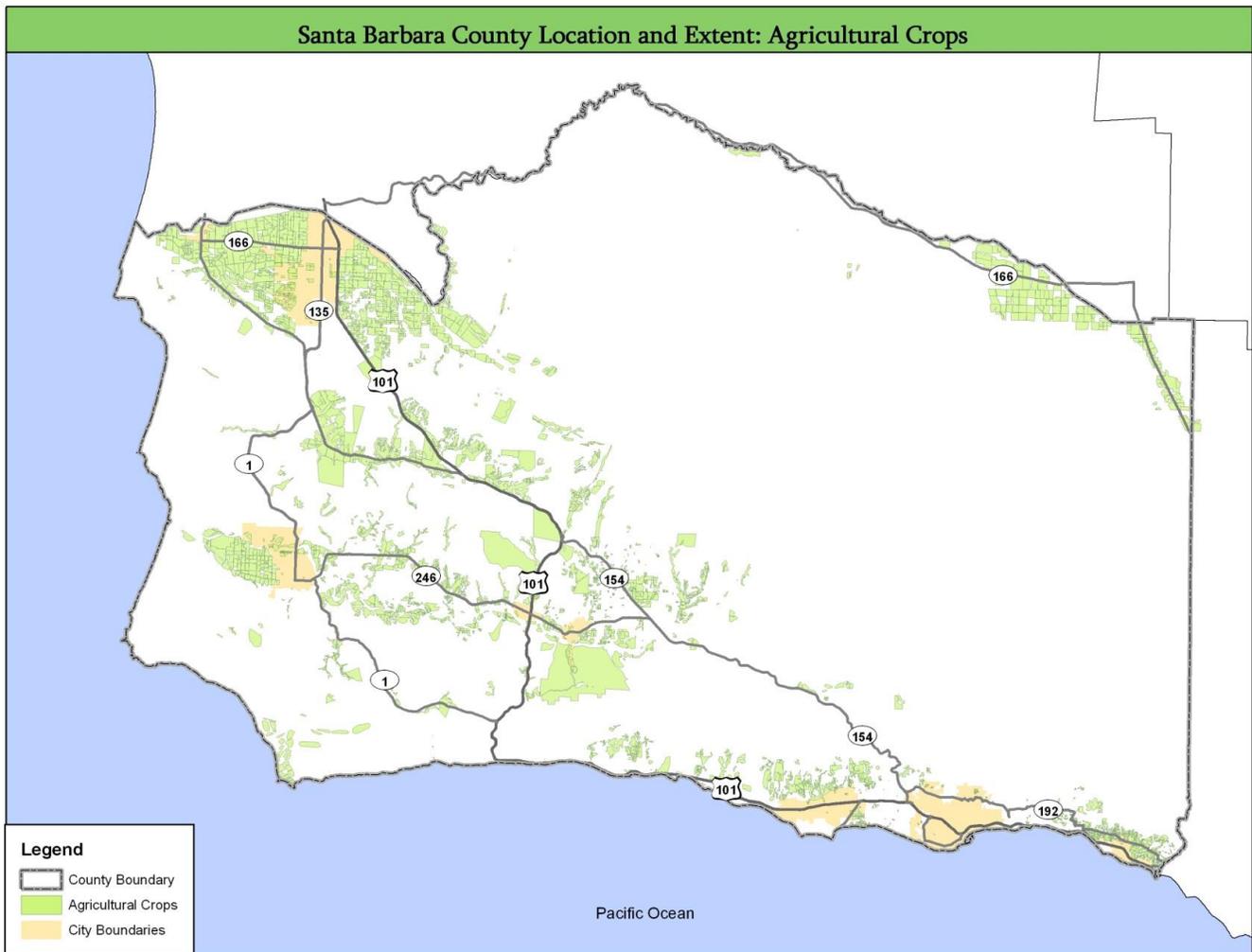


Figure 5.22 Agricultural Crops



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 depend 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. Topography, 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.

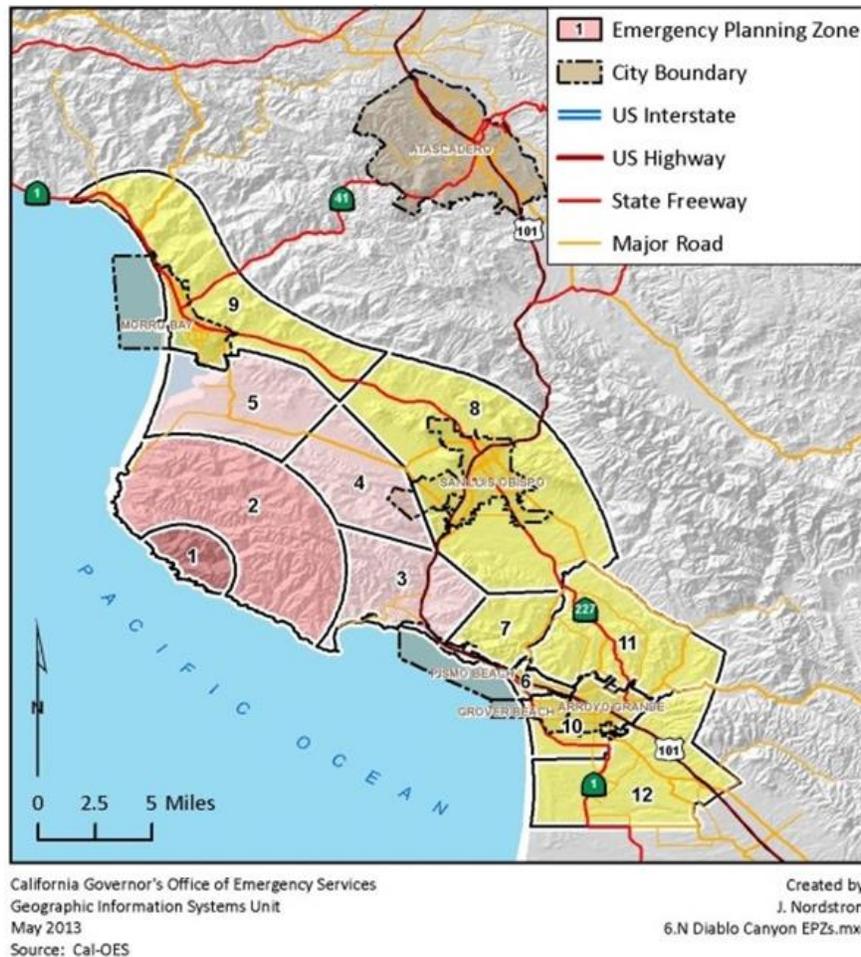
Four (4) Emergency Classification Levels (ECLs) have been established in federal regulations to characterize the severity of the emergency and the response actions required. The ECLs must be used as the foundation for emergency response planning, training and exercises.

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 several 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 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.

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.

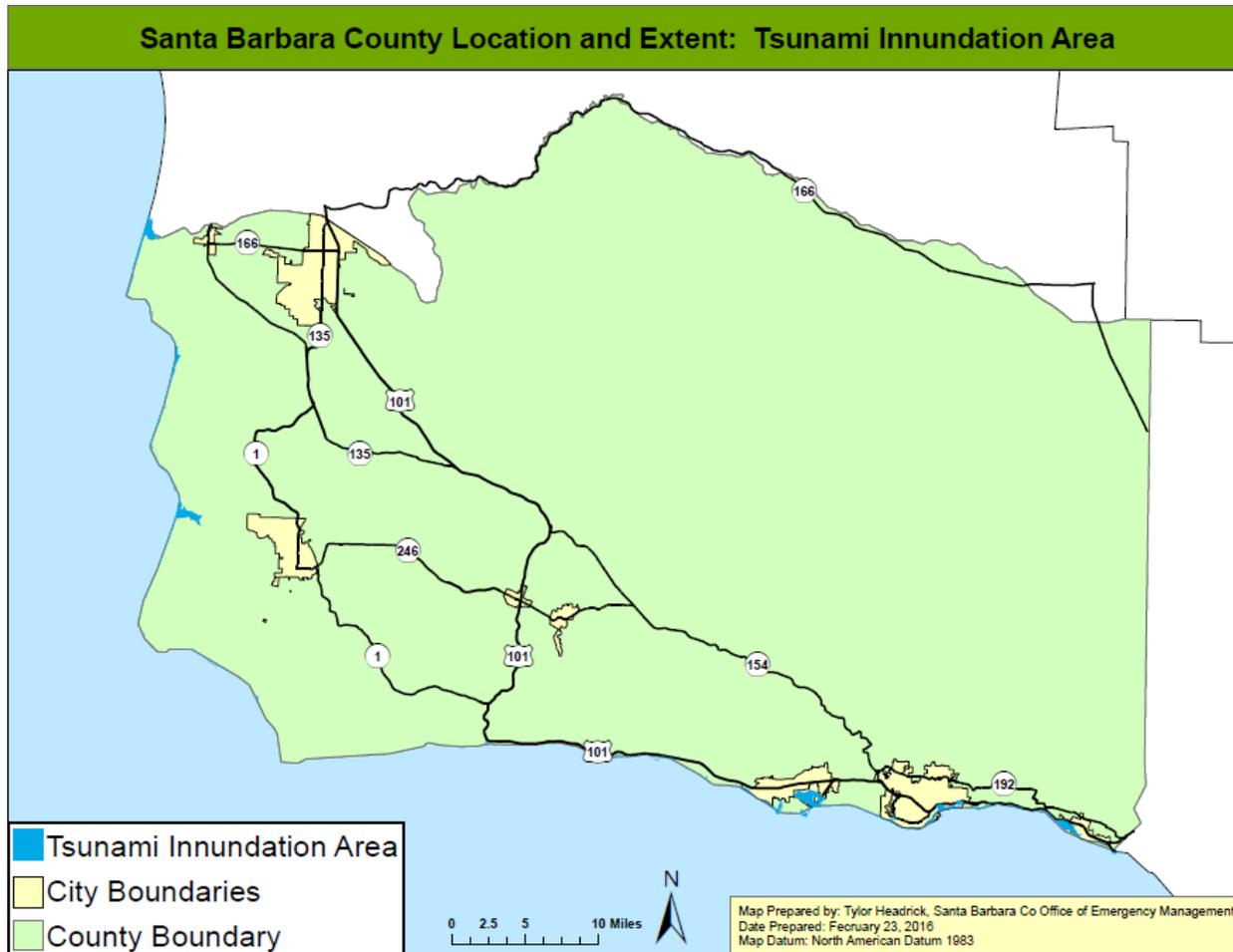
On February 27, 2010, a magnitude 8.8 earthquake occurred along the central coast of Chile and produced a tsunami. For the coast of Southern California, it was one of the largest tsunami episodes since 1964. In general, tsunami waves between 2 and 4 feet were reported. Tsunami waves of around 3 feet 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%

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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 Santa 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.

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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

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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

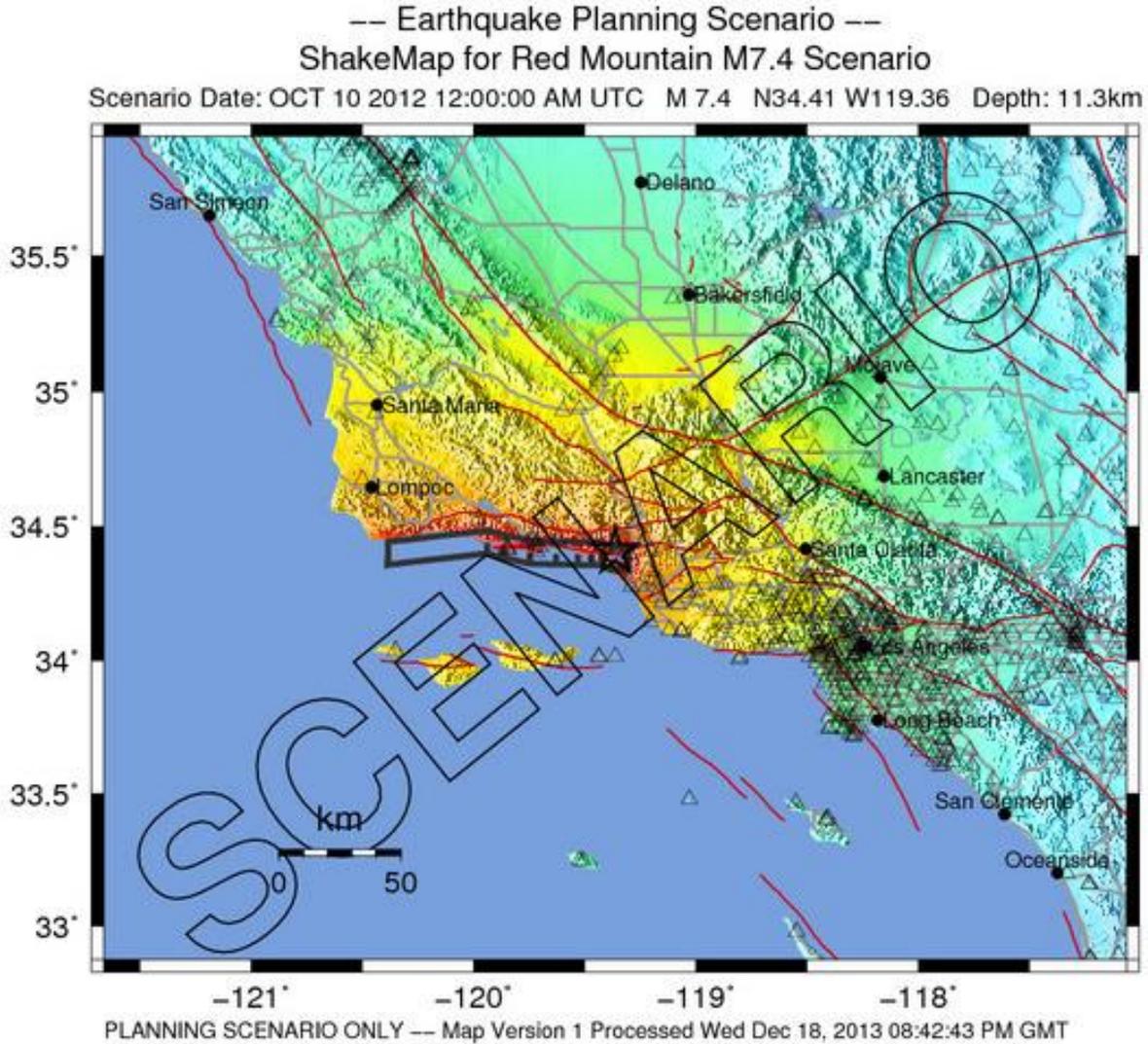
6.2.1 Earthquake and Liquefaction (*High Impact/Medium Probability*)

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**.

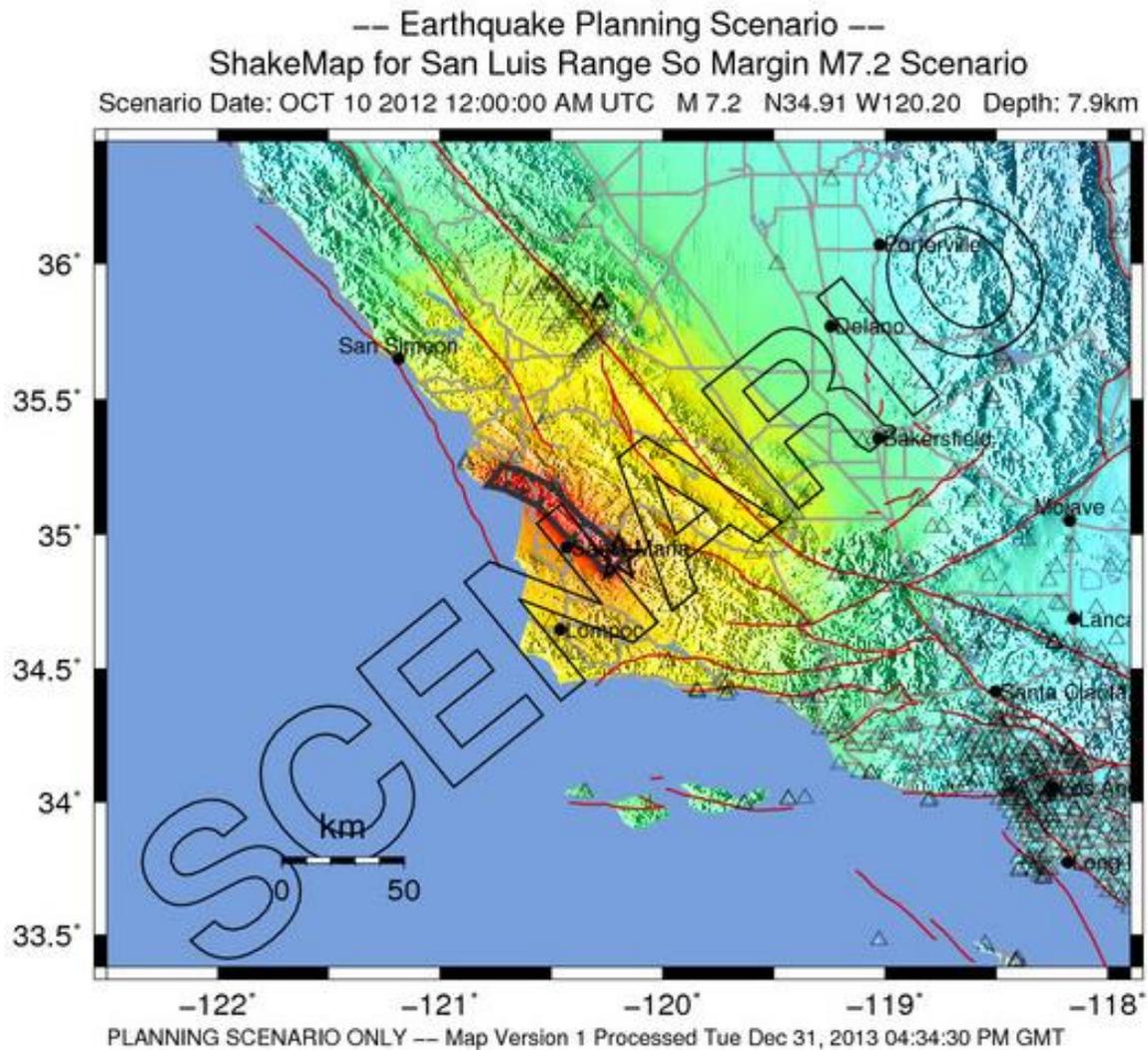
Figure 6.1: Scenario 1 – M7.4 Earthquake on the Red Mountain Fault



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)

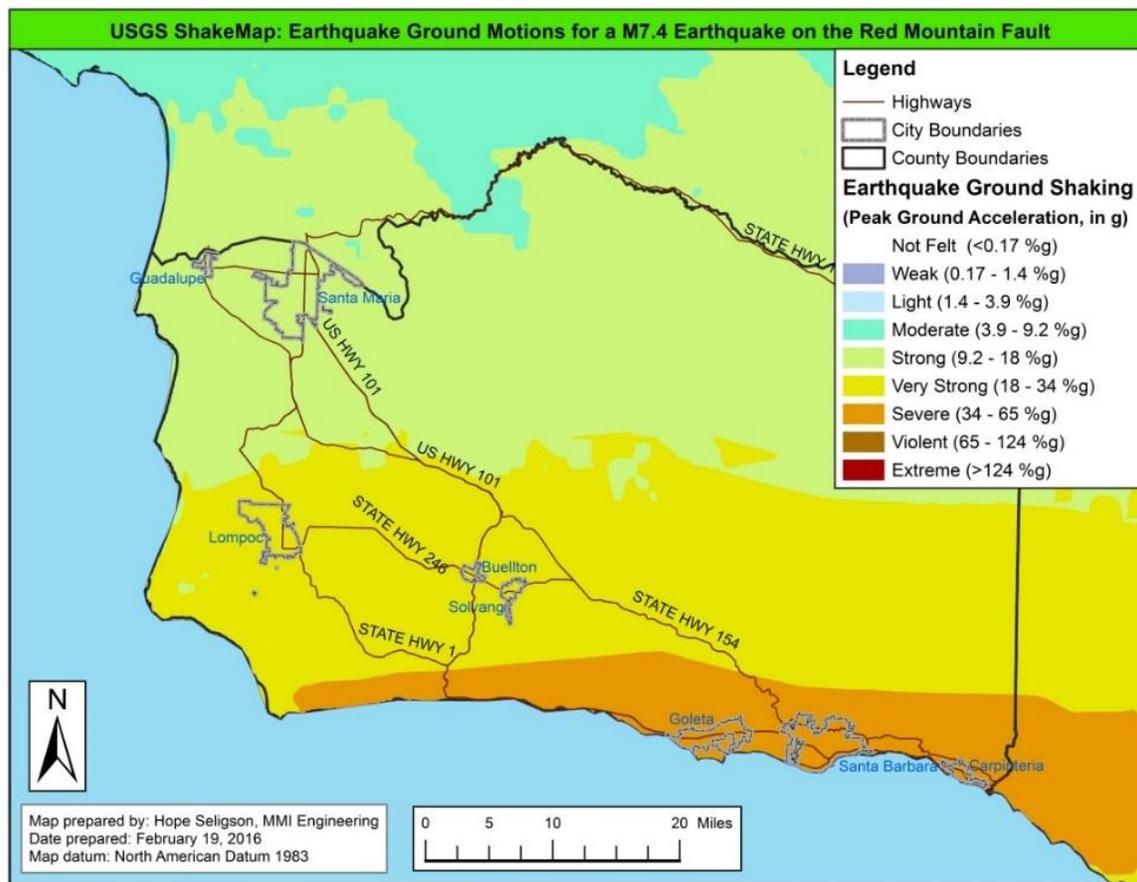
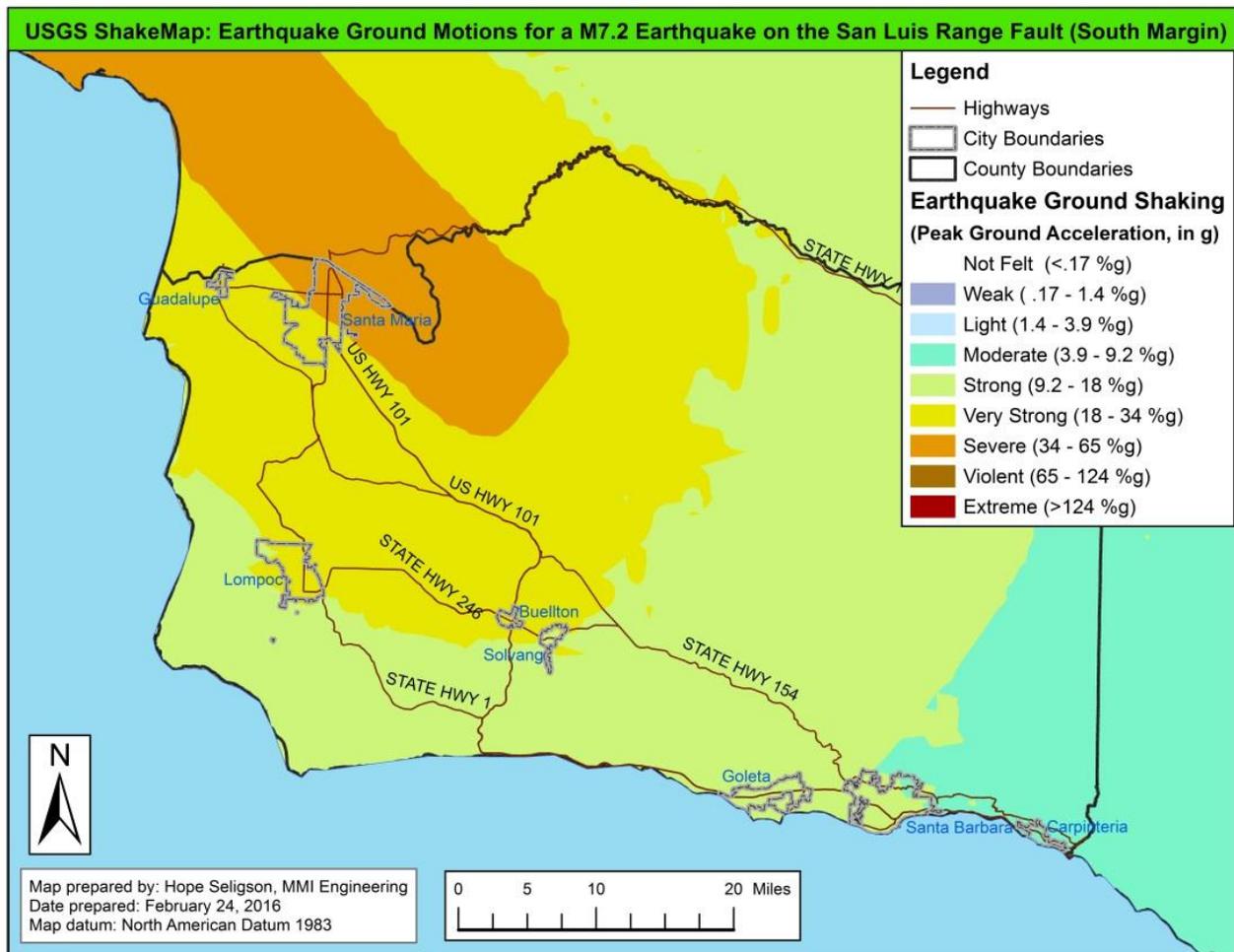


Figure 6.4 USGS Shake Map Ground Motions for Santa Barbara County for a M7.2 Earthquake on the San Luis Range Fault, South Margin (Scenario 2)



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

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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

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	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	23,217	33,919
	Slight	34,839	17,301	12,745	4,214
	Moderate	7,180	1,846	2,342	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

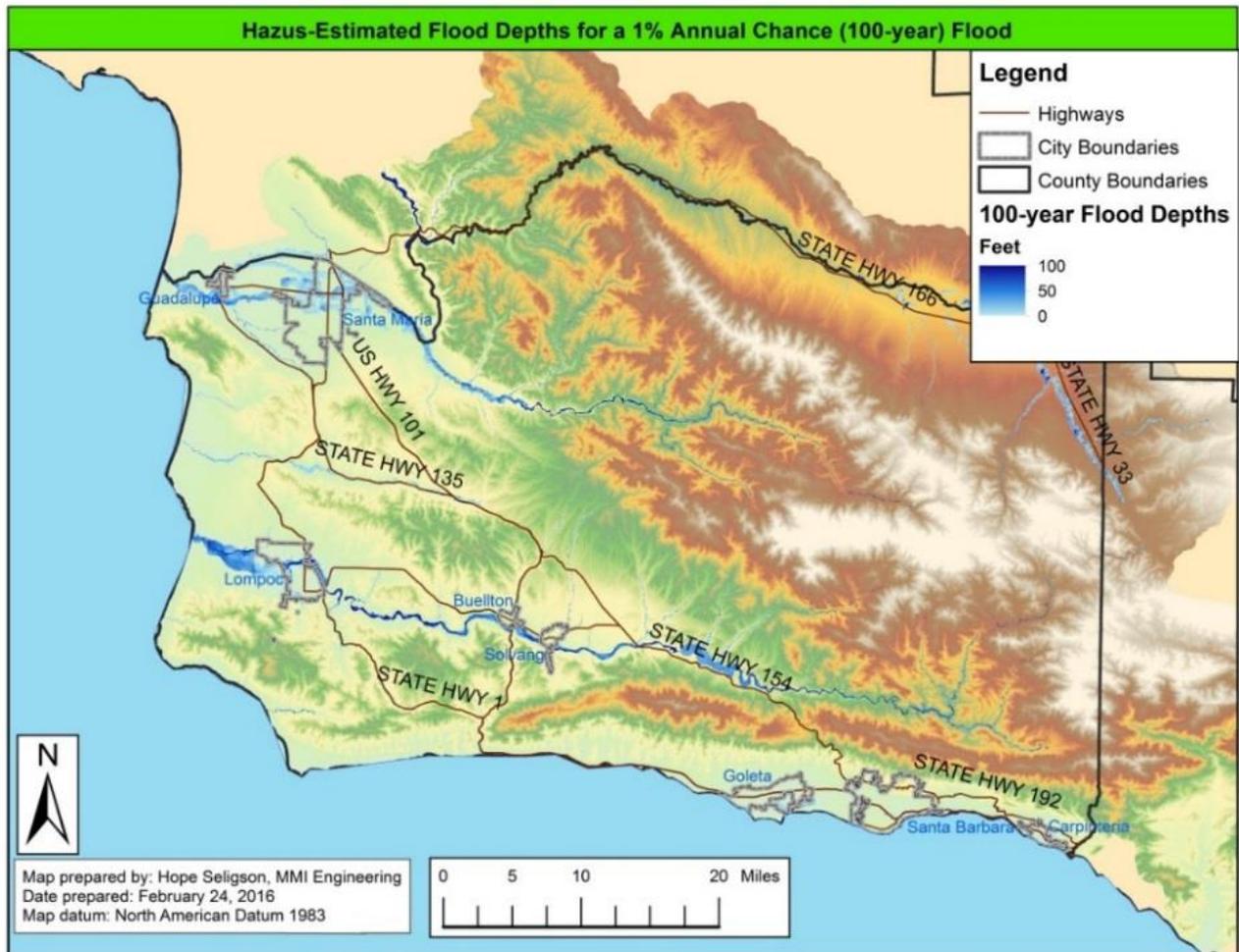


Table 6.10 Hazus -Estimated Impacts for the 1-Percent Annual Chance (100-Year) Flood Scenario Affecting Santa Barbara County

		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
	<i>Building Loss Ratio %</i>	<i>1.2%</i>	<i>0.1%</i>
	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

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	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*)

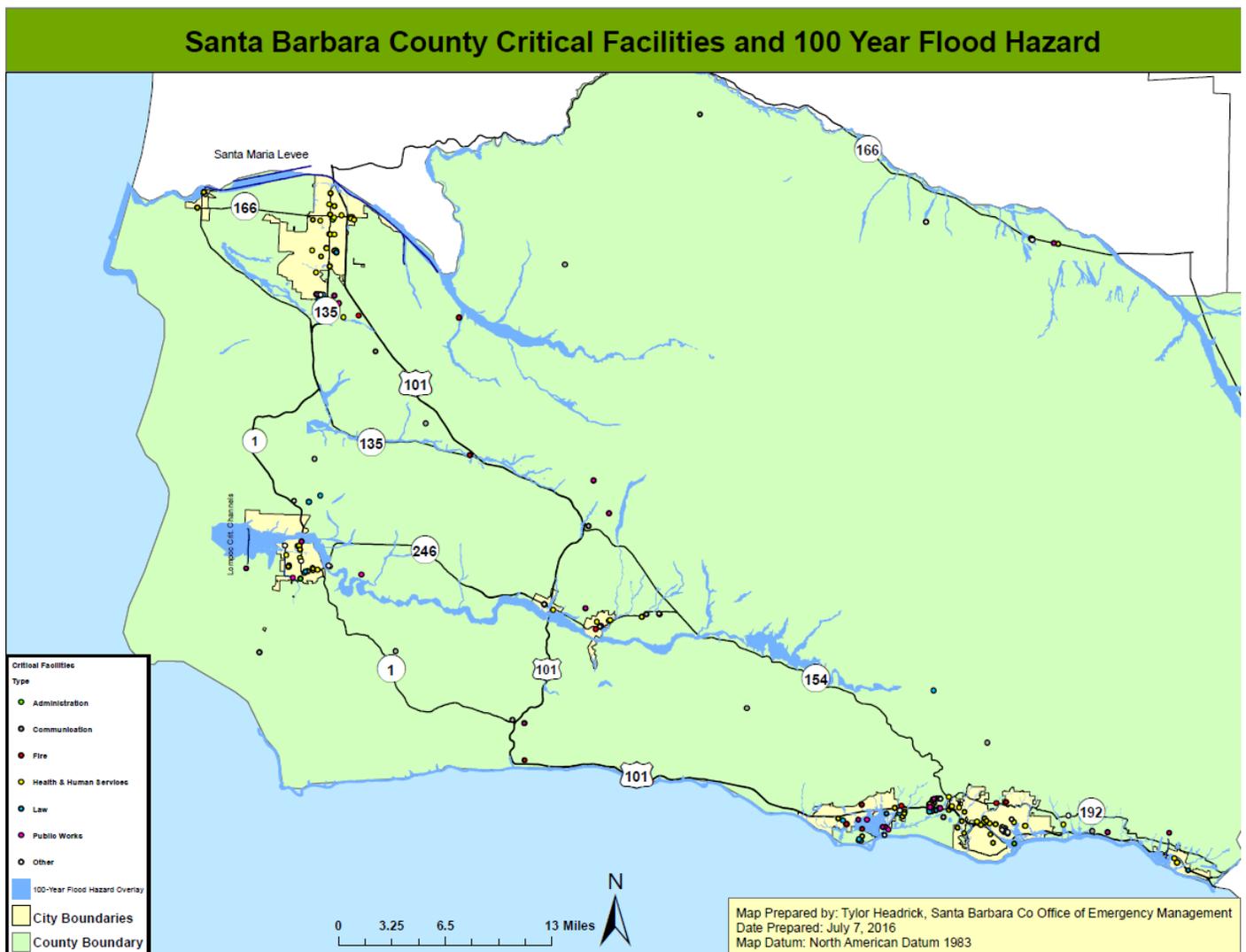
Although Flood and Coastal Surge damage was well delineated in the previous section (Scientific Loss Estimation modeling), the County Planning Team and the MAC wanted to include additional vulnerability data for the Critical Facilities. The exposure of the critical facilities to flood zones is summarized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

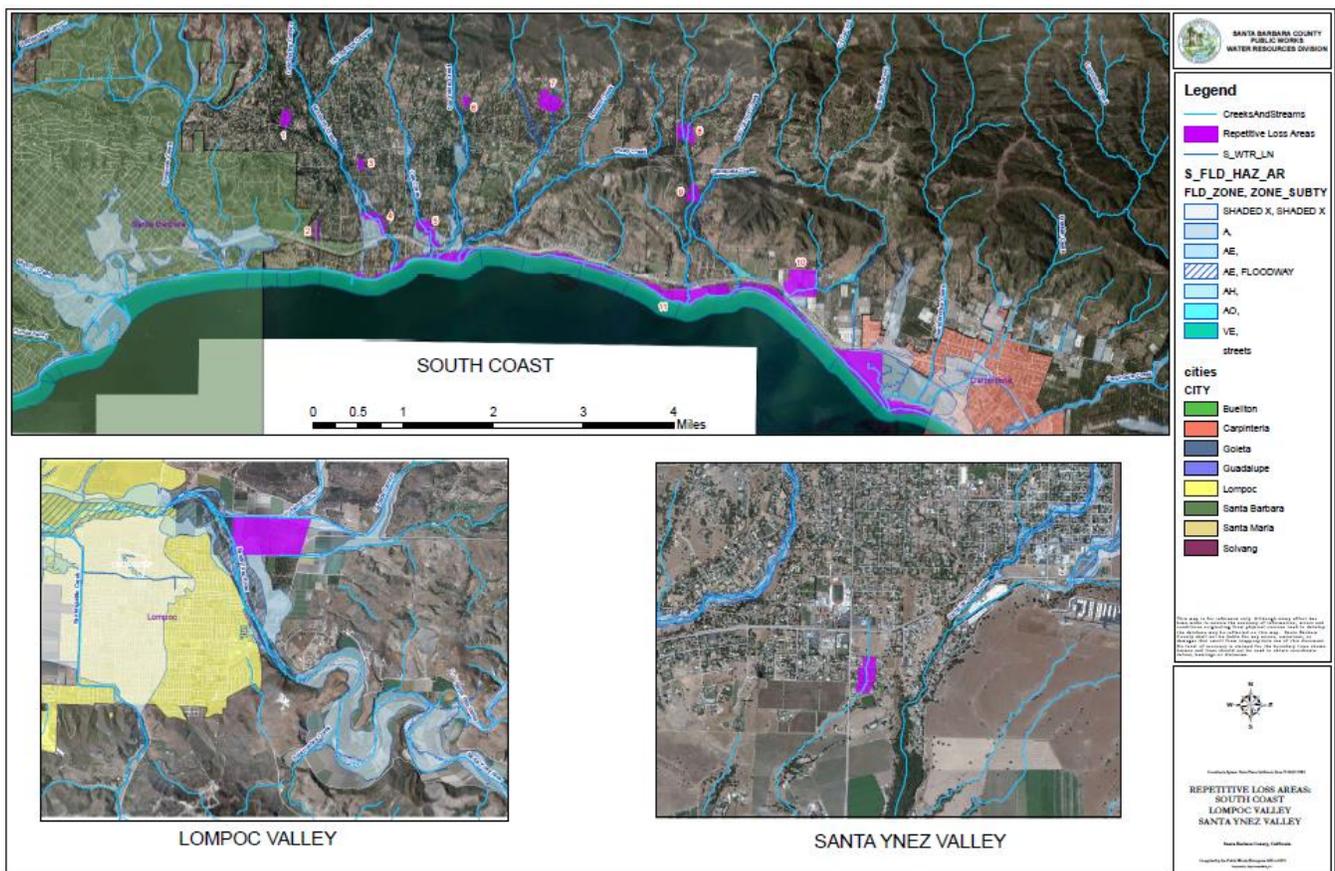
Currently, there is one repetitive loss area in the Lompoc Valley Flood Zone. It is a post-FIRM elevated manufactured home in an un-numbered A- Zone. It was constructed in 1989 and elevated in accordance with the County NFIP Ordinance. The parcel on which the structure is situated is only partially within 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



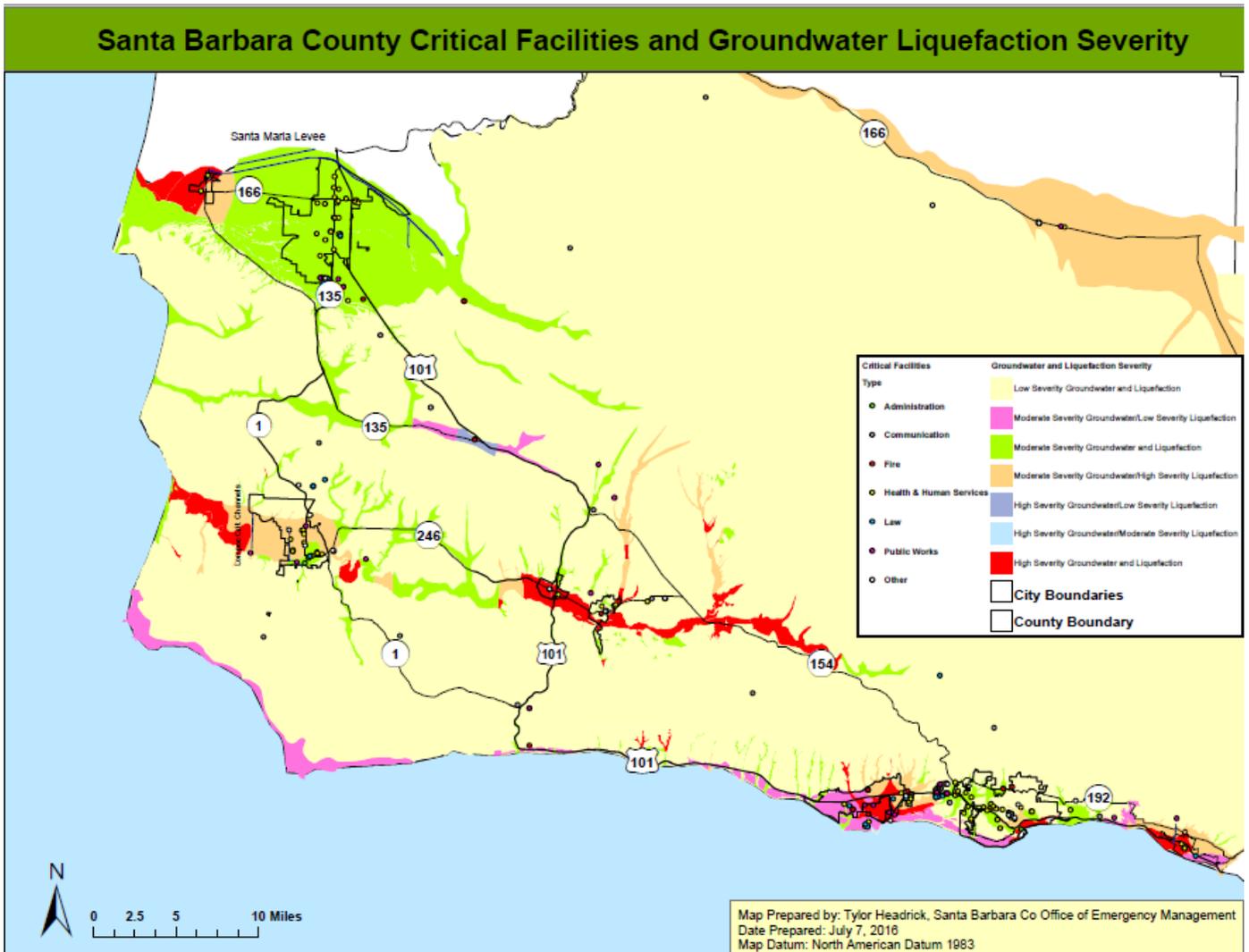
6.3.2 Groundwater Liquefaction (*High Impact/Medium Probability*)

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 to 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

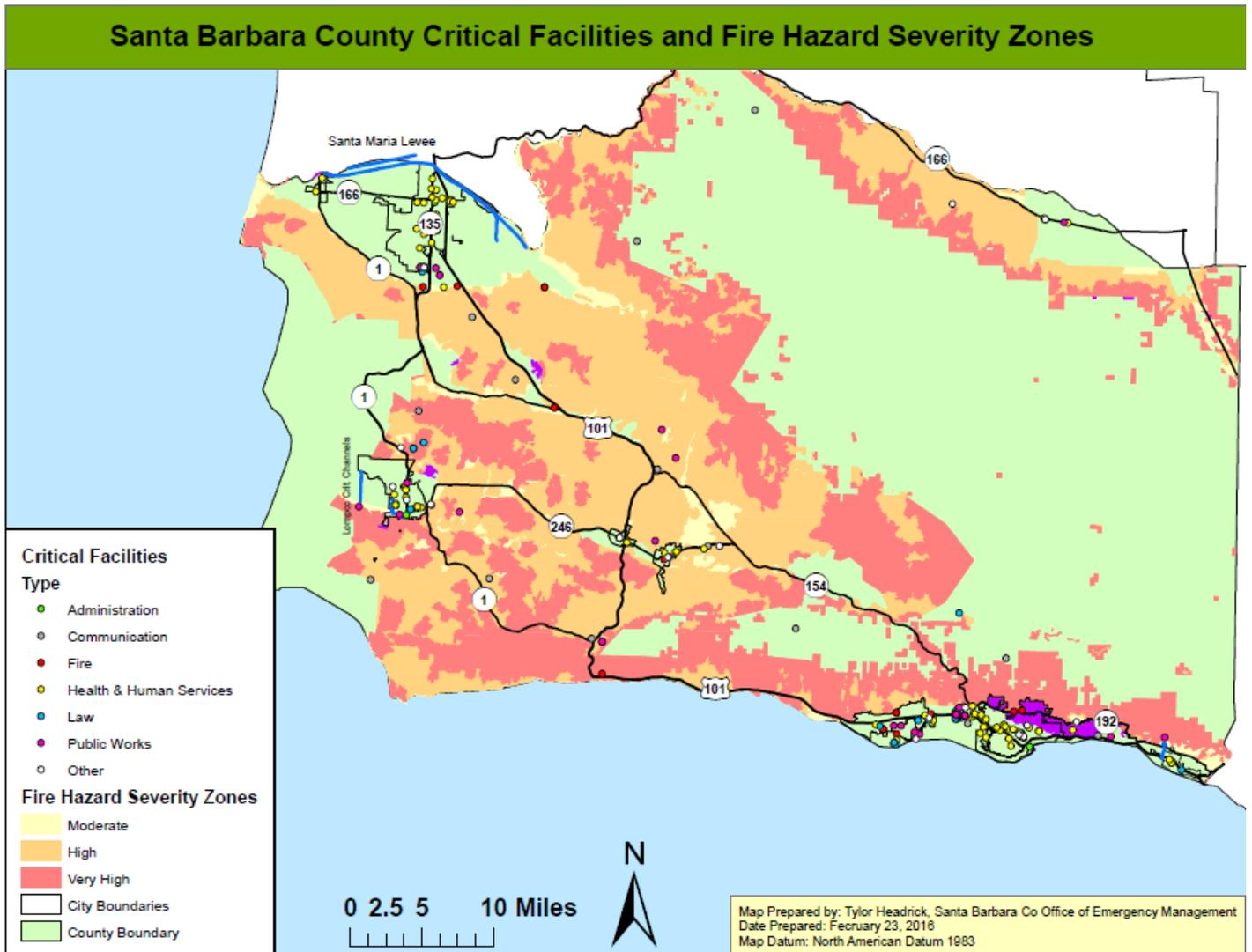


Table 6.15 Critical Facilities by Category in Wildland Urban Interface (WUI) Zone

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)

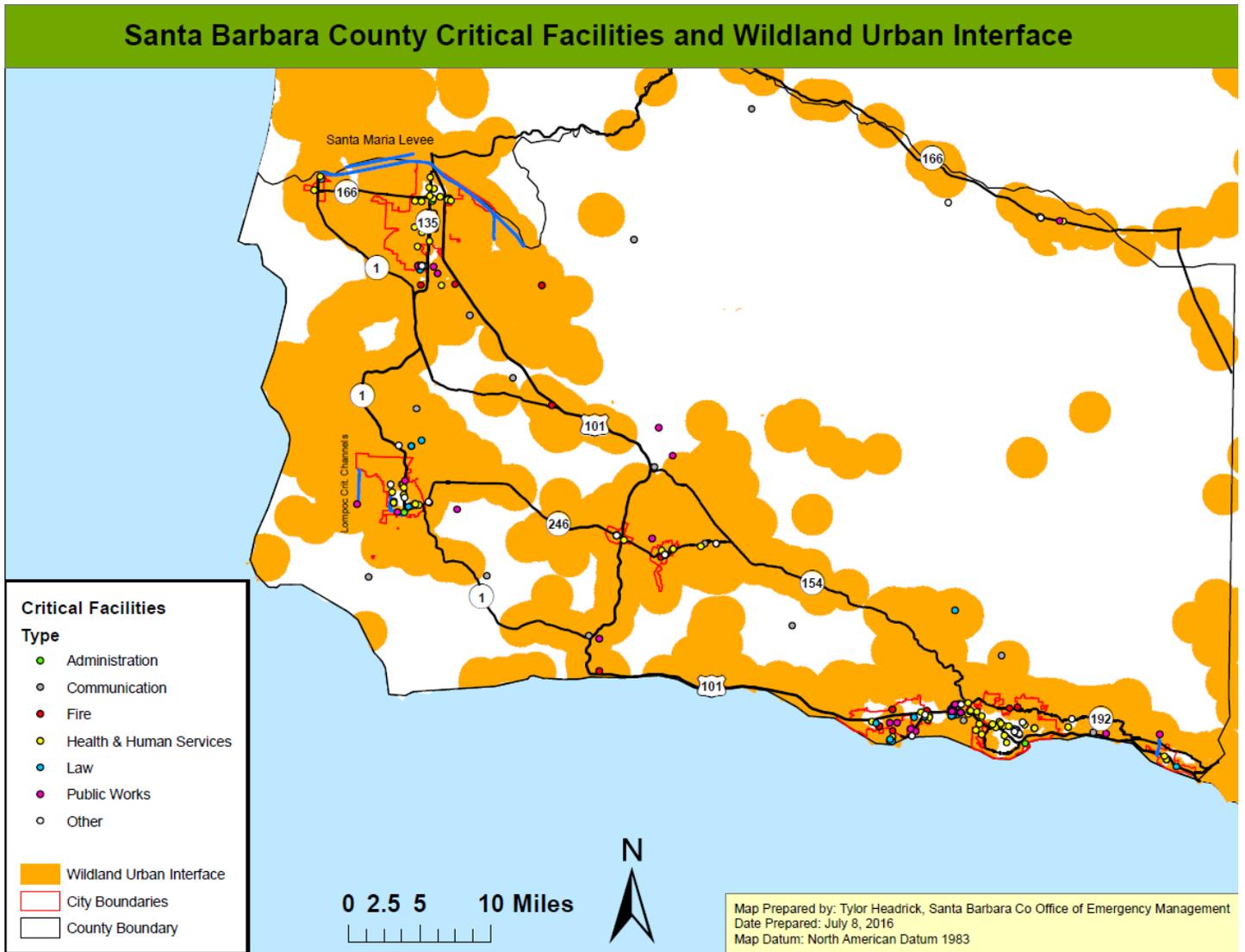
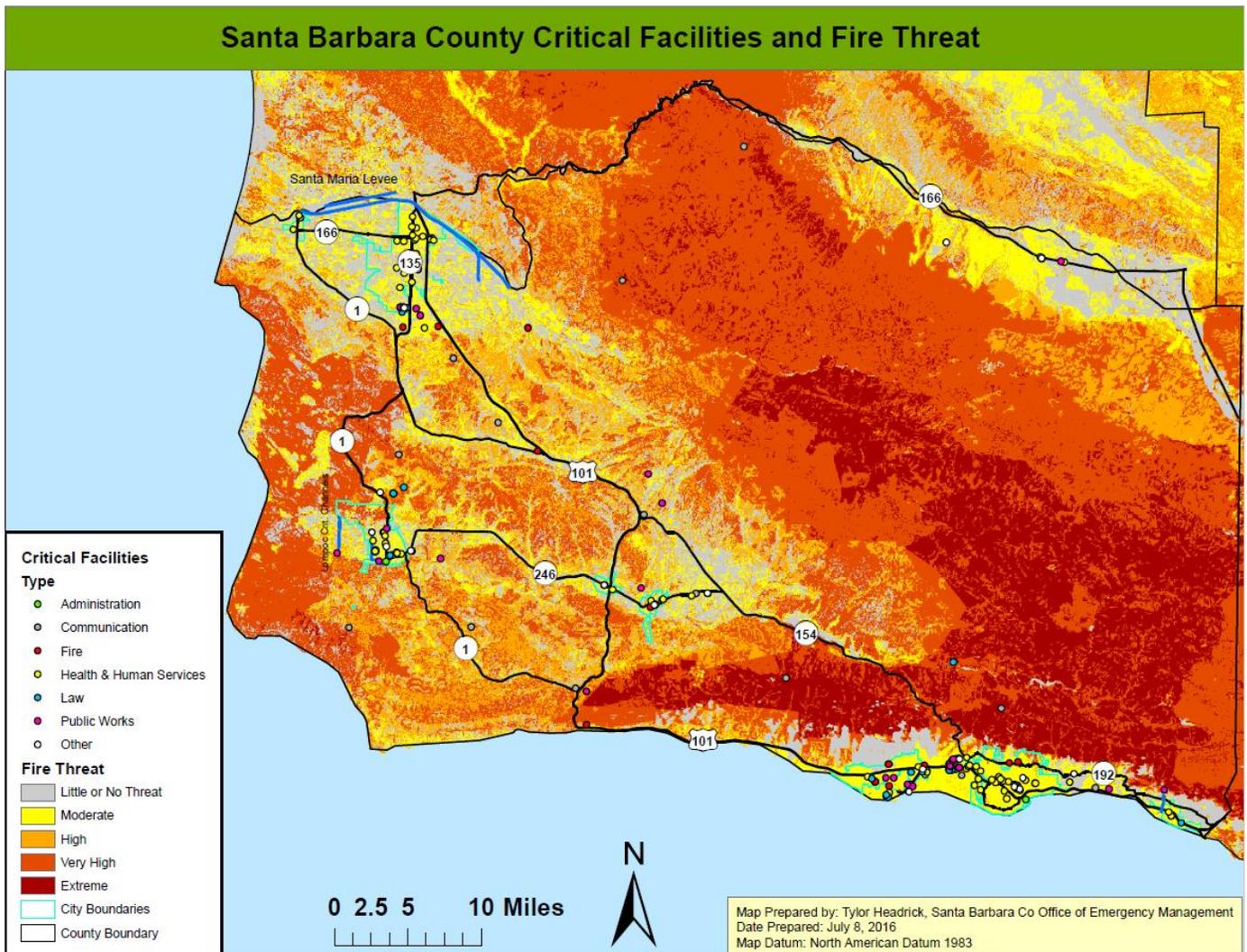


Table 6.16 Critical Facilities by Category in Fire Threat Zones

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



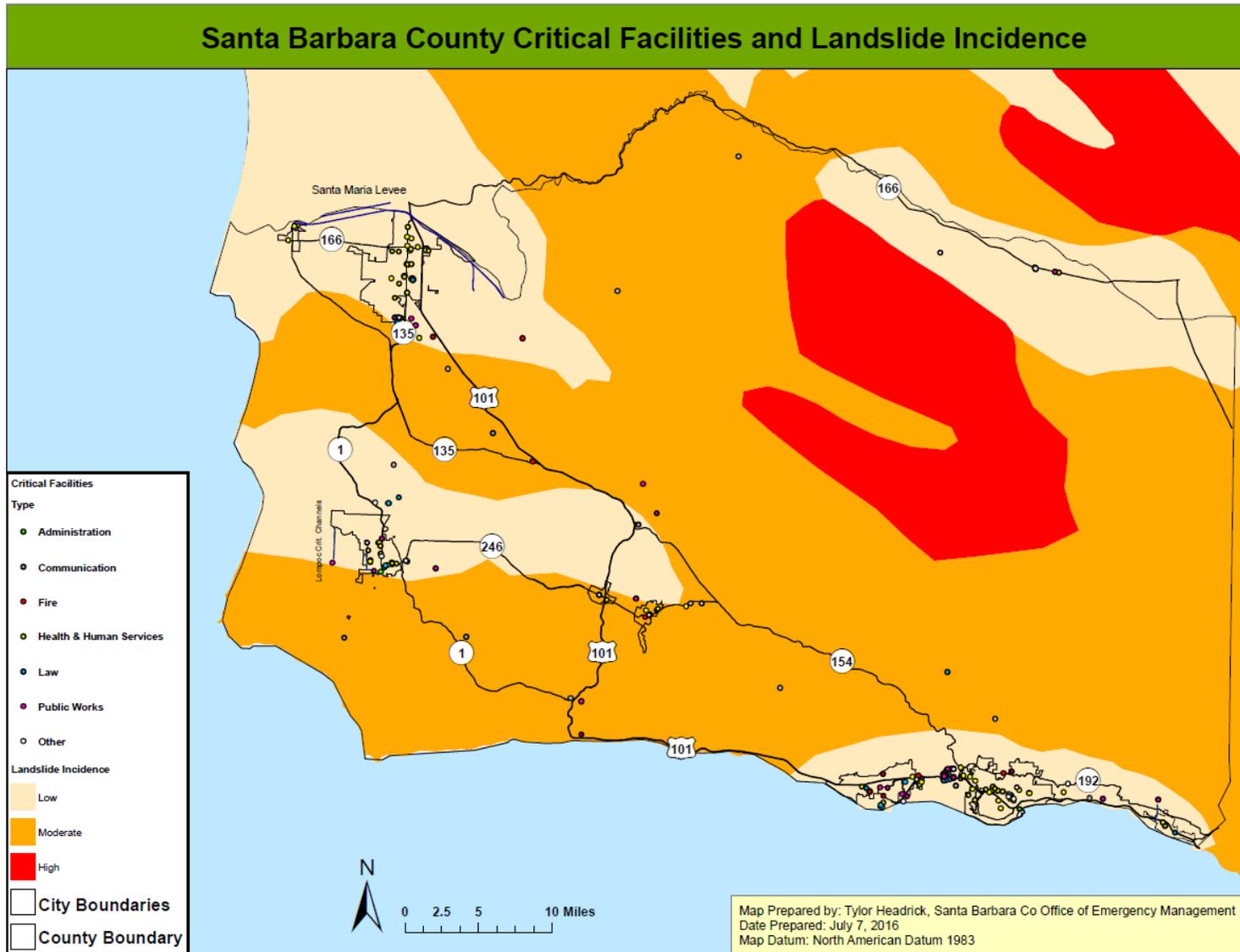
6.3.4 Landslide and other Earth Movement (*Medium Impact/High Probability*)

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)

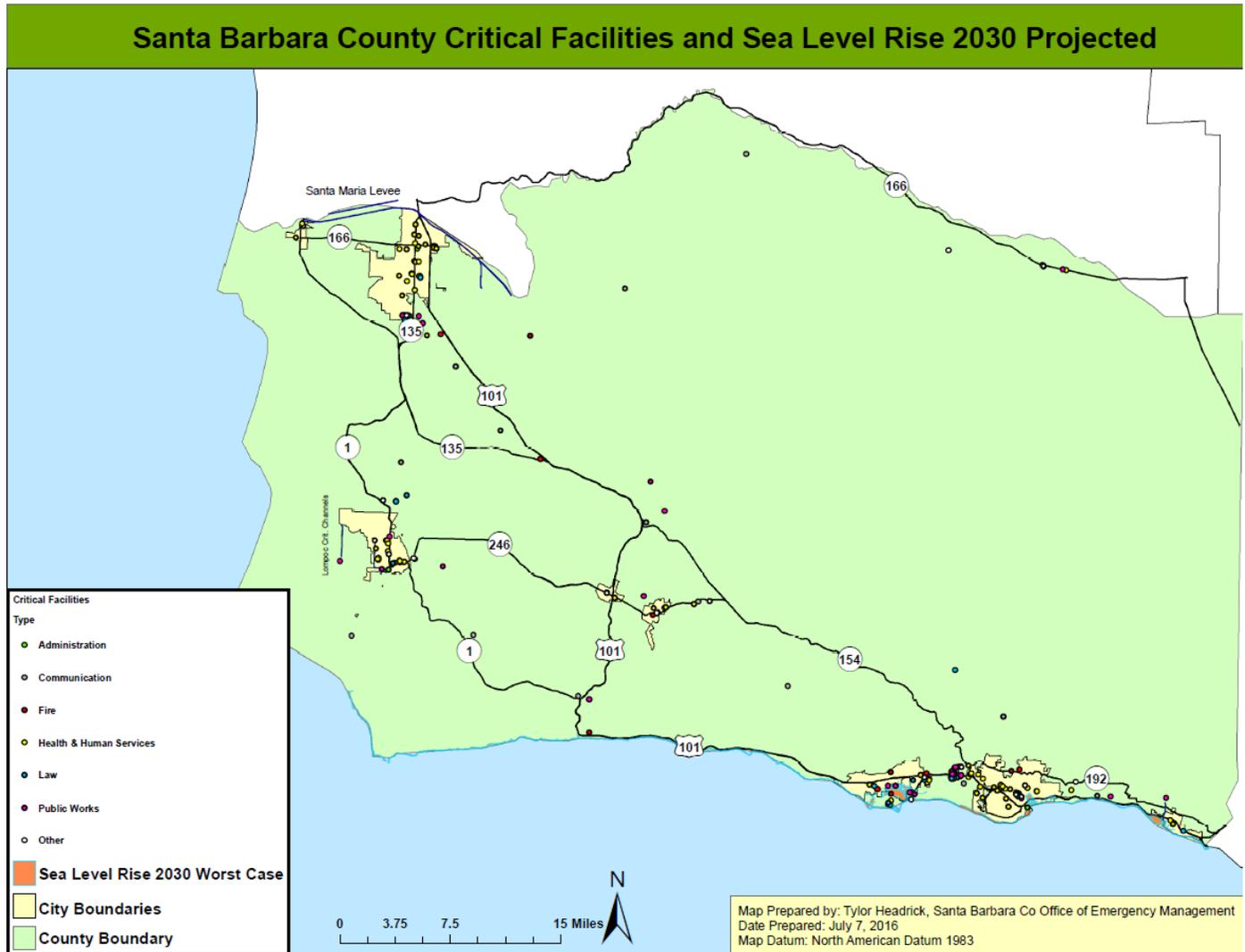
Santa Barbara County will be vulnerable to Sea Level Rise (SLR) along its coastline. SLR coupled with increased frequency, severity, and duration of high tide and storm events related to climate change will result in more frequent and severe extreme events along the coast. These events could expose the 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 Facilities 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,

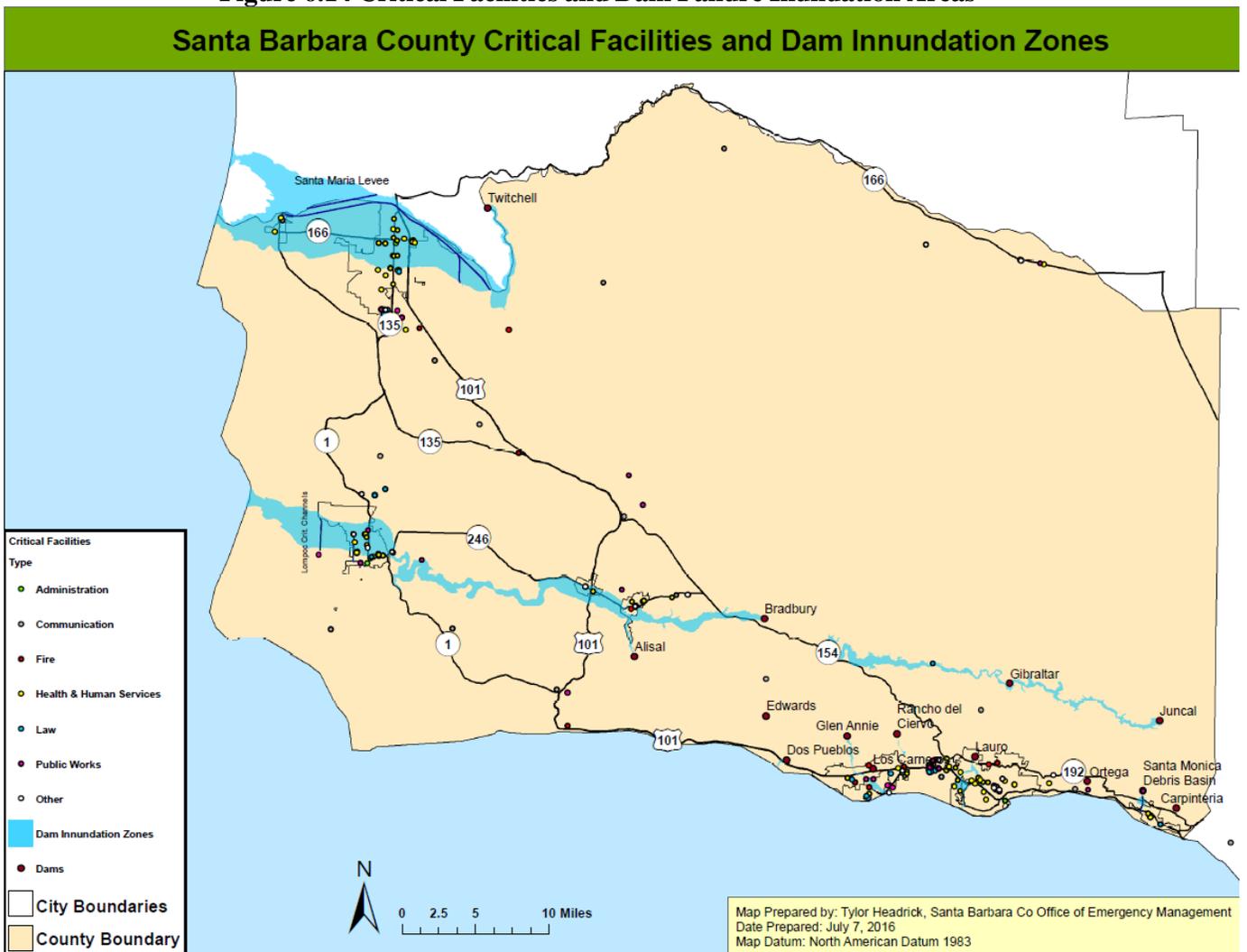
Santa Barbara County
2017 Multi-Jurisdictional Hazard Mitigation Plan

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.

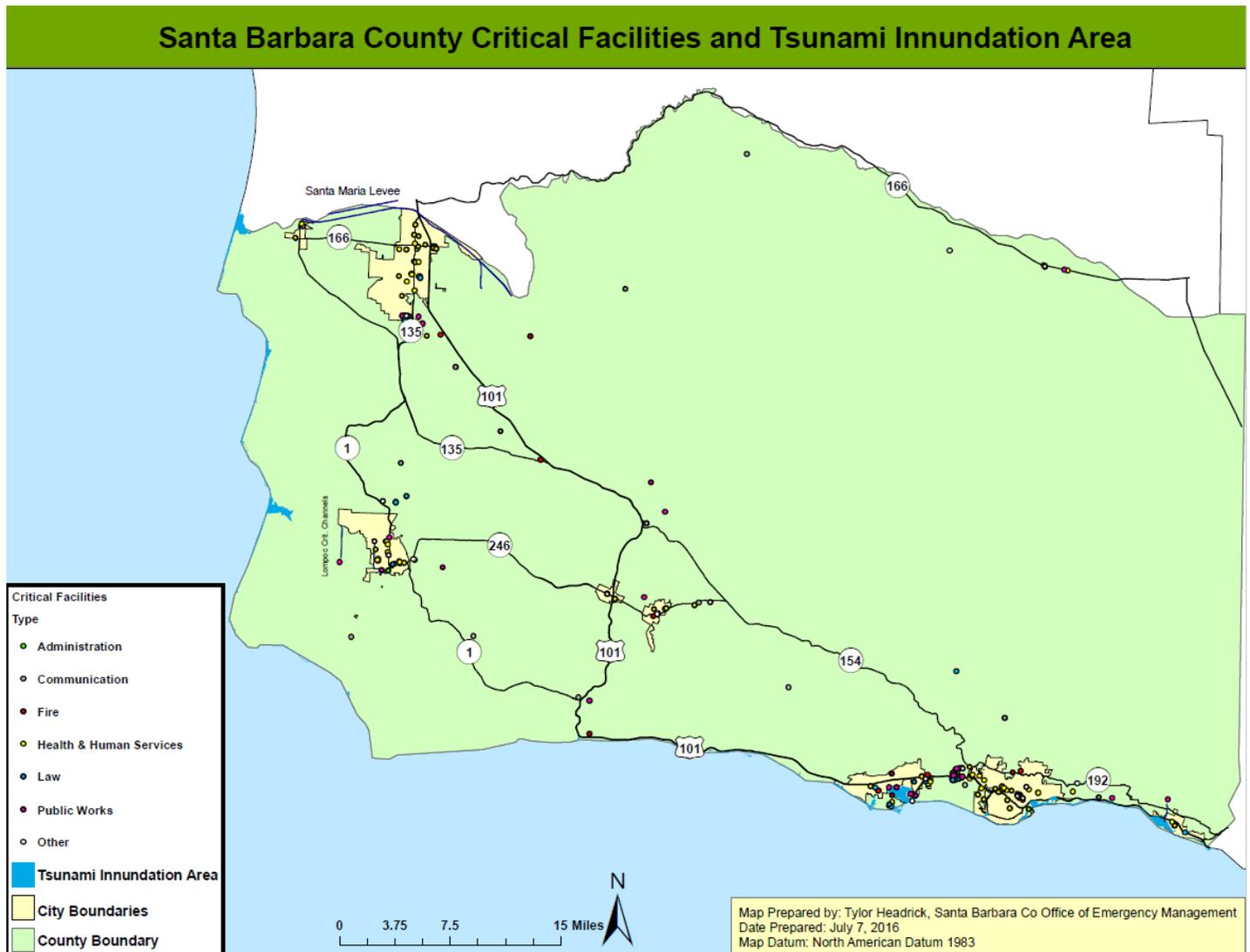
The University Of Southern California Tsunami Research Group has modeled areas in Santa Barbara County that could potentially be inundated in the event of a tsunami. This model is based on potential earthquake sources and hypothetical extreme undersea, near-shore landslide sources were mapped and used 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 unlikely event 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 unlikely event 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 Highway 101 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.

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

<i>Objective 3.D: Educate the public to increase awareness of hazards, potential impact, and opportunities for mitigation actions</i>
<i>Objective 3.E: Monitor and publicize the effectiveness of mitigation actions implemented countywide</i>
<i>Objective 3.F: Educate the professional community on design and construction techniques that will minimize damage from the identified hazards</i>
<i>Objective 3.G: Participate in initiatives that have mutual hazard mitigation benefits for the County, cities, state, tribal, and federal governments</i>
<i>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</i>
<i>Objective 3.I: Continue partnerships between the state, local, and tribal governments to identify, prioritize, and implement mitigation actions</i>
<i>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</i>

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

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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	

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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	

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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.

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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	<p>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.</p>
2004-10	Mission Creek Channel Improvements (Santa Barbara)	On-going	<p>Completed:</p> <ol style="list-style-type: none"> 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. <p>The next portion scheduled for constructed in Summer 2016 is Reach 2A.</p>

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.
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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

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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

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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

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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

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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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Is the action politically acceptable? • Is there public support both to implement and to maintain the project?
LEGAL	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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																																							
	<table border="1"> <tr> <td></td> <td>Promote disaster resiliency for future development to reduce/eliminate vulnerability to hazards</td> </tr> <tr> <td></td> <td>1A</td> </tr> <tr> <td></td> <td>1B</td> </tr> <tr> <td></td> <td>1C</td> </tr> <tr> <td></td> <td>Promote disaster resiliency for existing development and people to reduce/eliminate vulnerability to hazards</td> </tr> <tr> <td>x</td> <td>2A</td> </tr> <tr> <td></td> <td>2B</td> </tr> <tr> <td></td> <td>2C</td> </tr> <tr> <td></td> <td>Enhance hazard Mitigation coordination and communication</td> </tr> <tr> <td></td> <td>3A</td> </tr> <tr> <td></td> <td>3B</td> </tr> <tr> <td></td> <td>3C</td> </tr> <tr> <td>x</td> <td>3D</td> </tr> <tr> <td></td> <td>3E</td> </tr> <tr> <td></td> <td>3F</td> </tr> <tr> <td>x</td> <td>3G</td> </tr> <tr> <td></td> <td>3H</td> </tr> <tr> <td>x</td> <td>3I</td> </tr> <tr> <td>x</td> <td>3J</td> </tr> </table>		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
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	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 <table border="1"> <tr> <td></td> <td>Promote disaster resiliency for future development to reduce/eliminate vulnerability to hazards</td> </tr> <tr> <td></td> <td>1A</td> </tr> <tr> <td></td> <td>1B</td> </tr> <tr> <td></td> <td>1C</td> </tr> <tr> <td></td> <td>Promote disaster resiliency for existing development and people to reduce/eliminate vulnerability to hazards</td> </tr> <tr> <td>X</td> <td>2A</td> </tr> <tr> <td></td> <td>2B</td> </tr> <tr> <td></td> <td>2C</td> </tr> <tr> <td></td> <td>Enhance hazard Mitigation coordination and communication</td> </tr> <tr> <td></td> <td>3A</td> </tr> <tr> <td></td> <td>3B</td> </tr> <tr> <td></td> <td>3C</td> </tr> <tr> <td></td> <td>3D</td> </tr> <tr> <td></td> <td>3E</td> </tr> <tr> <td></td> <td>3F</td> </tr> <tr> <td></td> <td>3G</td> </tr> <tr> <td></td> <td>3H</td> </tr> <tr> <td></td> <td>3I</td> </tr> <tr> <td></td> <td>3J</td> </tr> </table>			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
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	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
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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

<input type="checkbox"/>	Promote disaster resiliency for future development to reduce/eliminate vulnerability to hazards
	1A
	1B
	1C
<input type="checkbox"/>	Promote disaster resiliency for existing development and people to reduce/eliminate vulnerability to hazards
x	2A
x	2B
	2C
<input type="checkbox"/>	Enhance hazard Mitigation coordination and communication
	3A
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	3C
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x	3G
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	3J

Applicable Hazards

<input type="checkbox"/>	Earthquake
<input type="checkbox"/>	Liquefaction
<input type="checkbox"/>	Landslides and Other Earth Movements
<input type="checkbox"/>	Expansive Soils/Land Subsidence
<input type="checkbox"/>	Wildfire
x	Flood
<input type="checkbox"/>	Coastal Storm Surge
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	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# 2016-4	STAPLE/E Rating: 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.																																							
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	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# 2016-5	STAPLE/E Rating: 18																																						
Action Title Enhance Fire Weather Forecasting Program																																							
Action Description <p>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.</p> <ul style="list-style-type: none"> 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. <p>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.</p>																																							
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	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# 2016-6		STAPLE/E Rating: 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	
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		1B	
		1C	
		Promote disaster resiliency for existing assets and people to reduce/eliminate vulnerability to hazards	
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		2B	
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		Enhance hazard mitigation coordination and communication	
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		Liquefaction	
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		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# 2016-7		STAPLE/E Rating: 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	
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	Hazardous Material Release	
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	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# 2016-8	STAPLE/E Rating: 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 <table border="1"> <tr> <td></td> <td>Promote disaster resiliency for future development to reduce/eliminate vulnerability to hazards</td> </tr> <tr> <td></td> <td>1A</td> </tr> <tr> <td></td> <td>1B</td> </tr> <tr> <td></td> <td>1C</td> </tr> <tr> <td></td> <td>Promote disaster resiliency for existing development and people to reduce/eliminate vulnerability to hazards</td> </tr> <tr> <td></td> <td>2A</td> </tr> <tr> <td></td> <td>2B</td> </tr> <tr> <td></td> <td>2C</td> </tr> <tr> <td>x</td> <td>2D</td> </tr> <tr> <td>x</td> <td>2E</td> </tr> <tr> <td></td> <td>Enhance hazard Mitigation coordination and communication</td> </tr> <tr> <td></td> <td>3A</td> </tr> <tr> <td></td> <td>3B</td> </tr> <tr> <td>x</td> <td>3C</td> </tr> <tr> <td></td> <td>3D</td> </tr> <tr> <td></td> <td>3E</td> </tr> <tr> <td></td> <td>3F</td> </tr> <tr> <td></td> <td>3G</td> </tr> <tr> <td></td> <td>3H</td> </tr> <tr> <td></td> <td>3I</td> </tr> <tr> <td></td> <td>3J</td> </tr> </table>			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
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	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# 2016-9	STAPLE/E Rating: 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.																																											
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	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# 2016-10	STAPLE/E Rating: 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 <table border="1"> <tr> <td>■</td> <td>Promote disaster resiliency for future development to reduce/eliminate vulnerability to hazards</td> </tr> <tr> <td></td> <td>1A</td> </tr> <tr> <td></td> <td>1B</td> </tr> <tr> <td></td> <td>1C</td> </tr> <tr> <td>■</td> <td>Promote disaster resiliency for existing development and people to reduce/eliminate vulnerability to hazards</td> </tr> <tr> <td></td> <td>2A</td> </tr> <tr> <td></td> <td>2B</td> </tr> <tr> <td></td> <td>2C</td> </tr> <tr> <td>x</td> <td>2D</td> </tr> <tr> <td>x</td> <td>2E</td> </tr> <tr> <td>■</td> <td>Enhance hazard Mitigation coordination and communication</td> </tr> <tr> <td></td> <td>3A</td> </tr> <tr> <td></td> <td>3B</td> </tr> <tr> <td>x</td> <td>3C</td> </tr> <tr> <td></td> <td>3D</td> </tr> <tr> <td></td> <td>3E</td> </tr> <tr> <td></td> <td>3F</td> </tr> <tr> <td></td> <td>3G</td> </tr> <tr> <td></td> <td>3H</td> </tr> <tr> <td></td> <td>3I</td> </tr> <tr> <td></td> <td>3J</td> </tr> </table>		■	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
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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# 2016-11	STAPLE/E Rating: 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 <table border="1"> <tr> <td></td> <td>Promote disaster resiliency for future development to reduce/eliminate vulnerability to hazards</td> </tr> <tr> <td></td> <td>1A</td> </tr> <tr> <td></td> <td>1B</td> </tr> <tr> <td></td> <td>1C</td> </tr> <tr> <td></td> <td>Promote disaster resiliency for existing development and people to reduce/eliminate vulnerability to hazards</td> </tr> <tr> <td></td> <td>2A</td> </tr> <tr> <td></td> <td>2B</td> </tr> <tr> <td></td> <td>2C</td> </tr> <tr> <td>x</td> <td>2D</td> </tr> <tr> <td>x</td> <td>2E</td> </tr> <tr> <td></td> <td>Enhance hazard Mitigation coordination and communication</td> </tr> <tr> <td></td> <td>3A</td> </tr> <tr> <td></td> <td>3B</td> </tr> <tr> <td>x</td> <td>3C</td> </tr> <tr> <td></td> <td>3D</td> </tr> <tr> <td></td> <td>3E</td> </tr> <tr> <td></td> <td>3F</td> </tr> <tr> <td></td> <td>3G</td> </tr> <tr> <td></td> <td>3H</td> </tr> <tr> <td></td> <td>3I</td> </tr> <tr> <td></td> <td>3J</td> </tr> </table>			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
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Applicable Hazards <table border="1"> <tr> <td></td> <td>Earthquake</td> </tr> <tr> <td></td> <td>Liquefaction</td> </tr> <tr> <td></td> <td>Landslides and Other Earth Movements</td> </tr> <tr> <td></td> <td>Expansive Soils/Land Subsidence</td> </tr> <tr> <td></td> <td>Wildfire</td> </tr> <tr> <td>x</td> <td>Flood</td> </tr> <tr> <td></td> <td>Coastal Storm Surge</td> </tr> <tr> <td></td> <td>Climate-Related</td> </tr> <tr> <td></td> <td>Sea Level Rise/Coastal Flooding and Erosion</td> </tr> <tr> <td></td> <td>Droughts and Water Shortage</td> </tr> </table>			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																						
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	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# 2016-12	STAPLE/E Rating: 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.																																									
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	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# 2016-13	STAPLE/E Rating: 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 <table border="1"> <tr> <td></td> <td>Promote disaster resiliency for future development to reduce/eliminate vulnerability to hazards</td> </tr> <tr> <td></td> <td>1A</td> </tr> <tr> <td></td> <td>1B</td> </tr> <tr> <td></td> <td>1C</td> </tr> <tr> <td></td> <td>Promote disaster resiliency for existing development and people to reduce/eliminate vulnerability to hazards</td> </tr> <tr> <td></td> <td>2A</td> </tr> <tr> <td></td> <td>2B</td> </tr> <tr> <td></td> <td>2C</td> </tr> <tr> <td>x</td> <td>2D</td> </tr> <tr> <td></td> <td>Enhance hazard Mitigation coordination and communication</td> </tr> <tr> <td></td> <td>3A</td> </tr> <tr> <td></td> <td>3B</td> </tr> <tr> <td>x</td> <td>3C</td> </tr> <tr> <td></td> <td>3D</td> </tr> <tr> <td></td> <td>3E</td> </tr> <tr> <td></td> <td>3F</td> </tr> <tr> <td></td> <td>3G</td> </tr> <tr> <td></td> <td>3H</td> </tr> <tr> <td></td> <td>3I</td> </tr> <tr> <td></td> <td>3J</td> </tr> </table>			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
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	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# 2016-14	STAPLE/E Rating: 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.																																									
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	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# 2016-15	STAPLE/E Rating: 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.																																							
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	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# 2016-16	STAPLE/E Rating: 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.																																							
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	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# 2016-17	STAPLE/E Rating: 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.																																							
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	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# 2016-18	STAPLE/E Rating: 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.																																									
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	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# 2016-19	STAPLE/E Rating: 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.																																									
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	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# 2016-20	STAPLE/E Rating: 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.																																									
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	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# 2016-21	STAPLE/E Rating: 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.																																							
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	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# 2016-22	STAPLE/E Rating: 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.																																							
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	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# 2016-23	STAPLE/E Rating: 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 <table border="1"> <tr> <td></td> <td>Promote disaster resiliency for future development to reduce/eliminate vulnerability to hazards</td> </tr> <tr> <td></td> <td>1A</td> </tr> <tr> <td></td> <td>1B</td> </tr> <tr> <td></td> <td>1C</td> </tr> <tr> <td></td> <td>Promote disaster resiliency for existing development and people to reduce/eliminate vulnerability to hazards</td> </tr> <tr> <td></td> <td>2A</td> </tr> <tr> <td></td> <td>2B</td> </tr> <tr> <td></td> <td>2C</td> </tr> <tr> <td></td> <td>Enhance hazard Mitigation coordination and communication</td> </tr> <tr> <td></td> <td>3A</td> </tr> <tr> <td></td> <td>3B</td> </tr> <tr> <td>x</td> <td>3C</td> </tr> <tr> <td></td> <td>3D</td> </tr> <tr> <td></td> <td>3E</td> </tr> <tr> <td></td> <td>3F</td> </tr> <tr> <td></td> <td>3G</td> </tr> <tr> <td></td> <td>3H</td> </tr> <tr> <td></td> <td>3I</td> </tr> <tr> <td></td> <td>3J</td> </tr> </table>			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
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	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# 2016-24	STAPLE/E Rating: 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 <table border="1"> <tr> <td></td> <td>Promote disaster resiliency for future development to reduce/eliminate vulnerability to hazards</td> </tr> <tr> <td></td> <td>1A</td> </tr> <tr> <td></td> <td>1B</td> </tr> <tr> <td></td> <td>1C</td> </tr> <tr> <td></td> <td>Promote disaster resiliency for existing development and people to reduce/eliminate vulnerability to hazards</td> </tr> <tr> <td></td> <td>2A</td> </tr> <tr> <td></td> <td>2B</td> </tr> <tr> <td></td> <td>2C</td> </tr> <tr> <td></td> <td>Enhance hazard Mitigation coordination and communication</td> </tr> <tr> <td></td> <td>3A</td> </tr> <tr> <td></td> <td>3B</td> </tr> <tr> <td>x</td> <td>3C</td> </tr> <tr> <td></td> <td>3D</td> </tr> <tr> <td></td> <td>3E</td> </tr> <tr> <td></td> <td>3F</td> </tr> <tr> <td></td> <td>3G</td> </tr> <tr> <td></td> <td>3H</td> </tr> <tr> <td></td> <td>3I</td> </tr> <tr> <td></td> <td>3J</td> </tr> </table>			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
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	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# 2016-25		STAPLE/E Rating: 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			
		<input checked="" type="checkbox"/>	Promote disaster resiliency for future development to reduce/eliminate vulnerability to hazards
			1A
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		<input checked="" type="checkbox"/>	Promote disaster resiliency for existing development and people to reduce/eliminate vulnerability to hazards
			2A
			2B
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		<input checked="" type="checkbox"/>	Enhance hazard Mitigation coordination and communication
			3A
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			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
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			Freeze

	Hailstorm	
	Tornado	
	Hurricane	
	Windstorm	
	Energy Shortage and Energy Resilience	
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	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# 2016-26	STAPLE/E Rating: 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 <table border="1"> <tr> <td></td> <td>Promote disaster resiliency for future development to reduce/eliminate vulnerability to hazards</td> </tr> <tr> <td>x</td> <td>1A</td> </tr> <tr> <td></td> <td>1B</td> </tr> <tr> <td></td> <td>1C</td> </tr> <tr> <td></td> <td>Promote disaster resiliency for existing development and people to reduce/eliminate vulnerability to hazards</td> </tr> <tr> <td></td> <td>2A</td> </tr> <tr> <td></td> <td>2B</td> </tr> <tr> <td></td> <td>2C</td> </tr> <tr> <td></td> <td>Enhance hazard Mitigation coordination and communication</td> </tr> <tr> <td></td> <td>3A</td> </tr> <tr> <td></td> <td>3B</td> </tr> <tr> <td>x</td> <td>3C</td> </tr> <tr> <td></td> <td>3D</td> </tr> <tr> <td></td> <td>3E</td> </tr> <tr> <td></td> <td>3F</td> </tr> <tr> <td></td> <td>3G</td> </tr> <tr> <td></td> <td>3H</td> </tr> <tr> <td></td> <td>3I</td> </tr> <tr> <td></td> <td>3J</td> </tr> </table>			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
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	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# 2016-27	STAPLE/E Rating: 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.																																									
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	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# 2016-28	STAPLE/E Rating: 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.																																											
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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.																																							
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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# 2016-30	STAPLE/E Rating: 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 <table border="1"> <tr> <td></td> <td>Promote disaster resiliency for future development to reduce/eliminate vulnerability to hazards</td> </tr> <tr> <td></td> <td>1A</td> </tr> <tr> <td></td> <td>1B</td> </tr> <tr> <td></td> <td>1C</td> </tr> <tr> <td></td> <td>Promote disaster resiliency for existing development and people to reduce/eliminate vulnerability to hazards</td> </tr> <tr> <td>x</td> <td>2A</td> </tr> <tr> <td></td> <td>2B</td> </tr> <tr> <td></td> <td>2C</td> </tr> <tr> <td></td> <td>Enhance hazard Mitigation coordination and communication</td> </tr> <tr> <td></td> <td>3A</td> </tr> <tr> <td></td> <td>3B</td> </tr> <tr> <td></td> <td>3C</td> </tr> <tr> <td>x</td> <td>3D</td> </tr> <tr> <td></td> <td>3E</td> </tr> <tr> <td></td> <td>3F</td> </tr> <tr> <td>x</td> <td>3G</td> </tr> <tr> <td></td> <td>3H</td> </tr> <tr> <td>x</td> <td>3I</td> </tr> <tr> <td>x</td> <td>3J</td> </tr> </table>			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
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	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# 2016-31	STAPLEE# 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.																																							
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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# 2016-32	STAPLE/E Rating: 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 <table border="1"> <tr> <td></td> <td>Promote disaster resiliency for future development to reduce/eliminate vulnerability to hazards</td> </tr> <tr> <td></td> <td>1A</td> </tr> <tr> <td></td> <td>1B</td> </tr> <tr> <td></td> <td>1C</td> </tr> <tr> <td></td> <td>Promote disaster resiliency for existing development and people to reduce/eliminate vulnerability to hazards</td> </tr> <tr> <td>x</td> <td>2A</td> </tr> <tr> <td></td> <td>2B</td> </tr> <tr> <td></td> <td>2C</td> </tr> <tr> <td></td> <td>Enhance hazard Mitigation coordination and communication</td> </tr> <tr> <td></td> <td>3A</td> </tr> <tr> <td></td> <td>3B</td> </tr> <tr> <td></td> <td>3C</td> </tr> <tr> <td>x</td> <td>3D</td> </tr> <tr> <td></td> <td>3E</td> </tr> <tr> <td></td> <td>3F</td> </tr> <tr> <td>x</td> <td>3G</td> </tr> <tr> <td></td> <td>3H</td> </tr> <tr> <td>x</td> <td>3I</td> </tr> <tr> <td>x</td> <td>3J</td> </tr> </table>			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
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		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.																																							
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		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 <table border="1"> <tr> <td></td> <td>Promote disaster resiliency for future development to reduce/eliminate vulnerability to hazards</td> </tr> <tr> <td></td> <td>1A</td> </tr> <tr> <td></td> <td>1B</td> </tr> <tr> <td></td> <td>1C</td> </tr> <tr> <td></td> <td>Promote disaster resiliency for existing development and people to reduce/eliminate vulnerability to hazards</td> </tr> <tr> <td>x</td> <td>2A</td> </tr> <tr> <td></td> <td>2B</td> </tr> <tr> <td></td> <td>2C</td> </tr> <tr> <td></td> <td>Enhance hazard Mitigation coordination and communication</td> </tr> <tr> <td>x</td> <td>3A</td> </tr> <tr> <td></td> <td>3B</td> </tr> <tr> <td></td> <td>3C</td> </tr> <tr> <td>x</td> <td>3D</td> </tr> <tr> <td></td> <td>3E</td> </tr> <tr> <td></td> <td>3F</td> </tr> <tr> <td></td> <td>3G</td> </tr> <tr> <td>x</td> <td>3H</td> </tr> <tr> <td></td> <td>3I</td> </tr> <tr> <td></td> <td>3J</td> </tr> </table>			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
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<p>Estimated timeline to complete Ongoing. Continually assess structure vulnerabilities to ignition and seek support for retrofits to existing housing stock.</p>		
<p>Cost/Funding Source TBD/ Acquire grant via Fire Safe Council, CalFire, and/or FEMA</p>		
<p>Responsible Agency/Department County Fire Department</p>		
<p>Comments Very few resources exist to assess and mitigate structure vulnerabilities to ignition during wildfires, so this effort is critical to lowering home losses.</p>		

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.

Santa Barbara County
2017 Multi-Jurisdictional Hazard Mitigation 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 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
rlwin@sbcoem.org
805-681-5526