City of Carpinteria

Annex to Santa Barbara County 2016
Multi-Hazard Mitigation Plan

Contents

CITY OF CARPINTERIA

Section 1 Introduction

The City of Carpinteria is a vibrant but easy going, family oriented small town with an economically and ethnically diverse population, working together for the common good of all residents and visitors. Carpinteria is located in South Santa Barbara County with proximity to strategic business centers and an idyllic seaside location. It is approximately 12 miles southeast of the city of Santa Barbara and 80 miles from Los Angeles. It covers a land area of 2.6 square miles, and an ocean area of 4.7 miles. The City's average temperatures range from 45 to 72 degrees with more than 275 days of sunny weather per year. Average yearly rainfall is 17.9 inches.

With a less than 10% increase since the 2010 census, the population of Carpinteria is just under 14,000 The City's unemployment rate has declined since December 2010 and was at 4.4% as of December 2015. The industries employing the largest number of workers in the City are educational services, health care and social assistance, followed by professional, scientific, management, and administrative and waste management services. Prominent service industries that support tourist activities include recreation and amusement, hotels and lodging, and local transportation services.

The Carpinteria Unified School District administers nine schools in Carpinteria and one in Summerland, serving approximately 2300 students in grades k-12. Cate School, a private high school, is located just outside the City's boundaries.

The community maintains a balance between effective growth and open space through sensitive, area-wide planning which ensures that the small town, rural identity of Carpinteria will flourish. The Land Use Element establishes the type and intensity of land uses and guides growth and development in the City. The Land Use Element is the basis of the Land Use Plan of the City's Local Coastal Program (California Coastal Act of 1976, §30108.5). The City encourages greater density and intensity development to take place along main transportation corridors and development that is compatible with surrounding land uses and protective of coastal resources unique to the area. The planning division continues to encourage mixed-use development, particularly in the downtown core.

The request for building permits have remained steady since 2011 with a small drop in 2014. The number of new residential permits has fluctuated as seen in Table 1.1 below. The larger numbers in 2012 and 2014 reflect two apartment complex expansions. During the 4th Quarter of 2015, the office vacancy rate was 1.3%, industrial 2.5%, and residential rental market had no vacancies.

Table 1.1 Building Permits Issued by the City of Carpinteria

	Residential New	Residential Additions	Commercial Tenant Improvements
2011	17	14	42
2012	87	5	26
2013	4	2	6
2014	44	11	44
2015	5	12	8

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 Carpinteria better understand the natural hazards that threaten safety and welfare; economic vitality; and the operational capability of critical infrastructure;
- *Create a Decision Tool for Management* – to provide information that managers and leaders of local government, business and industry, community associations, and other key institutions and organizations need to take action to address vulnerabilities to future disasters;
- *Promote Compliance with State and Federal Program Requirements* – to ensure that Carpinteria can take full advantage of state and federal grant programs, policies, and regulations that encourage or mandate that local governments develop comprehensive hazard mitigation plans;
- *Enhance Local Policies for Hazard Mitigation Capability* – to provide the policy basis for mitigation actions that should be promulgated by participating jurisdictions to create a more disaster-resistant future; and
- Provide *Inter-Jurisdictional Coordination of Mitigation-Related Programming* – to ensure that proposals for mitigation initiatives are reviewed and coordinated among the participating jurisdictions within the County.

- Achieve *Regulatory Compliance* – To qualify for certain forms of federal aid for pre- and post-disaster funding, local jurisdictions must comply with the federal DMA 2000 and its implementing regulations (44 CFR Section 201.6). DMA 2000 intends for hazard mitigation plans to remain relevant and current. Therefore, Local plans (including Santa Barbara County's) are updated every five years. This means that the Hazard Mitigation Plan for Carpinteria uses a "five-year planning horizon". It is designed to carry the City through the next five years, after which its assumptions, goals, and objectives will be revisited and the Plan resubmitted for approval.

On the following pages are the resolutions that adopted the 2011 Plan.

RESOLUTION NO. 5376

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF CARPINTERIA ADOPTING THE 2011 CITY OF CARPINTERIA ANNEX OF THE SANTA BARBARA COUNTY MULTI-JURISDICTION HAZARD MITIGATION PLAN

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

WHEREAS, The City of Carpinteria has participated in a county-wide multi-jurisdictional planning process with Santa Barbara County as the lead agency; and,

WHEREAS, The Multi-Jurisdiction Hazard Mitigation Plan identifies each jurisdiction's risk assessment and mitigation strategies to reduce the impacts of natural disasters on the public and local government; and,

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

WHEREAS, FEMA approved the Santa Barbara County Multi-Jurisdiction Hazard Mitigation Plan; and,

WHEREAS, The Federal Disaster Mitigation Act of 2000 requires the Plan to be formally adopted by the City Council and provided to FEMA for formal approval.

NOW THEREFORE IT IS HEREBY RESOLVED by the City Council of the City of Carpinteria, as follows:

1. The City Council approves and adopts the 2011 update of the Santa Barbara County Multi-Jurisdiction Hazard Mitigation Plan in accordance with the Disaster Mitigation Act of 2000.
2. The City Council adopts the Santa Barbara County Multi-Jurisdiction Hazard Mitigation Plan.
3. This Resolution is effective upon its adoption.

BE IT FURTHER RESOLVED that is adoption is effective until rescinded by the Council of the City of Carpinteria.

PASSED, APPROVED, AND ADOPTED this 23rd day of April 2012, by the following called vote:

AYES: COUNCILMEMBER: CARTY, REDDINGTON, CLARK

NOES: COUNCILMEMBER: NONE

ABSENT: COUNCILMEMBER: ARMENDARIZ, STEIN

Al Clark

Mayor, City of Carpinteria

ATTEST:

Yadela Garcia

City Clerk, City of Carpinteria

I hereby certify that the foregoing resolution was duly and regularly introduced and adopted at a regular meeting of the City Council of the City of Carpinteria held the 23 day of April 2012.

APPROVED AS TO FORM:

Beth Collins-Burgard

~~Peter N. Brown~~, City Attorney
Beth Collins-Burgard

Yadela Garcia

City Clerk, City of Carpinteria

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 Local Planning Team.

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

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

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

- *Plan Preparation*
  - Form/Validate planning team members
  - Establishing common project goals
  - Setting expectations and timelines
- *Plan Development*

- Validate and revise the existing conditions/situation within planning area; the *Capabilities Assessment and Hazard Assessment Sections* in the HMP
- Develop and review the risk to hazards (exposure and vulnerability) within the planning area; the *Vulnerability Assessment Section* in the HMP
- Review and identify mitigation actions and projects within the planning area; the Mitigation Strategy in the HMP

- *Finalize the Plan*
  - Review and revise the plan
  - Approve the plan
  - Adopt and disseminate the plan

Throughout this process, and though other standard practices, opportunities for public involvement was offered and encouraged. More details about public engagement is provided under Section 3.3.4.

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

3.2 MITIGATION ADVISORY COMMITTEE (MAC)

3.2.1 MAC Members

The Mitigation Advisory Committee (MAC), formed in 2004, is a standing committee that works together throughout the year to discuss and provide input on a variety of activities. The MAC is led by Santa Barbara County Public Works Department and Santa Barbara County Fire, Office of Emergency Services and has representation from all of the local jurisdictions.

The MAC was utilized for the updating of the Santa Barbara County *Multi-Jurisdictional Hazard Mitigation Plan.* To assist with this effort Santa Barbara County Fire, Office of Emergency Services hired a consultant to support and assist each jurisdiction to update their Local Hazard Mitigation Plan; contained as an annex in the Santa Barbara County *Multi-Jurisdictional Hazard Mitigation Plan*. The table below (**Table 3.1**) lists the members of the MAC.

Table 3.1: Members of the Mitigation Advisory Committee 2016

Names	Organization	MAC Member Status
Michael Dyer	Santa Barbara County – Emergency Manager	New Member
Shannon McCrone	Santa Barbara County – Emergency Services Planner	New Member
Robert Troy	Santa Barbara County – Deputy Director Emergency Management	New Member
Tylor Headrick	Santa Barbara County- GIS/Emergency Services Planner	New Member
Steve Oaks	Santa Barbara County Fire – Battalion Chief	New Member
Rob Hazard	Santa Barbara County Fire – Captain	New Member
Rudy Martel	Santa Barbara County Agricultural Commissioner	New Member
Joyce Tromp	Santa Barbara County Flood Control	New Member
Jon Frye	Santa Barbara County Flood	New Member
Tom Fayram	Santa Barbara County Public Works Deputy Director	Returning Member
Matthew Schneider	Santa Barbara County Planning and Development Deputy Director-Long Range Planning	New Member
Marc Bierdzinski	City of Buellton – City Manager/Planning Director	Returning Member
Mimi Audelo	City of Carpinteria – Program Manager	New Member
Claudia Dato	City of Goleta – Senior Project Manager (Public Safety)	Returning Member
Gary Hoving	City of Guadalupe – Public Safety Director	New Member
Kurt Latipow	City of Lompoc – Fire Chief	New Member
Yolanda McGlinchey	City of Santa Barbara – Emergency Services Manager	Returning Member
Roy Dugger	City of Santa Maria – Emergency Preparedness Coordinator	Returning Member
Bridget Elliott	City of Solvang – Associate Engineer	New Member
Jim Caesar	UCSB – Emergency Manager	Returning Member
Lindsey Stanley	Cal OES – Emergency Services Coordinator	New Member
Andrew Petrow	Consultant	New Member

3.2.2 Overview of MAC Meetings

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

Table 3.2: Mitigation Advisory Committee (MAC) Meetings Summary

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

3.3 CITY LOCAL PLANNING TEAM

3.3.1 Local Planning Team Planning Process

The City's Local Planning Team (LPT) was developed in 2015 to begin the process of revising the City's portion of Local Hazard Mitigation Plan. The LPT was developed utilizing key personnel from various departments within the City. The LPT held meetings to review all Sections of the Hazard Mitigation Plan and determine appropriate mitigation projects and engage the public.

As mentioned above, the City of Carpinteria participated in the Mitigation Advisory Committee (MAC). Information and discussion topics raised at the MAC meetings were brought to the City's LPT for discussion of relevance within the City limits and for this annex.

3.3.2 Local Planning Team Members

Table 3.3 lists the City of Carpinteria LPT. These individuals collaborated to identify the City's critical facilities, provide relevant plans, report on progress of city mitigation actions and provide suggestions for new mitigation actions.

Table 3.3: City's Local Planning Team 2016

Name	Title
Steve Goggia	Community Development Director
Matt Roberts	Director of Parks & Recreation
Kevin Silk	Assistant to the City Manager
Charlie Ebeling	Public Works Director
Dave Durflinger	City Manager
Mimi Audelo	Program Manager

3.3.3 Overview of Local Planning Team Meeting

The City of Carpinteria LPT met regularly during the planning process to discuss data needs and organize data collection. A summary of these internal meetings is presented in the **Table 3.4** below. Meeting documentation is included in Section 8, Attachment A: Meeting Documentation.

Table 3.4: City of Carpinteria Internal Collaboration Meetings Summary

Meeting Dates	Summary of Discussions
February 10, 2016	Initial meeting of Local Planning Team to review: • Current Hazard Mitigation Plan • Plan update process from MAC • Old projects
March 21, 2016	• Review MAC meeting • Update risk assessment hazards • New projects • Timeline
May 31, 2016	• Review Public Works Projects • Discuss Hazards
June 21, 2016	• Update on MAC meetings • Discuss infill and development

See Appendix A for meeting logs

3.3.4 Public Outreach

The goal is to facilitate public participation and involvement in the development, implementation and periodic review process. The benefits include but are not limited to improving and increasing public knowledge, increasing public interest in local issues, potentially providing the community with more volunteers .

In March 2011, both an on line and a hard copy survey was distributed county-wide to solicit public input regarding the concern for risk to natural hazard events and suggestions for how local government could minimize the risk. The survey results were taken into consideration in the update process.

During the 2016 update process, the public was invited to participate in the update process by reviewing the current plan and submitting comments. Copies of the plan could be found on the City's web page, at City Hall and at the Carpinteria Library. The public was once again invited to review the updated plan and submit comments.

Participation invitations were made through announcements on the City's web page, television scroll, newspaper ads, the City's newsletter, CERT meetings, emergency preparedness presentations, and various City email databases. Public participation and comments were welcomed throughout the process.

PUBLIC OUTREACH

Notification of the plan update process was published in the City of Carpinteria newsletter, on the City's website, and emailed to various City databases. The public was invited to review the 2011 plan, ask questions, and submit comments.

Additionally, as part of the Public Outreach effort, final drafts of the City of Carpinteria Multijurisdictional Hazard Mitigation Plan were also made available to the public through the City's Website and hard copies were available at City Hall and the public library.

Ongoing Public Outreach

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

- The City of Carpinteria website
- County Aware and Prepare Website
- Meetings/Workshops
- Community Emergency Response Team Training (CERT)
- Drought Education
- Flood emergency awareness

SECTION 4 CAPABILITY ASSESSMENT

The City of Carpinteria LPT identified current capabilities and mechanisms available for supporting mitigation actions and implementing hazard mitigation activities. This section presents a discussion of the roles of key departments, administrative and technical capacity, fiscal resources, and summaries of relevant planning mechanisms, codes, and ordinances.

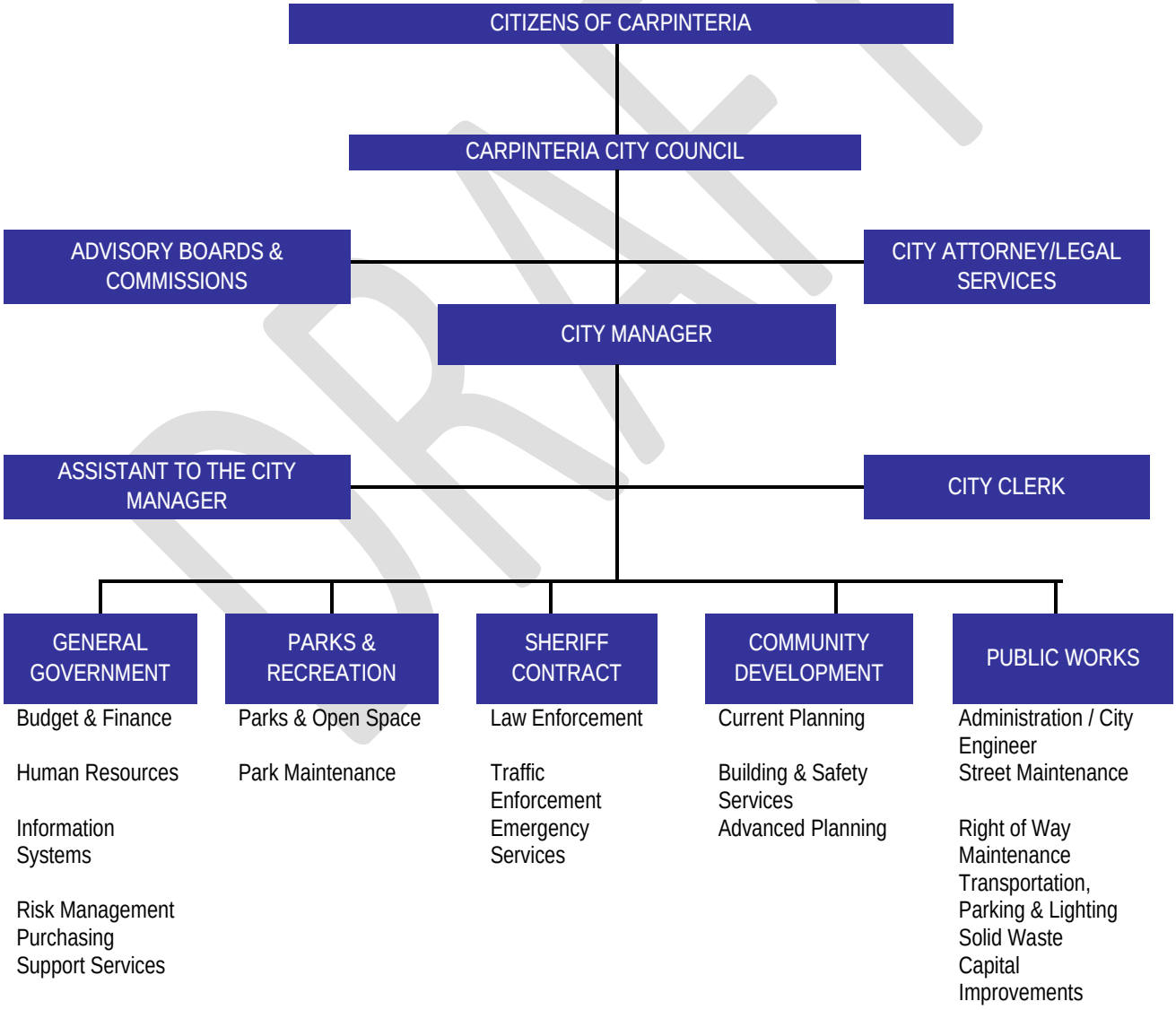
4.1 Key Departments

The City of Carpinteria utilizes the Council-Manager form of local governance, which includes both elected officials and an appointed City Manager. Carpinteria has five council members, which includes a mayor and a mayor pro-tem, whom are appointed to represent the entire City of Carpinteria.

The City of Carpinteria employs thirty three (33) full time staff. The tourist season dictates the number of part-time staff, averaging sixty per year. The City has a robust volunteer program with approximately 150 volunteers participating in community and beach clean-up projects, docents, and the HOST Visitors Center. Over 220 community members have been Community Emergency Response Team (CERT) trained.

Governance:

The City Council is Carpinteria's legislative body, providing vision, setting and adopting policies, regulations, ordinances, and resolutions, approving budgets, and setting tax rates. Members also hire the City Manager, who is responsible for the day-to-day administration of the City, and serves as the Council's chief advisor. The City Manager prepares a recommended budget, recruits and hires most of the City's staff, and carries out the council's policy. While the City Manager may recommend policy decisions, he is ultimately bound by the actions of the Council. The Council also hires the City Attorney. The City of Carpinteria's organizational chart is listed below.



City Administration:

City Manager

Provides the leadership and supervision that, in turn, implements the policies and decisions of the City Council, thereby ensuring the delivery of services to the community.

The City Manager serves as the OES Director. The City Manager's office will be responsible for the implementation of emergency management (including mitigation) programs for the City. Currently Police Services are provided through a contract with the Santa Barbara County Sheriff's Department and Fire Services are provided by Carpinteria-Summerland Fire District. The City Manager oversees those contracts.

City Community Development Department:

Building & Safety Department:

- Enforces adoption of building, plumbing, electrical, seismic, and mechanical/structural codes.
- Develops building ordinances.
- Reviews site and building plans for compliance with building codes and ordinances.
- Damage assessment of structures from multiple causes to facilitate repair and future occupancy.

Planning Department:

- Develop and maintain plans and permits, City General Plan/Local Coastal Land Use Plan, zoning ordinances and development standards.
- Oversight of City development process assuring compliance with zoning and general plan, and including environmental impact reports, design review, historic preservation, landscape review, habitat conservation, floodway prohibitions and floodplain development standards.

City of Carpinteria Public Works Department:

Maintains City infrastructure (assets) ranging from streets to parks to buildings and vehicle fleet. Responsible for planning and implementation associated with the following City plans:

- Storm Water Management Plan
- Floodplain Management Ordinance
- Inter-Regional Water Management Plan

Engineering Division

City of Carpinteria does civil engineering work both in-house and by contract with civil engineering consulting firms.

- Reviews engineering on private and public grading, storm drain systems, street infrastructure to assure compliance with Federal, State and Local standard specifications and plans.
- Develops engineering ordinances and policies that help protect and preserve City infrastructure.
- Evaluates all circulation elements for projected traffic impacts.
- Determines needed infrastructure including street and storm drain improvements.
- Provides response personnel for evaluation of damaged infrastructure and rescue situations.
- Responds as part of the City's EOC Team and coordinates other response agencies assisting with damage assessment.
-

Police Department:

Carpinteria contracts with Santa Barbara County Sheriff's Department for Police Services. In addition to normal services, the Sheriff's Department also develops and implements emergency response plans and policies, focusing on evacuation procedures and traffic control and including training for the Carpinteria Community Emergency Response Team (CERT).

Fire Department:

Carpinteria contracts with Carpinteria-Summerland Fire District to provide Fire Protection.

- Administration*:* Develop, implement and monitor policies, procedures, budgets, fees, automatic aid agreements, mutual aid agreements, and liaison with other City departments and outside agencies.
- Fire Prevention Bureau: Coordinate adoption of codes and ordinances, review site and building plans for fire code compliance, develop and present public education programs and manage the City's weed abatement program.
- Suppression Division: Maintain the department's personnel, apparatus, equipment and fire stations in a state of readiness to respond to the community's needs, develop and implement standard operating procedures for various types of emergency responses, respond to all types of emergencies, and train and interact with neighboring jurisdictions and regional agencies.
- Develops and implements emergency response plans and policies, focusing on evacuation procedures and traffic control, including training for the Carpinteria Community Emergency Response Team (CERT).

4.1.1 Legal and Regulatory Capabilities

The legal and regulatory capabilities of Carpinteria are shown in **Table 4.1**, which presents the existing ordinances and codes that affect the physical or built environment of Carpinteria. Examples of legal and/or regulatory capabilities can include: the City's building codes, zoning ordinances, subdivision ordinances, special purpose ordinances, growth management ordinances, site plan review, general plans, capital improvement plans, economic development plans, emergency response plans, and real estate disclosure plans.

Table 4.1: City of Carpinteria: Legal and Regulatory Capability

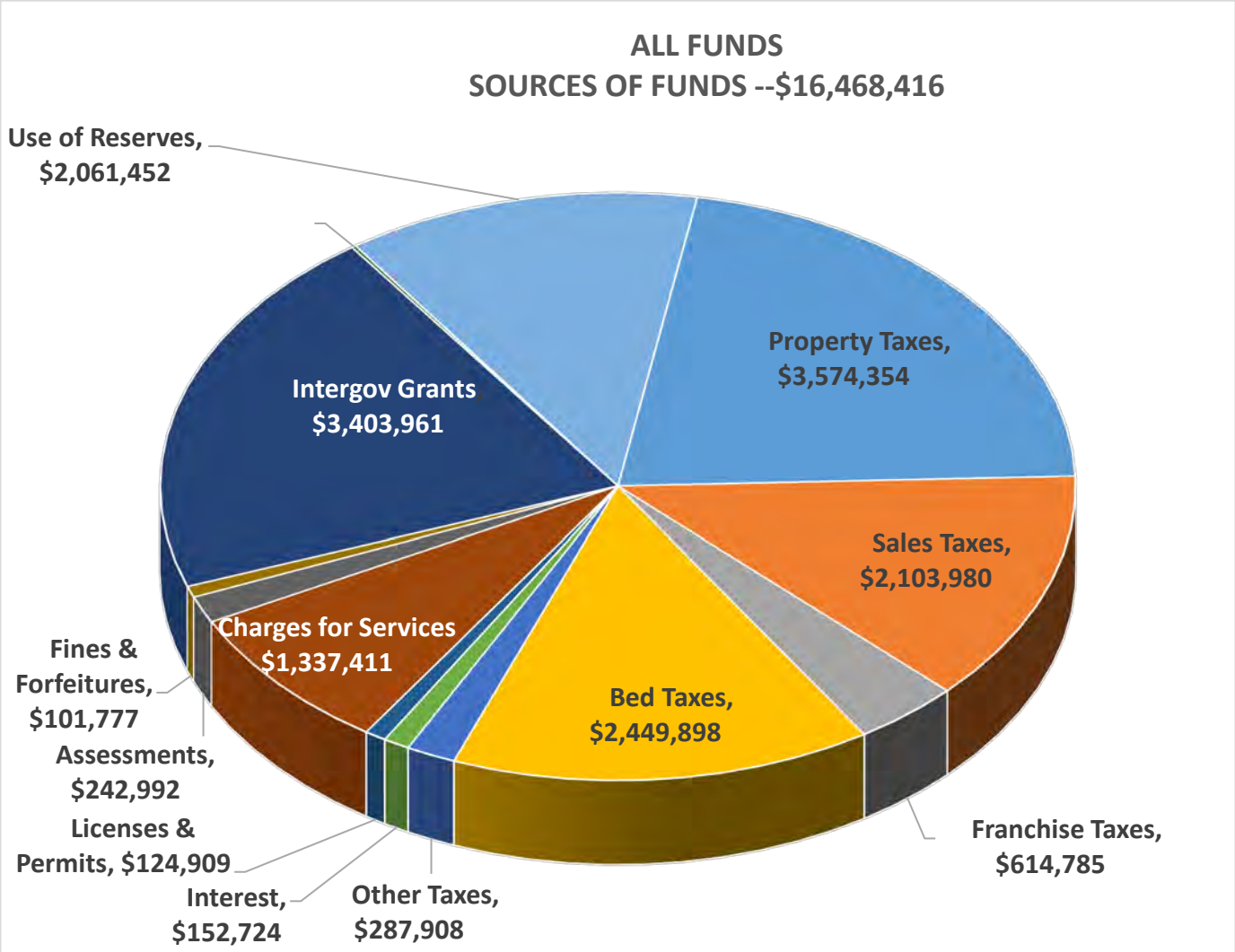
Regulatory Tools (ordinances, codes, plans)	Local Authority (Y/N)	Does State Prohibit (Y/N)
A. Building code	Y	N
B. Zoning ordinance	Y	N
C. Subdivision ordinance or regulations	Y	N
D. Special purpose ordinances (floodplain management, storm water management, hillside or steep slope ordinances, wildfire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

4.1.2 Fiscal Resources

The 2016-17 fiscal year budget of approximately $16.4 million, includes over $4.7 million in grant, dedicated reserve and fund balance spending for capital and major maintenance projects; a reflection of a growing demand for maintenance and replacement of the City infrastructure and the City's interest in addressing those needs in a timely and strategic manner in order to minimize costs. **Figure 4.1** shows the City's All Funds Budget.

The General Fund Budget also includes: General government administration services, public safety, planning and environmental and public works services. The general fund balance is an important indicator of the financial strength of the jurisdiction.

Figure 4.1: City of Carpinteria All Funds Budget 2016-2017



4.1.3 Relevant Plans, Policies, Programs and Ordinances

The City of Carpinteria has a range of guidance documents and plans for each of its departments. These include a general plan, capital improvement plans, emergency management plans, Local Coastal Program (LCP), flood response guidelines, The City uses building codes, fire codes, zoning ordinances, subdivision ordinances, and various planning strategies to address how and where development occurs. One of the essential ways the City guides its future is through policies laid out in the General Plan,

City of Carpinteria General Plan

The 2003 Carpinteria General Plan is the primary planning policy document for the City. The content of the General Plan is arranged to achieve the community goal, which is to preserve the essential character of the beach town, its family-oriented residential neighborhoods, its unique visual and natural resources and its open, rural surroundings while enhancing recreation, cultural, and economic opportunities for its citizens.

The Carpinteria General Plan is organized into seven elements:

- Land Use
- Community Design
- Circulation
- Open Space
- Recreation & Conservation
- Safety; Noise
- Public Facilities & Services

Within each General Plan Element, a description is provided followed by the implementation measures undertaken in response to the respective objectives, goals and policies.

The Land Use Element is the basis of the Land Use Plan of the City's Local Coastal Program (California Coastal Act of 1976, §30108.5). The Land Use Element establishes the type and density of land uses and guides growth and development by presenting a plan that reflects the community's desire to maintain and enhance an enjoyable, balanced quality of life. This basic tenet is expressed in the community's Goal: To preserve the essential character of this small beach town, it's family-oriented residential neighborhoods, its unique visual and natural resources and its open, rural

surroundings, while enhancing recreational, cultural and economic opportunities for residents.
Other goals include the following:

- Adopt and amend as necessary a Sphere of influence that serves to establish the basis for annexation of certain Land contiguous to City limits;

- Create flexible land use and zoning standards for general commercial and industrial parcels that allow opportunities for residential use to expand, as determined appropriate by the City, in response to changing needs relative to the jobs/housing balance locally and in the region, and as incentive toward the development of affordable housing;

- Maintain availability of agriculture, coastal-dependent industry and visitor-serving commercial development including hotels/motels, restaurants and commercial recreation uses;

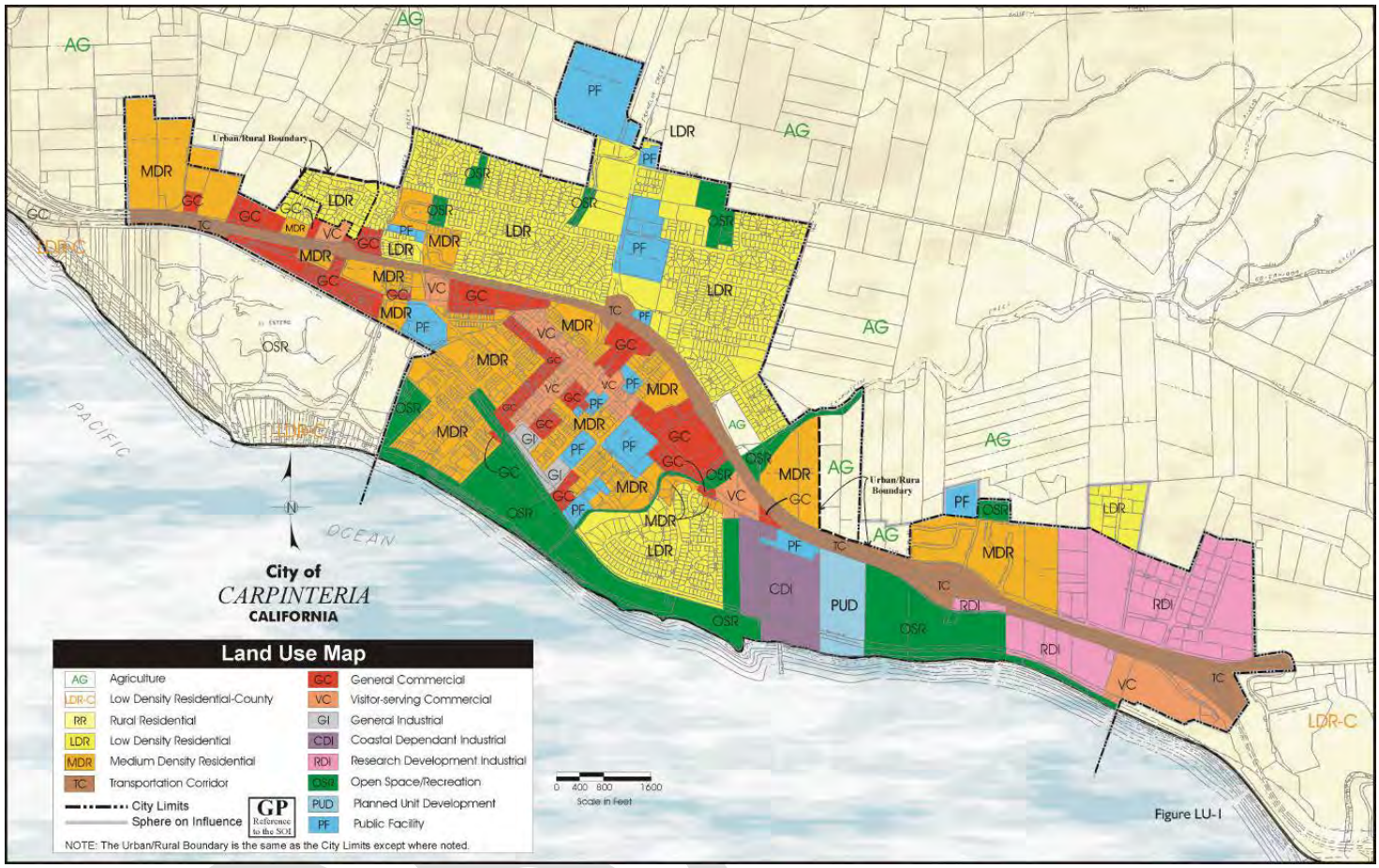
- Influence land use decision-making, use and development patterns in the unincorporated Carpinteria Valley to be supportive of the California Coastal Act and City objectives to preserve unique coastal resources by establishing open-field agricultural use as the predominant use in the unincorporated Valley;

- Preserve the small beach town character of the built environment of Carpinteria, encouraging compatible revitalization and avoiding sprawl development at the City's edge;

- Protect the natural environment within and surrounding Carpinteria; and establish the basis for orderly, well-planned urban development while protecting coastal resources and providing for greater access and recreational opportunities for the public.

The City's small size is a result of surrounding land use constraints that have limited its ability to expand. Local land use policies support the protection of coastal agriculture and the geographically distinct rural character of the Carpinteria Valley. These geographic and policy protected areas prevent sprawl and constrain the City to 2.6 square miles of land as seen in **Figure 4.2**. The Pacific Ocean is to the south of the City, a mountain range and prime agricultural lands protected under the California Coastal Act are to the north. To the east is the County of Ventura and to the west are federally protected wetlands as well as Coastal Act protected agricultural lands located in the County of Santa Barbara.

Figure 4.2: City of Carpinteria Land Use Map



One land use objective that correlates with hazard mitigation is to reduce the density or intensity of a particular parcel if warranted by conditions such as topography, geologic, or flood hazards, habitat areas, or steep slopes. The Plan suggests that this can be achieved by establishing an environmentally sensitive overlay district in the City's Zoning Ordinance. The overlay district would have to include density and parcel size criteria for determining the appropriate intensity of these areas.

Specific to hazard mitigation, the *Safety Element* identifies known public safety hazards including seismic and other geologic hazards, flood hazards, slope stability, soil hazards and fire hazards. The City has established an emergency plan which includes the Standardized Emergency Management System (SEMS) and multi-hazard function plan.

Specific to seismically induced hazards, the City seeks to minimize the potential risks and reduce the loss of life, property and the economic and social dislocations resulting from fault surface rupture in the planning area. In response, all buildings requiring a building permit are analyzed by the City's Building inspector; once reviewed, a recommendation is made based on case-study standards. With respect to coastal

installations, the City requires a wave action uprush study to demonstrate that the structure will withstand high surf. Its receipt during the early planning process is then used to guide development review. In addition, Carpinteria's soil hazards maps identify areas of highly expansive and soil settlement areas.

To counteract slope stability hazards, Carpinteria aims to minimize the potential risks and reduce the loss of life, property and economic and social dislocations. In response, the City has zoned and designated most of the bluff areas as open space, and has required that all developed areas at risk of bluff failure be protected from bluff retreat over a 100-year term.

For areas at risk of soil hydro-compaction and subsidence, the City requires that all new development comply with geotechnical recommendations related to construction in areas identified as having high potential to soil settlement.

Flood hazards are identified according to Federal Emergency Management Administration (FEMA) Flood Insurance Rate Maps (FIRMs) and the 100-year flood plain. These maps indicate that U.S. 101 would be overtopped by a 100-year flood plain; as a result City staff are working with Caltrans and the Santa Barbara County Association of Governments to minimize this risk. The Santa Barbara County Flood Control District also performs routine maintenance, removing sediments and clearing objects from creeks within the City, allowing water to flow safely while controlling flooding. Furthermore, Public Works crew complete a full inspection and clean drain pipes, ditches and culverts annually. The Downtown and Beach Neighborhood proposes new underground storm drains which are currently in the City's Capital Improvement Plan. In conjunction to these projects, a Storm Drain Master Plan was completed in 2008. This is an update to its previous plan and takes into account the adoption of new laws, regulations, permits, policies and practices. Its goal is to identify drainage system areas that will need to be addressed over a 20-year planning period.

Fire hazards are a constant threat due to dry, warm weather throughout the year. The City works closely with fire district personnel to minimize the risk of urban and wildland fires. Furthermore, the City requires review and approval of all new structures by the Carpinteria-Summerland Fire Protection District.

Lastly, the risk of exposing hazardous materials is minimized through a series of policies concerning the use, storage, transportation, and disposal of hazardous materials. Underground or aboveground storage tanks are consistent with County of Santa Barbara and Regional Water Quality Control Board policies aimed at preventing the hazardous discharge or runoff of hazardous materials.

Through the identification of various natural and manmade hazards, the City of Carpinteria aims to minimize the respective risks. This is primarily achieved through the implementation of policies to strengthen structures; public outreach programs that communicate the inherent risks; and an effort to secure emergency response during and immediately after an event.

To mitigate potential hazardous materials incidents, the City should enforce policies, such as the Santa Barbara County and State Regional Water Quality Control Board policies, that ensure that the use, storage, transportation and disposal of hazardous materials does not result in hazardous discharge or runoff. Hazardous materials or wastes stored in closed containers at a facility should not be within 50 feet of an adjacent property. New residences should not be located adjacent to known handlers of acutely hazardous materials. Further, prior to development of any site identified as having been used for the storage of hazardous materials, the city shall require the developer to submit documentation to demonstrate that testing has been conducted to determine the existence and extent of soil and/or groundwater contamination and that, based on the results, an appropriate clean-up program is established and completed. The City, through the State Department of Agriculture, will identify active agricultural fields handling acutely hazardous pesticides and will ensure appropriate land use and urban development be located adjacent to these fields. Structures should not be closer than 300 feet from the Carpinteria Oil and Gas Processing Facility and structures located between 300 and 1,000 feet from the facility should be constructed using safety glass. Habitable structures should not be located close to gas pipelines, railroad right-of-ways, oils wells, or other corridors that have the potential for hazardous materials leaks.

City of Carpinteria Emergency Operations Plan

This Emergency Operation Plan addresses the City of Carpinteria's planned response to extraordinary emergency situations associated with natural disasters, technological incidents, and national security emergencies. The document is divided into three parts:

- **Part I – Basic Plan.** Overall organizational and operational concepts relative to response and recovery, as well as an overview of potential hazards. The intended audience is the Emergency Operations Center (EOC) Management Team.

- **Part II – Emergency Organization Functions.** Description of the emergency response organization and emergency action checklists. The intended audience is the EOC Management Team.

- **Part III – Legal Documents.** Supporting and legal documents pursuant to SEMS/NIMS and other state statues and documentation to the Carpinteria Emergency Operation Plan. The intended audience is all SEMS/NIMS emergency management staff.

With regards to hazards mitigation, the document cites that SECTION 409 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1988 would be enacted following a presidentially declared Emergency or Major Disaster. It also assigns hazard mitigation responsibilities to various elements of federal, state and local government in California. The City, in preparation with the County of Santa Barbara, has prepared a Regional Hazard Mitigation Plan. Furthermore, SECTION 2.40.110 directs the city

council to adopt “The City of Carpinteria Standardized Emergency Management Systems Multi-Hazard Functional Plan (SEMS MHFP)” which would establish the formation of the emergency services organization.

Following a major disaster, recovery actions would occur in two general phases: Short-Term and Long-Term Recovery; the former is executed by the Emergency Operations Center, while in the latter phase it is transitioned to the City Departments responsible for the various activities.

The major objectives of *Short-Term Recovery* operations include: hazard assessment, rapid debris removal and cleanup, coordinated restoration of essential services, attention to high impact areas, medical and mental health services, and abatement of hazardous structures. In contrast, the major objectives of *Long-Term Recovery* operations include: development of a recovery team, economic and resource stabilization, hazard mitigation, restoration and reconstruction of public facilities, coordinated delivery of long-term social and health services, recovery of disaster response costs, and post-event assessments.

The EOP discusses at length the Hazard Mitigation Grant Program (HMGP), which may be leveraged following a Presidentially-declared disaster.

The EOP also includes an organizational matrix which would be used to designate responsibilities to various City department and agencies. Checklists are provided for care and shelter needs, which would be administered by the Department of Social Services; additional checklists are provided to assist those with disabilities and other special needs, to inspect buildings for re-occupancy of key facilities, and to ensure the maintenance and restoration of utilities and critical infrastructure.

To enhance the capability for the City to respond to emergencies, a *Planning/Intelligence* section is provided. Its responsibility is to collect, evaluate, display and disseminate incident information and resource status. This Section functions as the primary support for decision-making to the overall emergency organization. It also provides anticipatory appraisals and develops plans necessary to cope with changing field events. During an incident, other department heads would advise the Planning/Intelligence Section Coordinator on various courses of action from their departmental level perspective.

The *Logistics Section’s* primary responsibility is to ensure the acquisition, transportation and mobilization of resources to support the response effort at the disaster sites, public shelters, EOCs, etc. This Section provides all necessary personnel, supplies and equipment procurement support. Its objectives include the collection of information to determine needs and prepare for expected operations, the coordination of logistical support with the EOC Director, and the preparation of reports required for identifying the activities performed by the Logistics Section.

Another section in the EOP discusses the role of the Finance/Administration's responsibility to maintain the financial systems necessary to keep the City functioning during a disaster. These systems include payroll, payments, revenue collection, claim processing, and cost recovery documentation. The Finance/Administration Section acts in a support role in all disasters/emergencies to ensure that all required records are preserved for future use and that documentation is properly archived for State OES and FEMA filing requirements.

The City of Carpinteria will continue to review this hazard mitigation plan when determining updates to the Capital Improvement Plan, so that new/ongoing projects may take into consideration hazard mitigation measures.

City of Carpinteria Storm Water Management Plan

In the State of California, the State Water Resources Control Board (SWRCB) and the various Regional Water Resource Control Boards (RWRCBs) implement mandates of the Federal Clean Water Act and the National Pollutant Discharge Elimination System (NPDES) permit program. During one of their studies, the SWRCB determined that urban runoff is a leading cause of pollution through the state and a contributor to pollutants of concern (POC), such as nutrients, pathogens, hydrocarbons, metals, trash and pesticides to waterways. In compliance with various federal and state requirements, the City as a municipality and operator of a separate storm water sewer system (MS4) has prepared the Storm Water Management Plan (SWMP) to guard against the detrimental effects on human health and surrounding ecosystems.

The goal of the SWMP is to protect the health of the public, the environment, and water quality from the impacts of storm water runoff. It outlines a program comprised of guiding principles, strategies, and procedures for the protection of water quality and reduction of pollutant discharges to the maximum extent practical.

The SWMP was developed in order to achieve MEP standards. This process includes a thorough identification and the selection and implementation of best management practices including:

- Public Education and Outreach on Storm Water Impacts
- Illicit Discharge and Detection and Elimination
- Construction Site Runoff Control
- Post-Construction Storm Water Management in New Development and Redevelopment
- Pollution Prevention/Good Housekeeping for Municipal Operation

In summary, though these new standards reflect the compliance of water quality standards by the City of Carpinteria, its effects are also translated into a reduction of flood risk. This is evidenced through storm water drainage maintenance and repair, public outreach efforts on pollution and overall storm water events, and the development of new pre- and post- construction regulations.

National Flood Insurance Program

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

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

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

Repetitive Loss (RL) Properties

Repetitive loss properties are defined as property that is insured under the NFIP that has filed two or more claims in excess of $1,000 each within any consecutive 10-year period since 1978. Currently, there are no repetitive loss structures in the City of Carpinteria. Hazard Assessment

SECTION 5 HAZARD ASSESSMENT

5.1 Overview

The purpose of this section is to review, update and/or validate the identified and profiled hazards in the 2011 City of Carpinteria Multi-Hazard Mitigation Plan (HMP). The intent is to confirm the list of hazards facing the city and determine if the current information and material is accurate. The importance of this is to ensure that all hazards are being considered and decisions are based on the most up-to-date information. Another purpose of this section is to screen the hazards; providing an understanding of the significance by ranking higher priority hazards in the community.

To assist with this effort two (2) groups were utilized: the Mitigation Advisory Committee (MAC) and the City Local Planning Team (LPT). The MAC group assessed information at the county-level, while the local planning team assessed information as it related to their jurisdiction.

As part of the process both groups leveraged other planning efforts and documents, including various City plans, the State of California Multi-Hazard Mitigation Plan, the Santa Barbara County Comprehensive Plan Seismic Safety and Safety Element, and the Santa Barbara County 2011 HMP.

5.2 MITIGATION ADVISORY COMMITTEE HAZARD ASSESSMENT

The local planning team leveraged the work completed by the MAC, reviewed the information and material from the State of California Multi-Hazard Mitigation Plan, the Santa Barbara County Comprehensive Plan Seismic Safety and Safety Element, and the City of Carpinteria 2011 HMP, the City's 2014 Emergency Management Plan as well as, other documents, plans, and material provided by the local planning team members. The following sections provide a summary of the work.

5.2.1 Hazard Identification

Based on the review of the City of Carpinteria 2011 HMP and incorporating information from other documents (i.e., the California State Multi-Hazard Mitigation Plan) and local experience and knowledge, the City LPT identified the following hazards as being relevant to Carpinteria (**Table5.1**).

Table 5.1: Relevant Hazards in the City of Carpinteria

City Hazards
Earthquake
Flood
Wildfire
Landslides/Erosion/Other Earth Movements
Tsunami
Climate-related Hazards
Sea Level Rise/Coastal Flooding
Severe Weather
Drought and Water Shortage
Agriculture Pests and Disease
Marine Invasive Species
Epidemic/Pandemic/Vector Borne Disease
Dam Failure
Hazardous Material Release
Energy Shortage and Energy Resiliency
Natural Gas Pipeline/Storage
Oil Spill
Terrorism
Cyber Threats
Commercial/Military Aircraft Crash
Civil Disturbance
Train Accident; Explosion and/or Chemical Release

5.2.2 Hazard Screening/Prioritization

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

Ranking Tool Design

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

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

To further assist with the process, the following definition of “High”, “Medium”, and “Low” probability and impacts were utilized:

Probability

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

Impact

High- Catastrophic/Critical: Major loss of function, downtime, and/or evacuations
Medium- Limited: Some loss of function, downtime and/or evacuations
Low- Negligible: Minimal loss of function, downtime and/or evacuations

Based on the revised list of hazards and utilizing the alternative approach, the Local Planning Team screened the hazards. The results of the assessment are in **Table 5.2**. The shading of the matrix boxes indicate the priority level: red = tier 1; green = tier 2; and gray = tier 3.

Table 5.2: Hazard Screening and Ranking

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

5.3 Hazard Profiles

The following sections represents work done by the MAC and confirmed by the local planning team. The information provided below is relevant to the City of Carpinteria. In other words, if the planning team considered a particular hazard not a threat it was not included in the HMP. The following material is intended to be an overview of the hazards; more information may be found in the State of California Multi-Hazard Mitigation Plan, the Santa Barbara County Comprehensive Plan Seismic Safety and Safety Element, City's 2014 Emergency Management Plan and other documents.

5.3.1 Earthquake

5.3.1.1 Description of Hazard

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

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

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

Table 5.3: Richter Scale

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

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

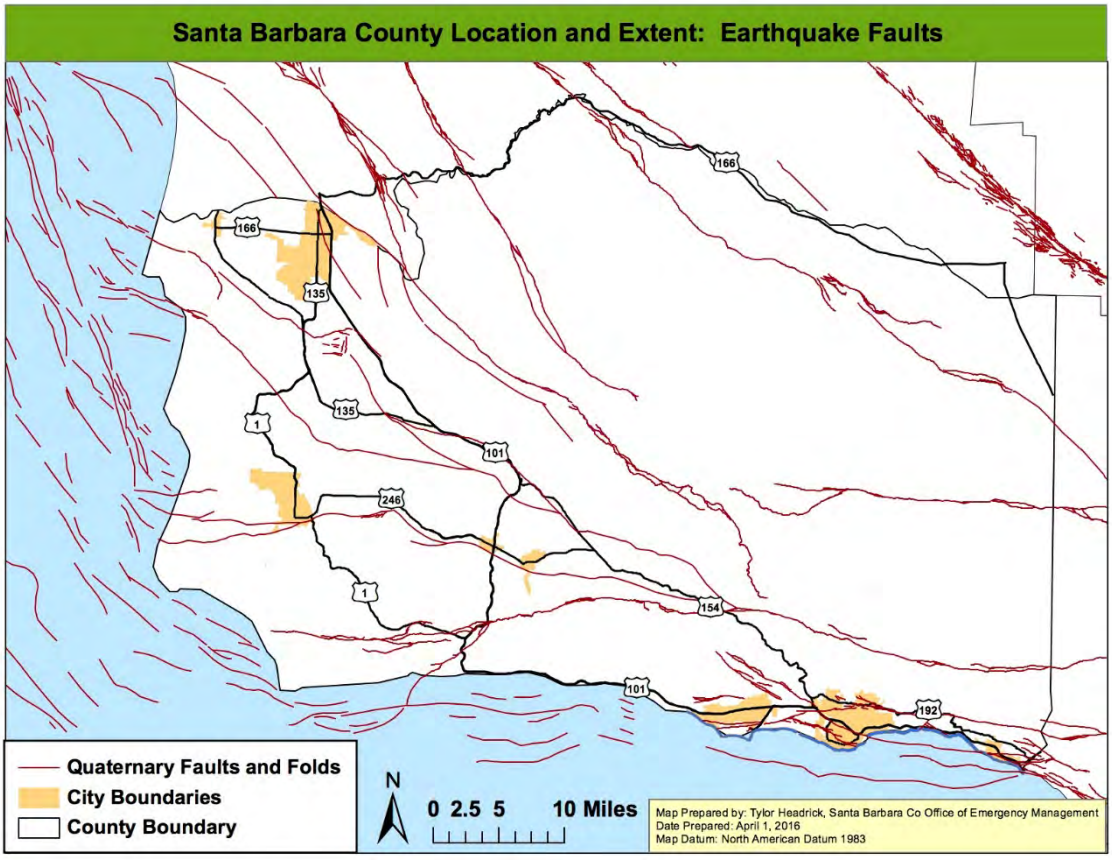
Liquefaction is the phenomenon that occurs when ground shaking causes loose, saturated soils to lose strength and act like viscous fluid. Liquefaction causes two types of ground failure: lateral spread and loss of bearing strength. Lateral spreads develop on gentle slopes and entail the sidelong movement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

5.3.1.2 Location and Extent of Hazard in Carpinteria

As previously mentioned, Santa Barbara County, including the City of Carpinteria, is located in a high seismic activity zone. The County is located in the Transverse Range geologic province. Movement of continental plates manifest primarily along the San Andreas Fault system. The San Andreas fault is situated 7 miles northeast of Santa Barbara County; active faults in the San Andreas Fault system that fall within Santa Barbara County include the Nacimiento, Ozena, Suey, and Little Pine faults. Other active faults in the region include the Big Pine, Mesa, Santa Ynez, Graveyard-Turkey Trap, More Ranch, Pacifico, Santa Ynez, and Santa Rose Island faults. The Santa Barbara County Comprehensive Plan Seismic Safety and Safety Element provides descriptions of all faults in Santa Barbara County, including historically active, active,

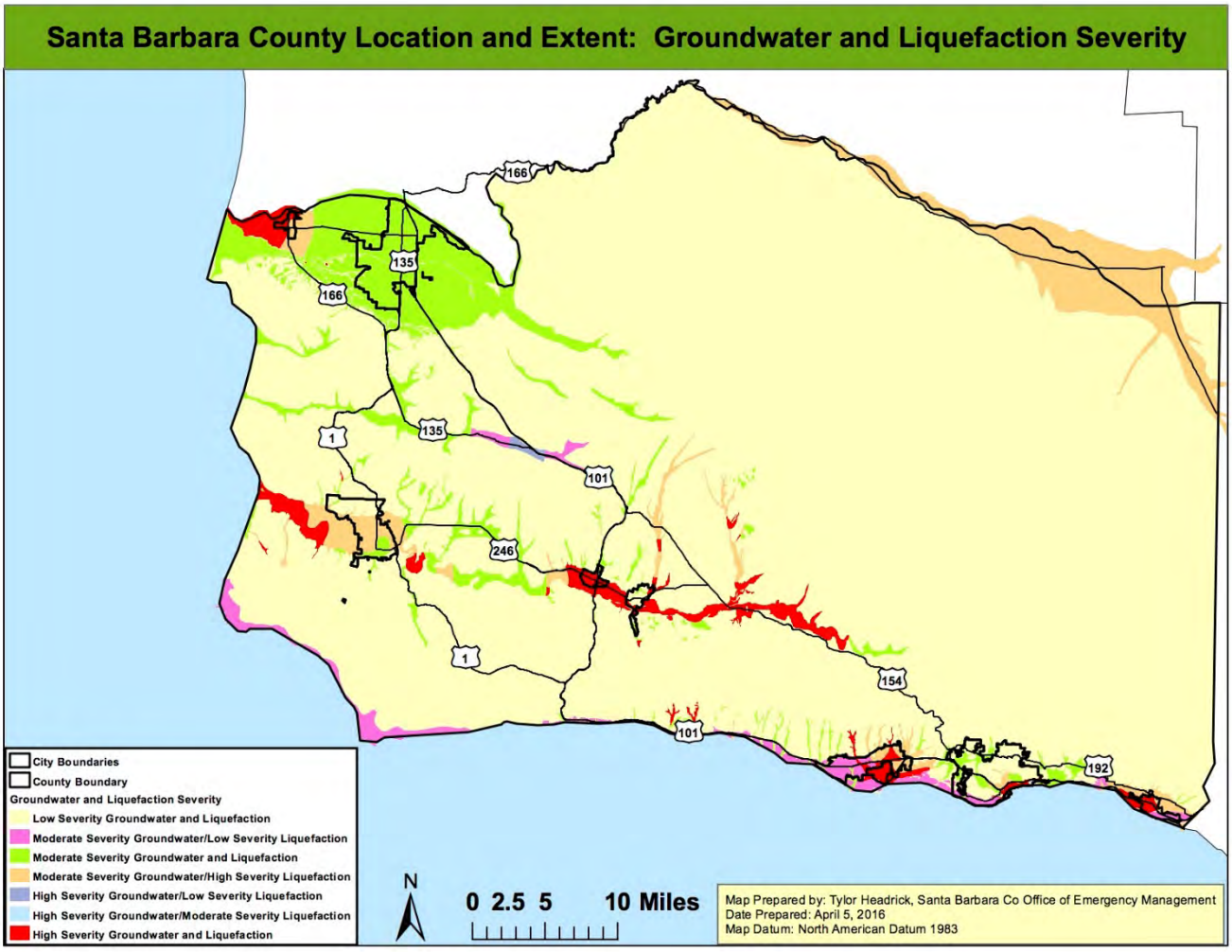
potentially active and inactive, as well as their location and fault length. A map of faults in the Santa Barbara County region is located below (**Figure 5.1**).

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

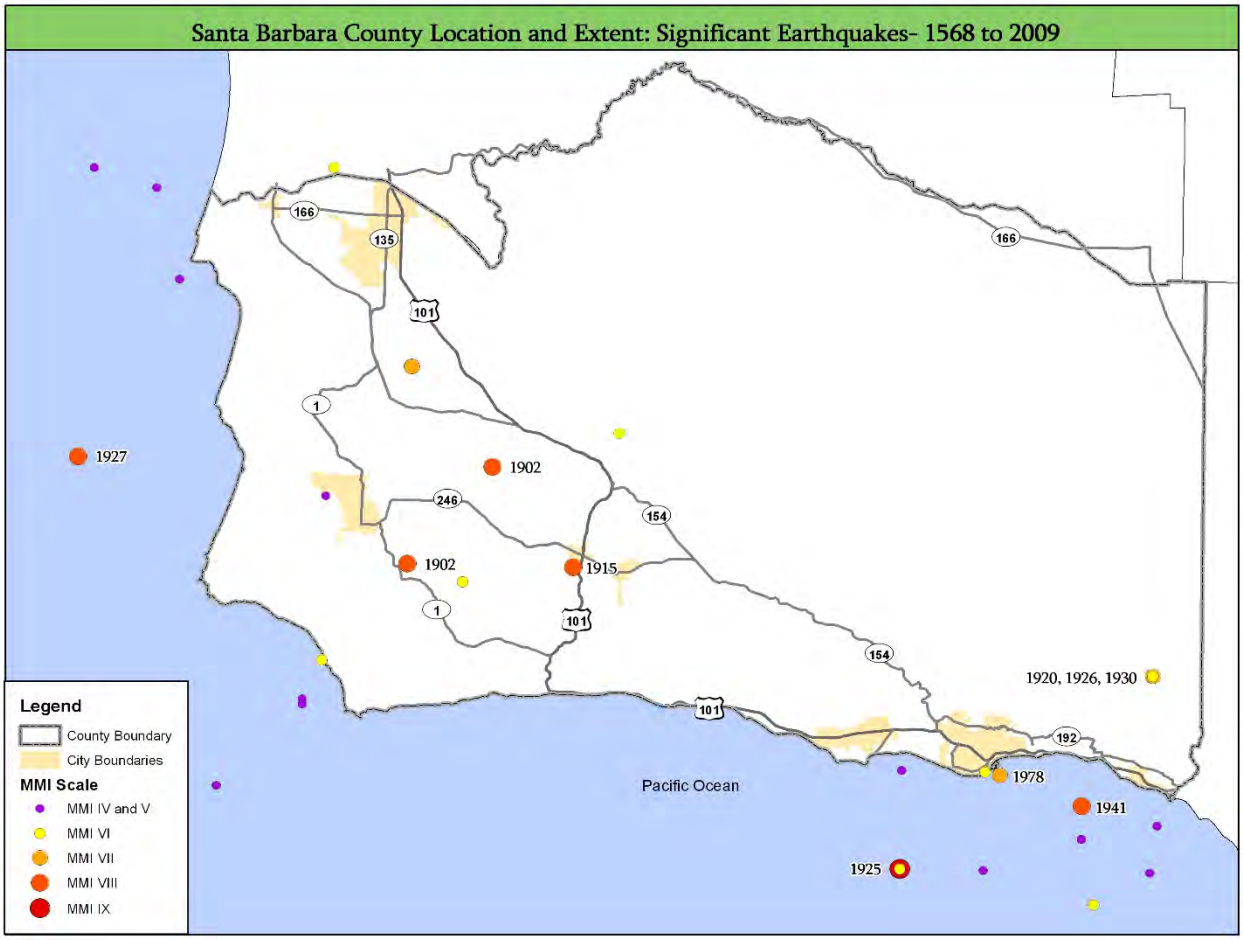
Figure 5.2: Groundwater and Liquefaction Severity



5.3.1.3 History of Hazard in Carpinteria

Carpinteria 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 County region have been centered offshore on an east-west trending fault between Santa Barbara and the Channel Islands. The below map (**Figure 5.3**) displays historical epicenters of earthquakes located in the Santa Barbara County from 1568 to 2009. The dates of the more significant earthquake events are provided adjacent to the epicenters.

Figure 5.3: Significant Earthquakes 1568 to 2009



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

In March of 1978, and continuing sporadically through July of 1978, a swarm of small earthquakes, called micro-earthquakes occurred underneath the northeastern end of the Santa Barbara Channel. Toward the end of the micro-earthquake swarm, in July and early August of 1978, an unusually large amount of oil and tar was reported on local beaches in Santa Barbara. A common occurrence for the Santa Barbara area, the oil from these natural seeps was considered only a minor nuisance. On August 13, 1978, an earthquake occurred just to the southwest of the City of Santa Barbara, about 5 miles beneath the Santa Barbara Channel. The earthquake ruptured to the northwest, focusing its energy toward Goleta, the most intense ground motion occurring between Turnpike Road and Winchester Canyon Road, an area that includes the University of California, Santa Barbara. A strong-motion seismograph on the University of California campus recorded an acceleration

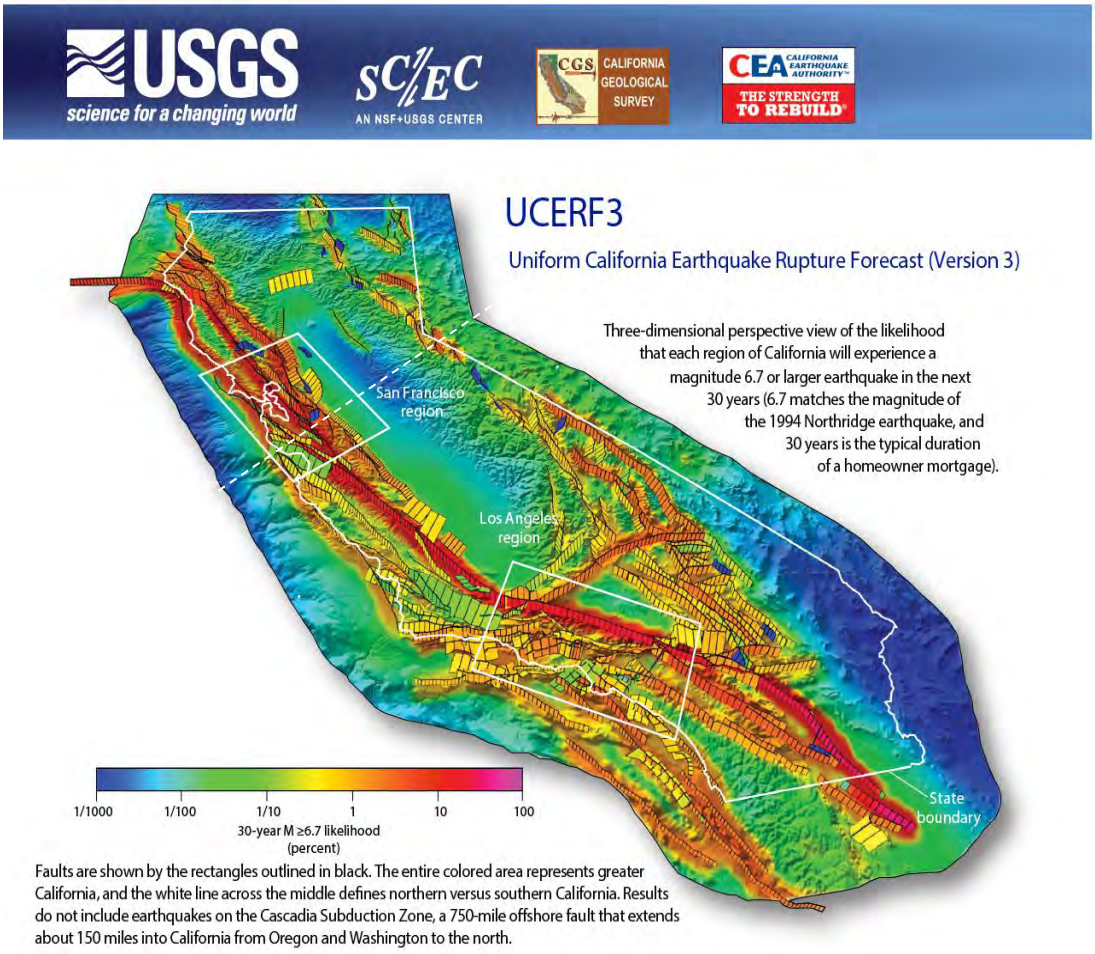
of 0.45 times that of gravity. Another seismograph, located at the top of North Hall, recorded an acceleration of 0.94 times that of gravity. Sixty-five people were treated for injuries at local hospitals. No deaths were reported.

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

5.3.1.4 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%

5.3.1.5 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.

5.3.2 Wildfire

5.3.2.1 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.*"

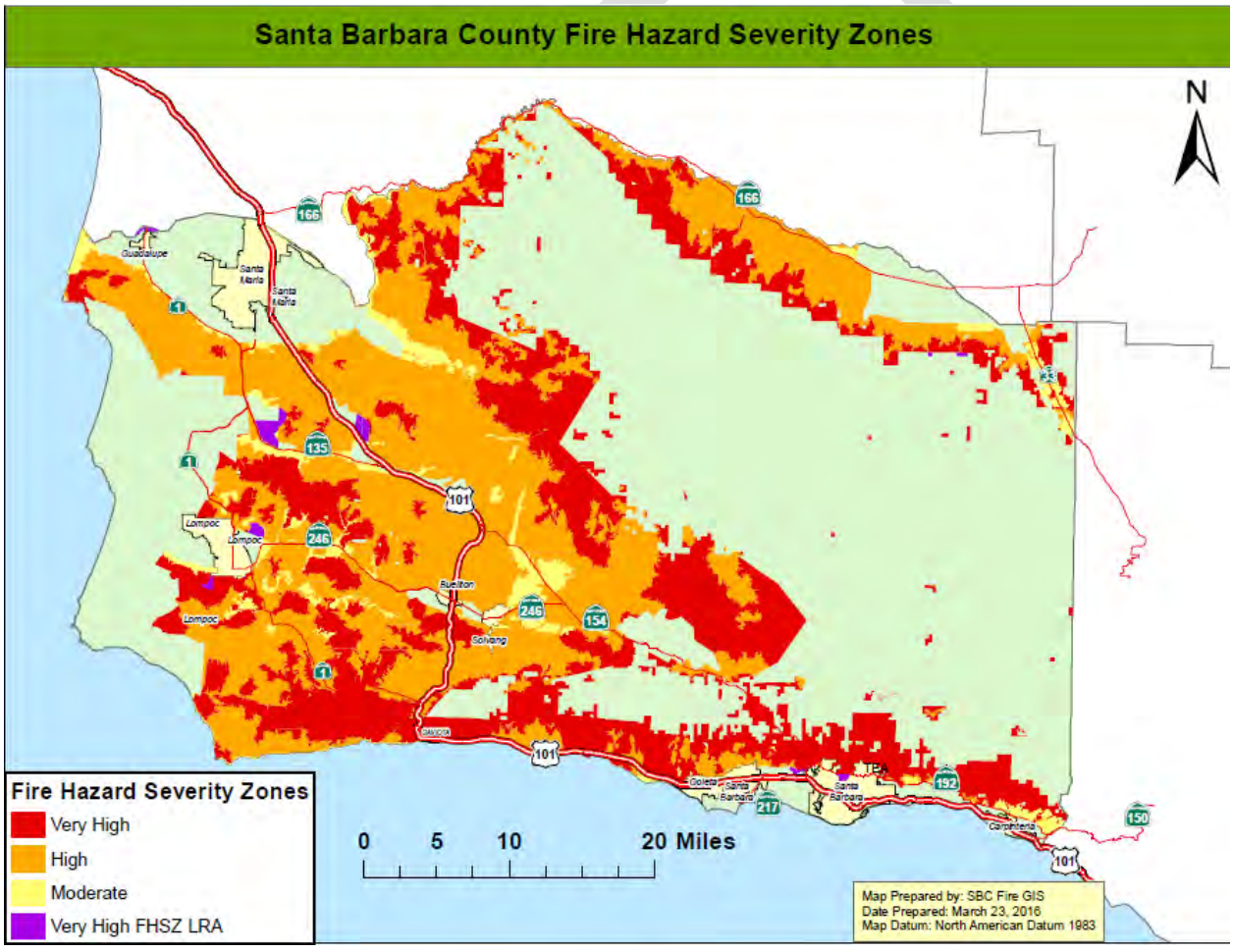
The WUI fire can be subdivided into three categories (NWUIFPP, 1998): The *classic wildland-urban interface* exists where well-defined urban and suburban development presses up against open expanses of wildland areas. The *mixed wildland-urban interface* is characterized by isolated homes, subdivisions, 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.

5.3.2.2 Location and Extent of Hazard in Carpinteria

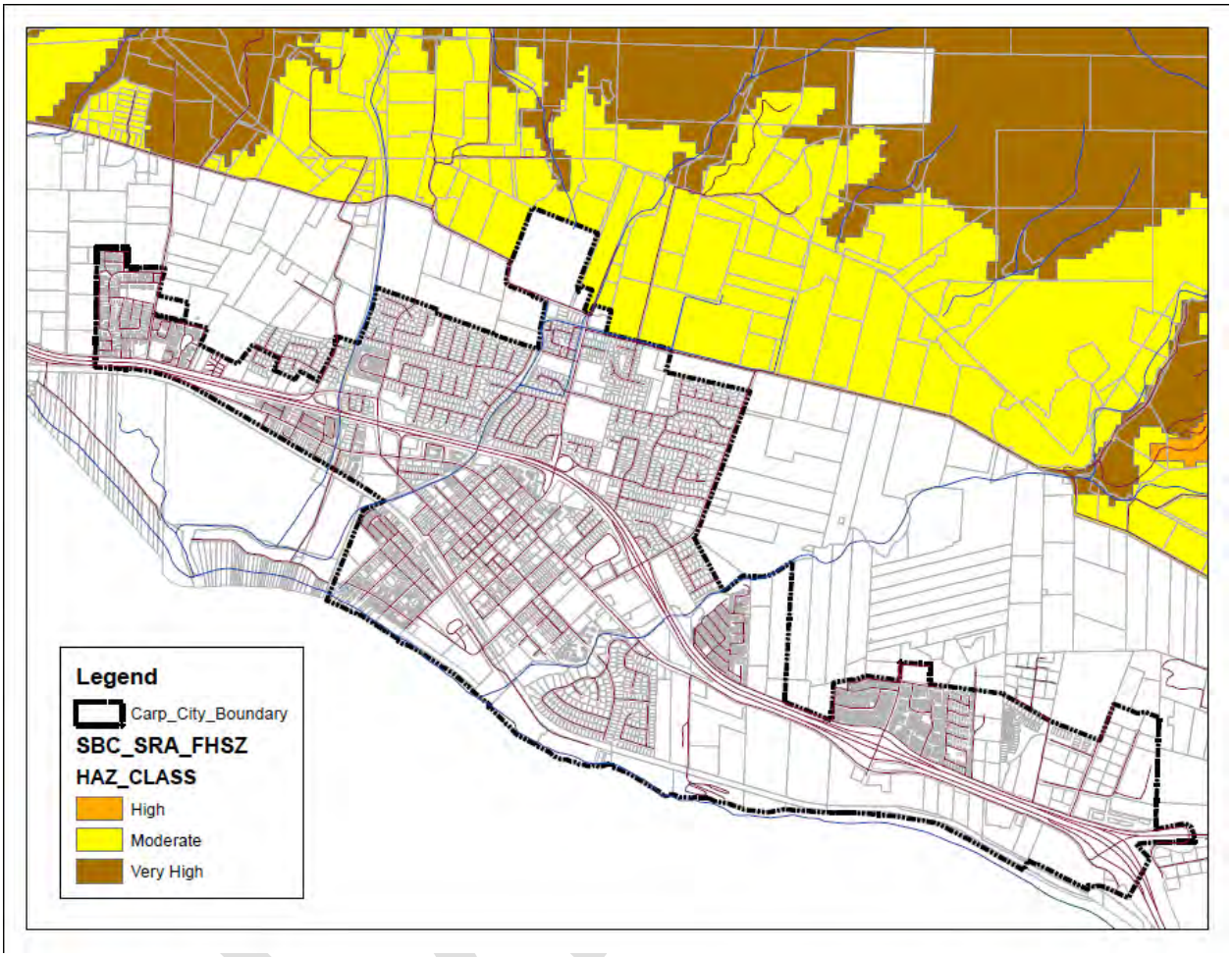
The climate, topography, and vegetation in Santa Barbara County is conducive to wildfires. California Department of Forestry and Fire Protection, Fire and Resource Assessment Program (CDF-FRAP) were mandated to map areas of significant fire hazards based on fuels (vegetation), terrain, weather, and other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

Figure 5.5: Fire Hazard Severity Zones



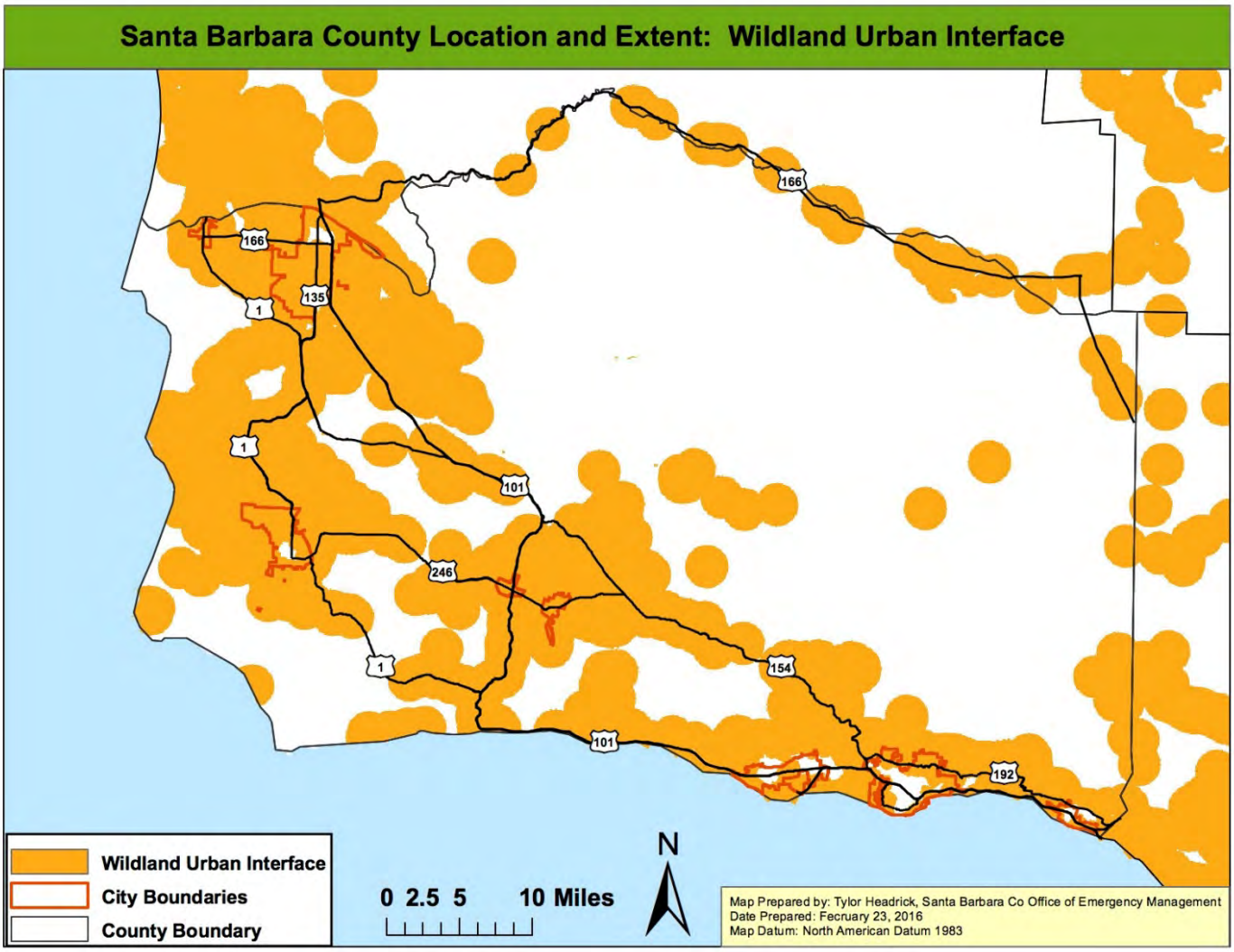
The City of Carpinteria is located in a low risk zone bordered by a moderate to high risk zone as seen in **Figure 5.6** below.

Figure 5.6: City of Carpinteria Fire Hazard Severity Zones



CDF-FRAP developed data that displays the relative risk to areas of significant population density from wildfire. This data is created by intersecting residential housing unit density with proximate fire threat, to give a relative measure of potential loss of structures and threats to public safety from wildfire. The map (**Figure 5.7**) 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 5.7: Wildland-Urban Interface (WUI)



Fire representatives on the Mitigation Advisory Committee (MAC) acknowledge that the WUI data shown in Figure 5.7 was developed on a statewide basis and does not consider the placement of local neighborhoods within the geography. Santa Barbara County Fire has synthesized the data at a more local level to convey communities at risk. The City of Carpinteria is included in this list.To help protect people and their property from potential catastrophic wildfire, the National Fire Plan directs funding to be provided for projects designed to reduce the fire risks to communities. A fundamental step in achieving this goal was the identification of communities that are at high risk of damage from wildfire. These high risk communities identified within the WUI, were published in the Federal Register in 2001. At the request of Congress, the Federal Register notice only listed those communities neighboring federal lands. The list

represents the collaborative work of the 50 states and five federal agencies using a standardized process, whereby states were asked to submit all communities within their borders that met the criteria of a structure at high risk from wildfire. The following list contains the federally regulated (communities which adjoin federal lands) communities at risk within Santa Barbara County:

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

The figure (**Figure 5.8**) below provides an overview of the location of the Communities at Risk.

Figure 5.8: Communities at Risk

5.3.2.3 History of Hazard

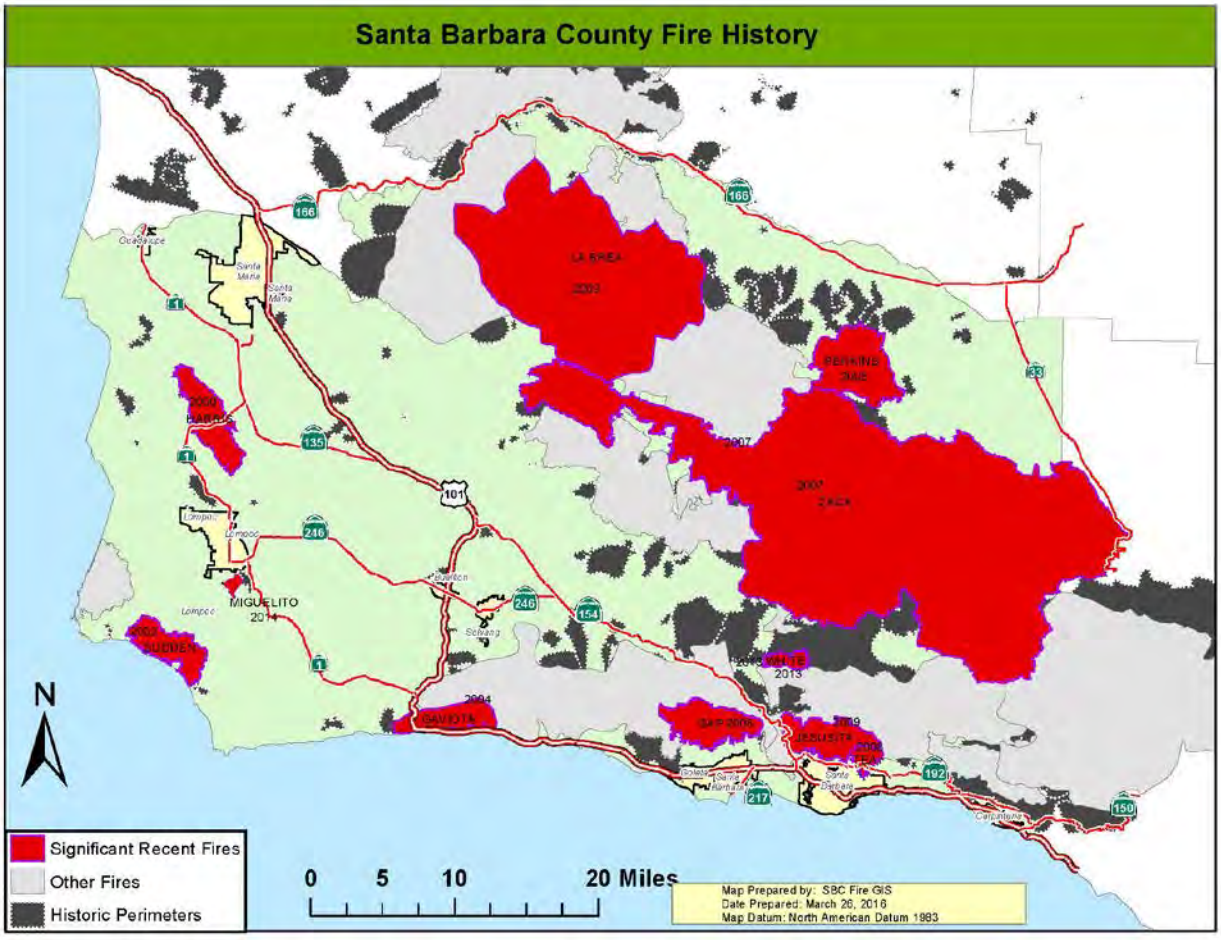
Because Santa Barbara County is prone to wildfires, there is a long history of wildfires in the County that have affected the City of Carpinteria (see shaded incidents). **Table 5.5** lists the major wildfires in Santa Barbara County from 1922-2015.

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

The CDF-FRAP compiles fire perimeters of wildfires and has established an on-going fire perimeter data capture process. The map below (**Figure 5.9**) shows historic, significant wildfire perimeters in Santa Barbara County. Fire perimeters provide a reasonable view of the spatial distribution of past large fires.

Figure 5.9: Santa Barbara County Fire History

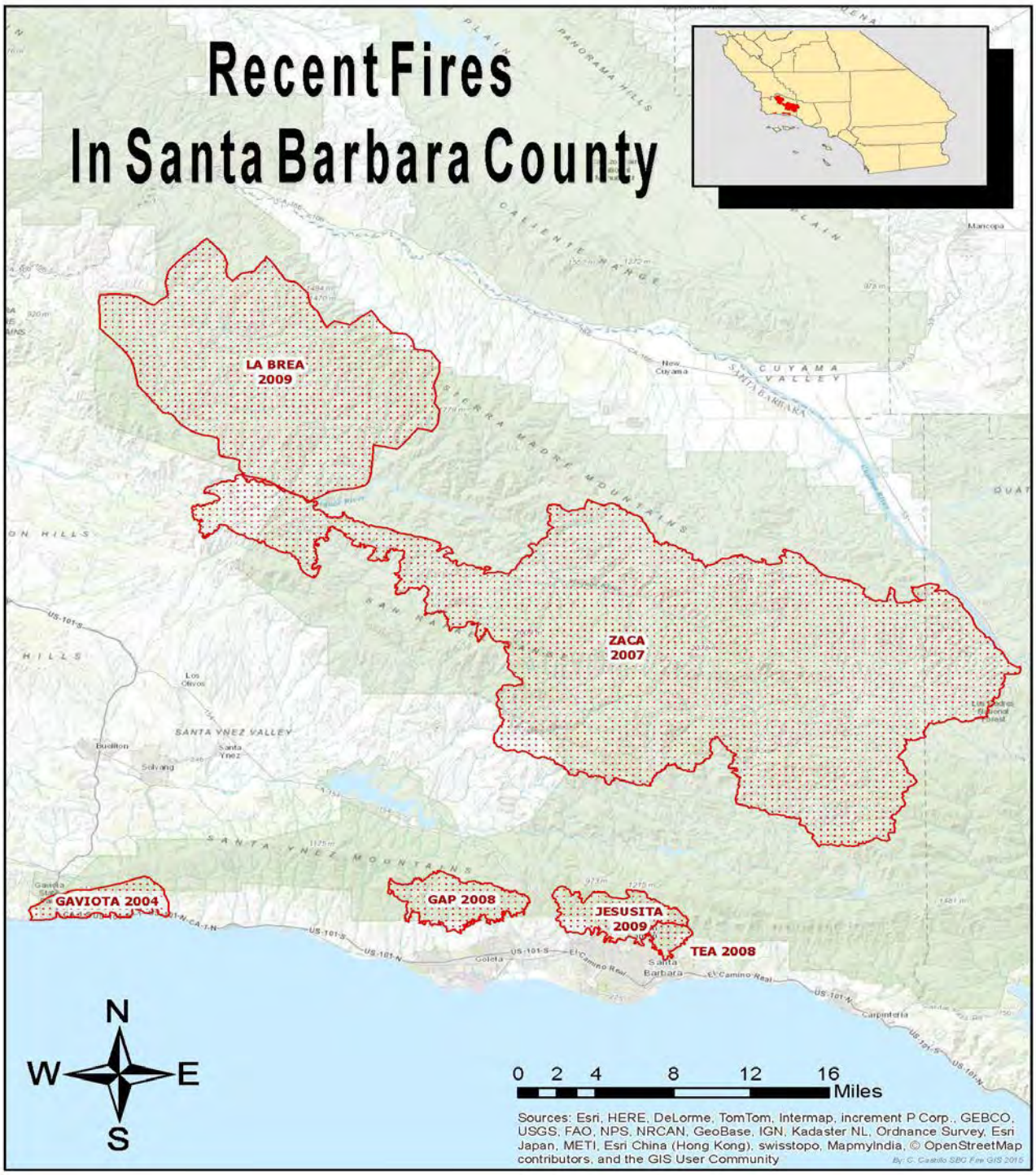


Over the last ten years, Santa Barbara County has experienced seven (7) major fires. Although these fires did not directly threaten the City of Carpinteria, the smoke and ash produced created air quality issues for hundreds of miles. While more extensive discussion of previous wildfires in Santa Barbara County is available, the following information provides an overview and the location (**Figure 5.10**) 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 5.10: Recent Fires in Santa Barbara County

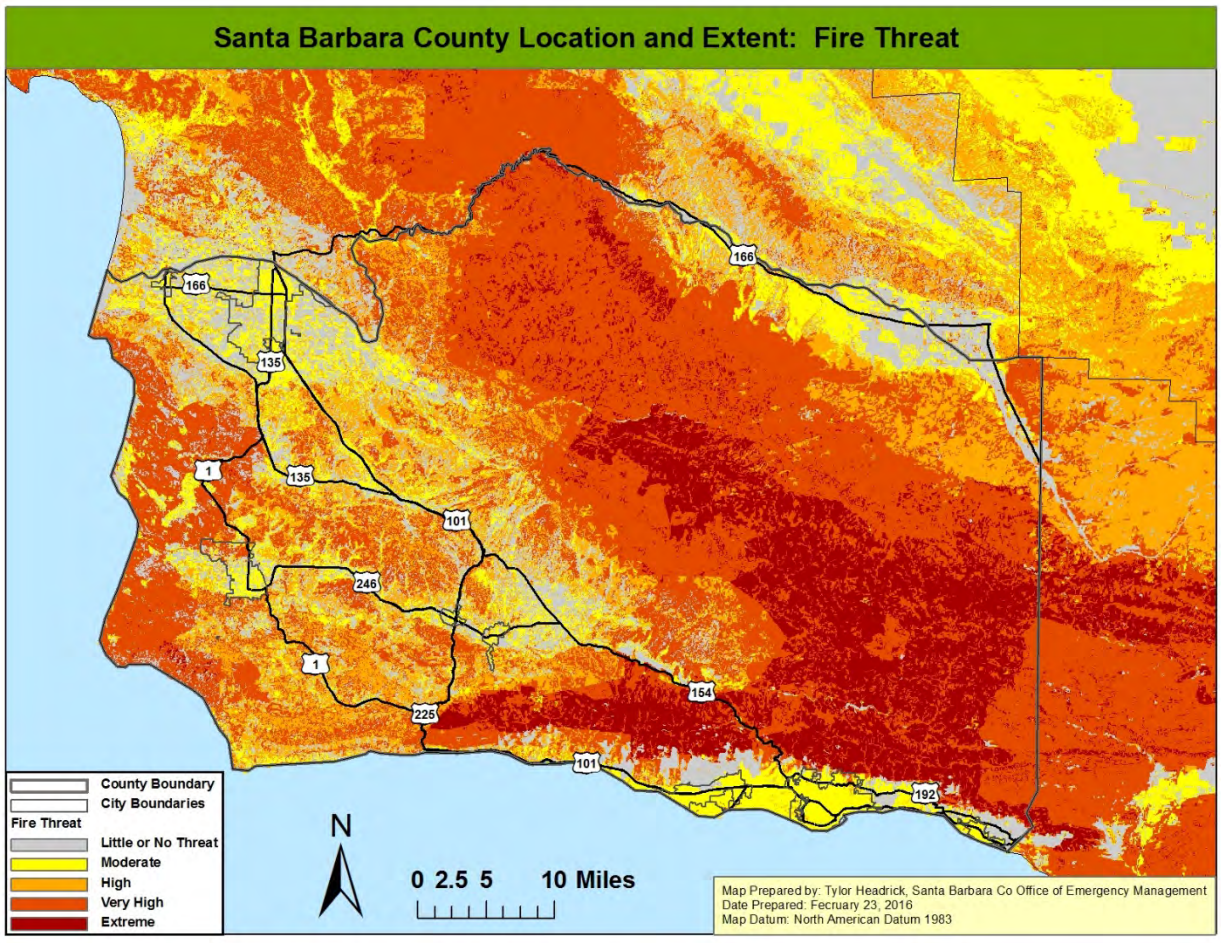


5.3.2.4 Probability of Occurrence

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

Santa Barbara County was subject to 29 major wildfires over 88 years, resulting in a 33% chance of occurrence in any given year. In addition, the map below (**Figure 5.11**) shows the threat of fire to Santa Barbara County. The City of Carpinteria is located in a low threat area bordered by a moderate threat area.

Figure 5.11: Fire Threat



5.3.2.5 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.

5.3.3 Landslide and other Earth Movements

5.3.3.1 Description of Hazard

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

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

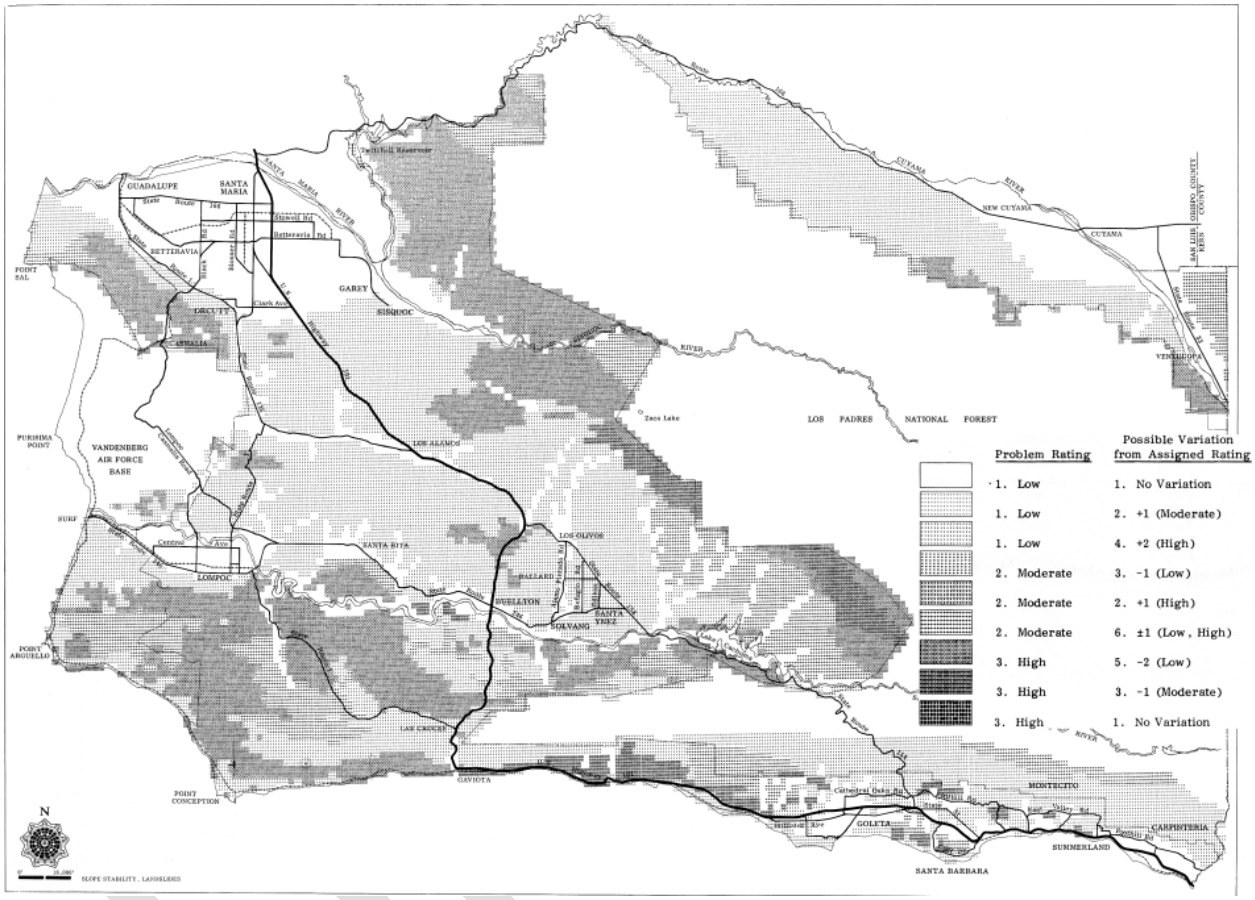
The most common cause of a landslide is an increase in the down slope gravitational stress applied to slope materials, also known as over-steepening. Over-steepening can be caused by natural processes or by man-made activities. Undercutting of a valley wall by stream erosion or of a sea cliff by wave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

5.3.3.2 Location and Extent of Hazard

Landslides and landslide prone sedimentary formations are present throughout the coastal plain of western Santa Barbara County (**Figure 5.12**). 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 5.12: Slope Stability, Landslides



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

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

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

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

5.3.3.3 History of Hazard

As previously mention, Santa Barbara County is prone to landslides; however many are smaller in nature and are not well documented. The City of Carpinteria has not had any significant landslide events within the city limits in recent history. The most recent impact has been from landslides occurring south of the city limits closing roads including Highway 101, a major route to Southern California. Three (3) of the more significant recent landslides are discussed below:

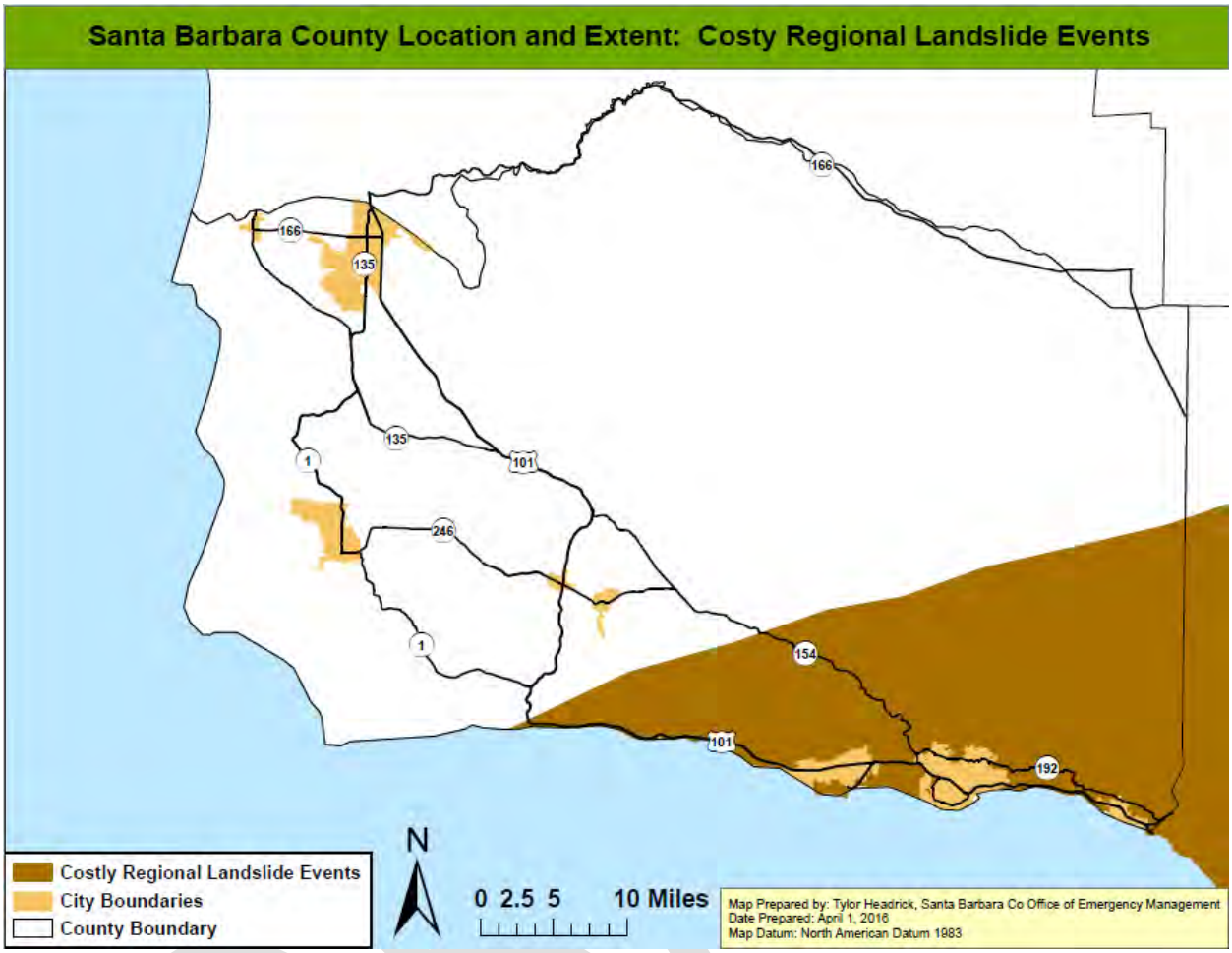
In January 2005, a powerful Pacific storm brought heavy rain, snow, flash flooding, high winds and landslides to Central and Southern California. During the 5 day event, rainfall totals ranged from 3 to 10 inches over coastal areas with up to 32 inches in the mountains. With such copious rainfall, flash 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 5.13**) 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 5.13: Costly Regional Landslide Events

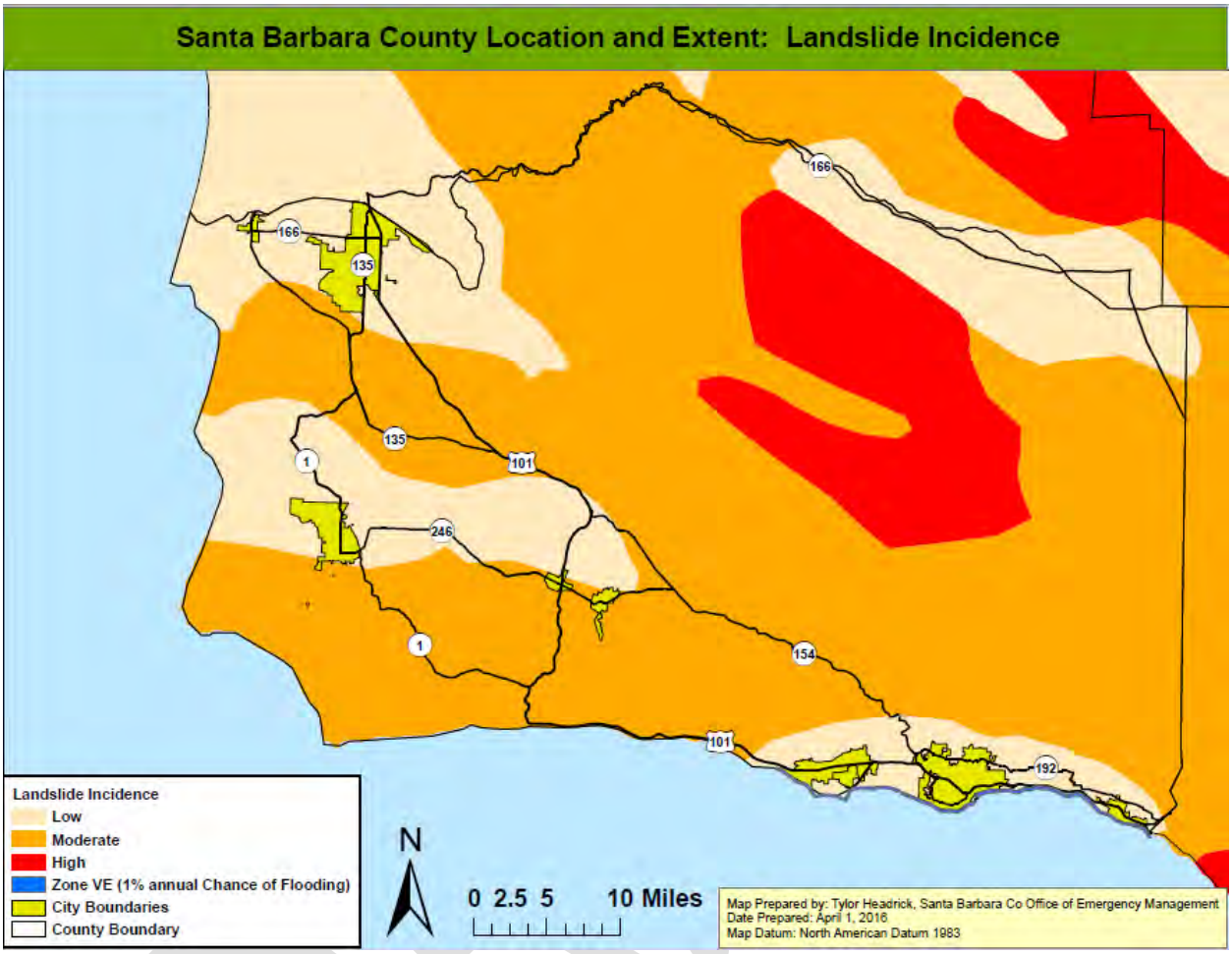


5.3.3.4 Probability of Occurrence

Figure 5.14 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. The City of Carpinteria sits in a low incident area surrounded by this costly regional area causing transportation issues as stated above.

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 5.14: Landslide Incidence



5.3.3.5 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.

5.3.4 Flood

5.3.4.1 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.

5.3.4.2 Location and Extent of Hazard in Carpinteria

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

The drainages in the southern part of the County, which includes the City of Carpinteria, are characterized by high intensity, short duration runoff events, due to the relatively short distance from the top of the Santa Ynez Mountains to the Pacific Ocean. Runoff from high intensity, short duration storm events can cause inundation of over bank areas, debris including sediment, rock, downed trees in the water that can plug culverts and bridges, erosion and sloughing of banks, and loss of channel capacity due to sedimentation.

Another contributing factor to flooding is the City's location along the Pacific Ocean. With nearly three miles of coastline, the City is susceptible to storm surge events following storms off the coast. Additionally, portions of the City are subject to flooding

due to flash flooding, urban flooding, watershed channel overflow, and downstream flooding.

Flood hazard areas within Carpinteria have been determined by FEMA National Flood Insurance Rate Maps (FIRMs). Areas of the City are within the 100-year flood zone and winter storms also bring high ocean tides and waves that annually threaten structures adjacent to the City beach. The City has received a permit to annually build a sand berm during the winter months to protect the structures and property. All new construction or reconstruction, additions and remodels that have a valuation exceeding 50 percent of the valuation of the existing structure, shall be constructed so as to be protected from wave action. In an effort to reduce the damages caused by flooding, all new development proposed in the 100-year floodplain must adhere to the County of Santa Barbara Floodplain Management Ordinance to receive a building permit.

5.3.4.3 History of Hazard

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

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

Table 5.6: Historical Records of Large Floods in Santa Barbara County
(Shaded events affected the City of Carpinteria)

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

Date	Damages	Source of Estimate	Comments
1964	Millions of dollars	Floodplain Information Montecito Streams Vicinity of Montecito, SB County	Relatively light rain fell on recently burned areas. 20' walls of water, mud, boulders, and trees
1969	$4.5 million	Floodplain Information Montecito Streams Vicinity of Montecito, SB County	Highest flows in 2900 years on Santa Ynez River, 16" of rain in 24 hours at Juncal Dam
1971	Federal Disaster Declaration	Floodplain Information Montecito Streams Vicinity of Montecito, SB County	High flows and flooding along Romero Canyon Creek, Garrapata Creek, and Toro Canyon Creek
1978	Millions of dollars, Presidential Disaster Declaration	1993 Precipitation Report and Hydrology Methods	Inundation of agricultural areas and mudslides.
1980	Presidential Disaster Declaration	n/a	Severe flooding, mudslides, and high tides throughout County
1982-1983	2 Presidential Disaster Declarations	n/a	Parts of southern California received over 200% of normal rainfall
1993	$1.4 million in disaster recovery funds received from FEMA	1993 Precipitation Report and Hydrology Methods	180%-209% of normal rainfall, with highest-ever intensity for the County recorded at Buellton Fire Station: $1^{1}/_{4}$ inches in 15 minutes.
January 1995	$50 million, Presidential Disaster Declaration	1995 Floods	Flooding on most major channels in Goleta, Santa Barbara, Montecito, and Carpinteria

Date	Damages	Source of Estimate	Comments
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 south

Date	Damages	Source of Estimate	Comments
			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.

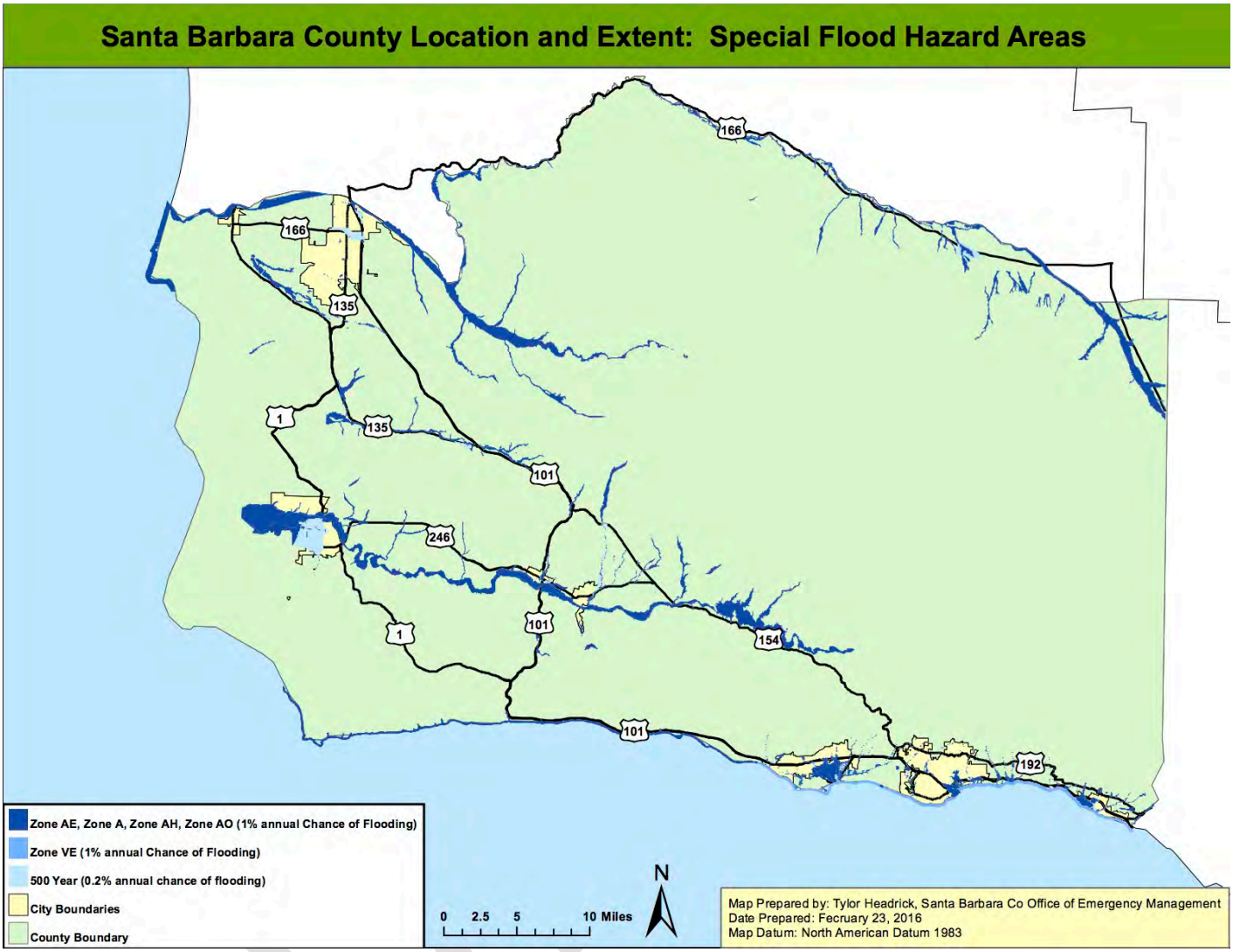
March 1st 2014- A strong winter storm caused significant damage to coastal properties on the south coast of Santa Barbara County

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.

5.3.4.4 Probability of Occurrence

The probability of flooding in Santa Barbara County, which includes the City of Carpinteria, is shown in **Figure 5.15**. 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 5.15: Special Flood Hazard Area



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

The Federal Emergency Management Agency is conducting a coastal flood study for Santa Barbara County as part of the California Coastal Analysis and Mapping Project. Results from this Open Pacific Coast Study will produce flood and wave data for the National Flood Insurance Program, Flood Insurance Study reports, and regulatory Flood Insurance Rate Map panels. [1]

[1] Source: FEMA; Santa Barbara, California Open Pacific Coast Study, California Coastal Analysis and Mapping Project, April 2016

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

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

Zone A

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

Zone AE and A1-A30

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

Zone AH

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

Zone AO

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

Zone AR

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

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

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

Zone A99

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

Zone D

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

Zone V

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

Zone VE

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

Zones B, C, and X

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

5.3.4.5 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.

5.3.5 Climate-related Hazards

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

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

The following sections are the relevant climate-related hazards in Carpinteria and Santa Barbara County.

5.3.5.1 Sea Level Rise and Erosion

5.3.5.1.1 Description of Hazard

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

5.3.5.1.2 Location and Extent of Hazard

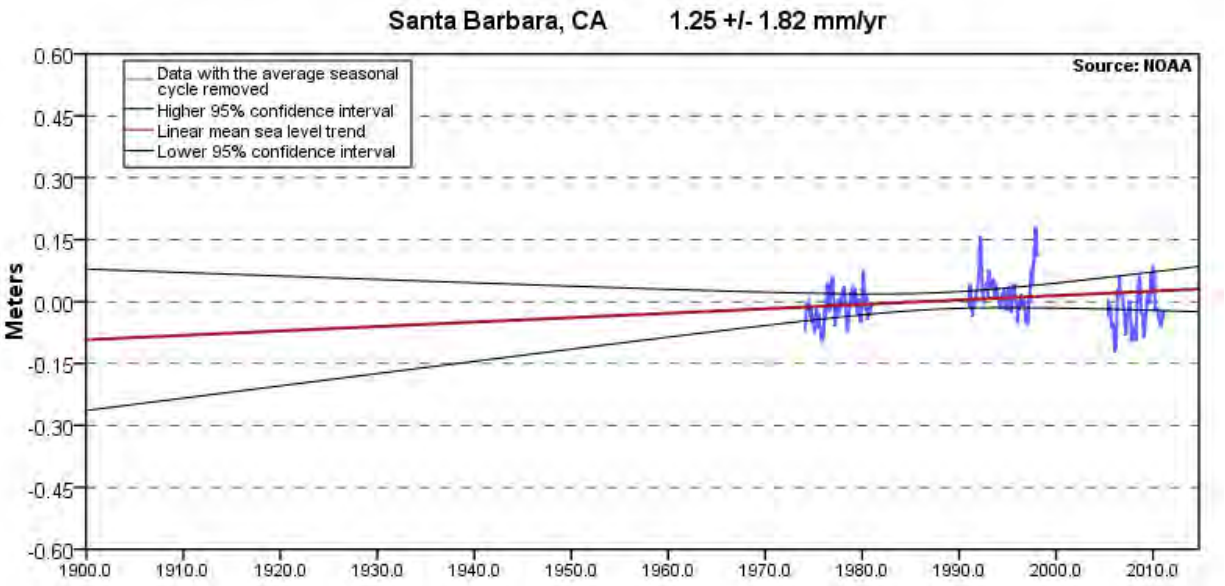
The impacts from SLR and erosion in Santa Barbara County will be felt along its 110 mile long coastline. SLR coupled with increased frequency, severity, and duration of high tide and storm events related to climate change will result in more frequent and severe extreme events along the coast. These events 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).

5.3.5.1.3 History of Hazard

Typically, the highest sea level readings along California's coastline occur during periods of heavy rain that coincide with high tides, causing coastal flooding, coastal bluff erosion, and landslides such as were experienced during the 1998 El Nino storms. Sea levels are already rising along the Santa Barbara County coastline as is evident in long term tidal gauge records from Station 9411340 since 1973, where the rate of rise has been approximately 0.41 feet per century[2] (**Figure 5.16**).

[2] NOAA: http://tidesandcurrents.noaa.gov/sltrends/sltrends_station.shtml?stnid=9411340; retrieved April 6, 2011.

Figure 5.16: Mean Sea Level Trend in Santa Barbara



5.3.5.1.4 Probability of Occurrence

As discussed above, the potential impacts of global warming and climate change include increased opportunities for severe weather that may result in sea level rise and erosion. The Pacific Ocean borders the south side of the City of Carpinteria. This coastal property includes businesses, residences, and varying geologic features including coastal bluffs, beaches, and wetlands.

A growing consensus of scientists believes that sea level rise will continue and the rate of rise will increase. The Intergovernmental Panel on Climate Change (IPCC) suggests that global SLR on the order of 0.2 m (0.66 ft.) and 0.6 m (1.97 ft.) is possible by 2100 with other scientists indicating this rise could be over 1 meter (3.28 ft.). [3] **Figure 5.17** depicts areas (dark blue along and near the Santa Barbara County coastline that may be vulnerable to sea level rise in a 1.4 meter sea level rise scenario. [4] From the figure, it is apparent that a considerable number of buildings and infrastructure may be impacted.

[3] M. Vermeer and S. Rahmstorf. 2009. Global sea level linked to global temperature. Proceedings of the National Academy of Sciences, USA.

[4] M. Heberger, H. Cookley, P. Herrera, The Pacific Institute, May 2009. The Impacts of Sea-Level Rise on The California Coast.

Figure 5.17: Sea Level Rise Santa Barbara Quadrangle

5.3.5.1.5 Climate Change Considerations

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

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

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

occur, while more intense events will cause the erosion to extend further inland than before.

5.3.5.2 Drought and Water Shortages

5.3.5.2.1 *Description of Hazard*

Drought and water shortages are a gradual phenomenon and generally are not signified by one or two dry years. California's and Santa Barbara County's extensive system of water supply infrastructure (reservoirs, groundwater basins, and interregional conveyance facilities) generally mitigates the effects of short-term dry periods for most water users. However, drought conditions are present when a region receives below-average precipitation, resulting in prolonged shortages in its water supply, whether atmospheric, surface, or ground water. A drought can last for months or years, or may be declared after as few as 15 days.

5.3.5.2.2 Location and Extent of Hazard

The City of Carpinteria is subject to drought conditions and water shortages.

5.3.5.2.3 History of Hazard

Santa Barbara County has had three (3) State and/or Federally declared drought disasters since 1950; in 1990, 1991, and 2001. The state of California, including the City of Carpinteria is currently in a drought. The average rainfall in Carpinteria is 17.9 inches; however, since 2016, the City 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.

5.3.5.2.4 Probability of Occurrence

In any given year, the City of Carpinteria can be subject to drought conditions and water shortages.

5.3.5.2.5 Climate Change Considerations

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

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

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

5.3.5.3 Severe Weather and Storms

5.3.5.3.1 Extreme Heat

5.3.5.3.1.1 Description of Hazard

Extreme Heat is a function of heat and relative humidity. A Heat Index describes how hot the heat-humidity combination makes the air feel. As relative humidity increases, the air seems warmer than it actually is because the body is less able to cool itself via evaporation of perspiration. As the Heat Index rises, so do health risks such as heat exhaustion, sunstroke, and heatstroke. Some Heat Index Program Alert procedures are implemented when the high temperature is expected to exceed 105° to 110° (depending on local climate) for at least two consecutive days.

5.3.5.3.1.2 Location and Extent of Hazard

The entire county is subject to extreme heat conditions, particularly inland areas. With its close proximity to the coast, extreme heat conditions are rare in Carpinteria.

5.3.5.3.1.3 History of Hazard in Santa Barbara County

Santa Barbara County has experienced several extreme heat events in the past; however, they are not well documented. One documented event occurred in September 1856 where a U.S. Coast Guard vessel recorded a record temperature of 135 degrees Fahrenheit during a sundowner event on the Santa Barbara coast.

5.3.5.3.1.4 Probability of Occurrence

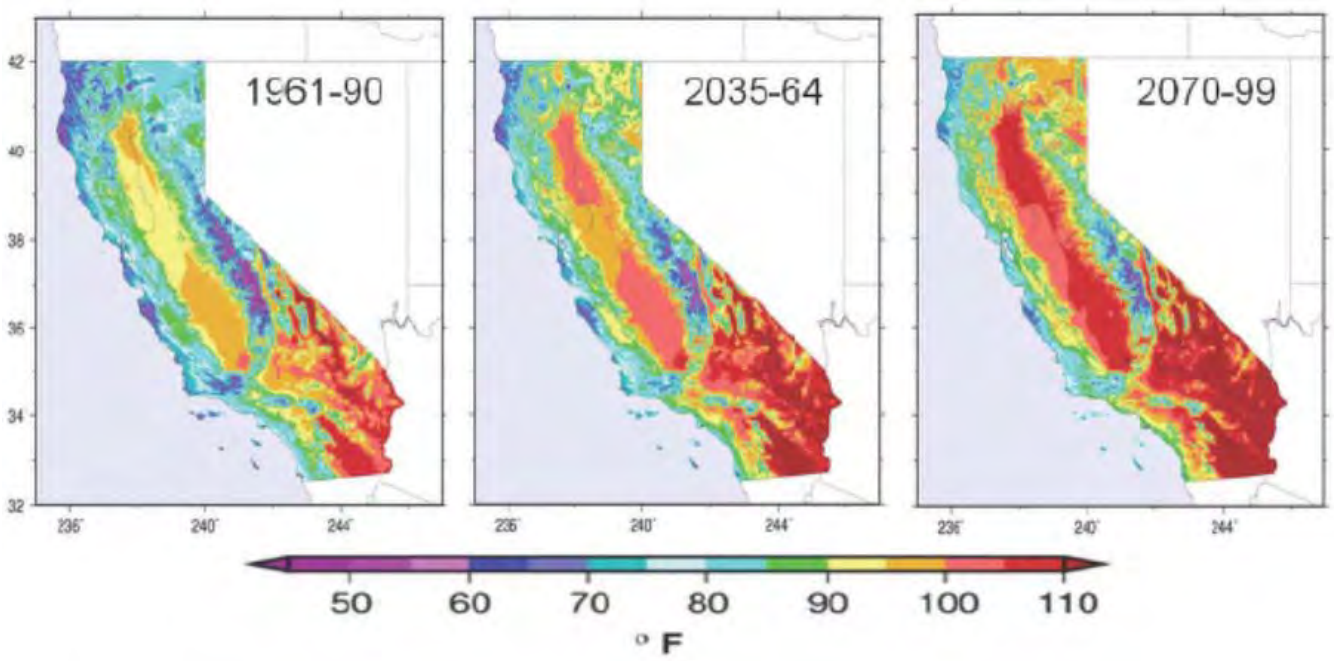
In any given year, the City of Carpinteria can be subject to extreme heat conditions.

5.3.5.3.1.5 Climate Change Considerations

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

the lower emissions scenario and 8 to 10.5°F under the higher emissions scenario (**Figure 5.18**).

Figure 5.18: Comparison between Historic and Projected Temperature



5.3.6 Energy Shortage and Resiliency

5.3.6.1 Description of Hazard

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

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

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

5.3.6.2 Location and Extent of Hazard

The City of Carpinteria is subject to energy shortages.

5.3.6.3 History of Hazard

Energy disruptions on a small scale have occurred on a regular basis in the City of Carpinteria.

5.3.6.4 Probability of Occurrence

In any given year, the City of Carpinteria can be subject to energy shortages. A large disruption due to a power failure or rotating brown out a highly likely.

5.3.6.5 Climate Change Considerations

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

5.3.7 Oil Spills

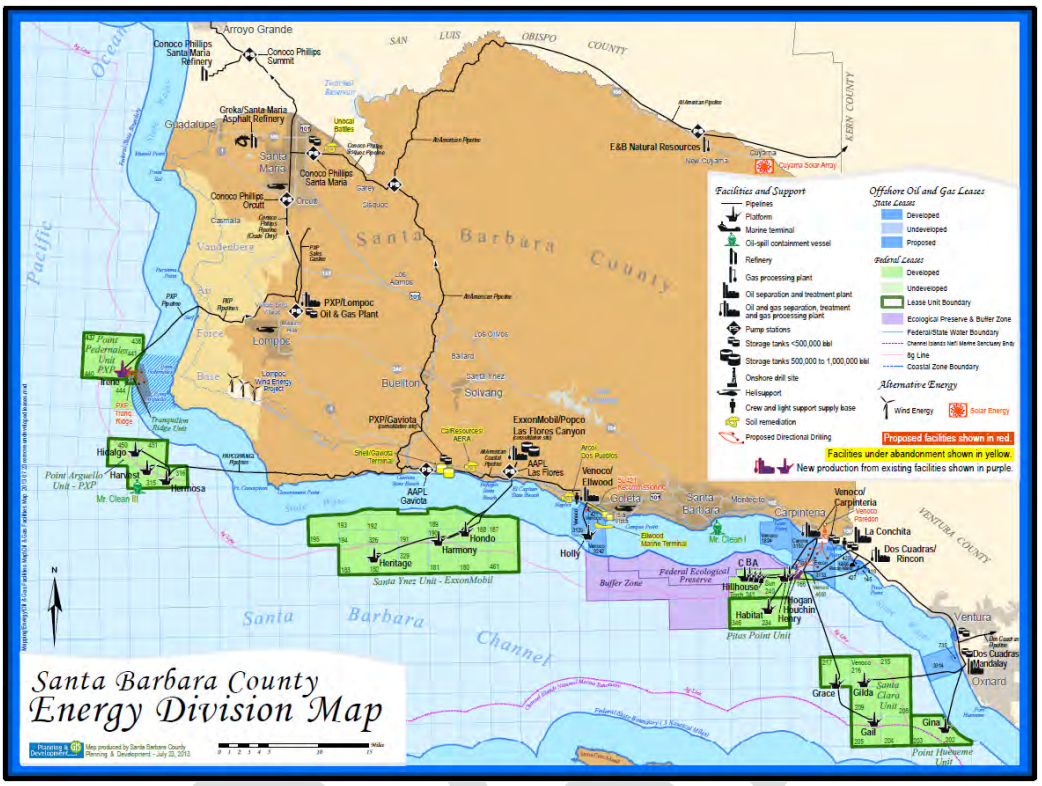
5.3.7.1 Description of Hazard

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

5.3.7.2 Location and Extent of Hazard

This hazard can occur in any part of Santa Barbara County where existing oil & gas operations are located, including off shore where there are several platforms and undersea pipelines. Currently, there are 11 Oil Platforms off of the Santa Barbara County Coast and several oil and gas wells in Santa Barbara County. **Figure 5.19** show the Oil Platforms and their proximity to Carpinteria.

Figure 5.19: Oil Platform Map of Santa Barbara Coast



5.3.7.3 History of Hazard

There have been no recent oil spills in the City of Carpinteria. With its close proximity to the offshore platforms and pipelines in Santa Barbara County, Carpinteria has been affected by the following large oil spills:

- January 28, 1969 Platform A - 80,000 to 100,000 barrels
- September 28, 1997 Platform Irene - 163 barrels
- May 19, 2015 Plains All American Pipeline at Refugio - 3,400 barrels

5.3.7.4 Probability of Occurrence

In any given year, the City of Carpinteria could be subject to oil spills onshore or offshore.

5.3.7.5 Climate Change Considerations

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

5.3.8 Dam Failure

5.3.8.1 Description of Hazard

Dams fail due to old age, poor design, structural damage, improper siting, landslides flowing into a reservoir, or terrorist actions. Structural damage is often a result of a flood, erosion, or earthquake. A catastrophic dam failure could inundate the area downstream. The force of the water is large enough to carry boulders, trees, automobiles, and even houses along a destructive path downstream. The potential for casualties, environmental damage, and economic loss is great. Damage to electric generating facilities and transmission lines could impact life support systems in communities outside the immediate hazard area.

5.3.8.2 History of Hazard

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

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

5.3.8.3 Location and Extent of Hazard

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 5.20 and Figure 5.21** display the dam locations and dam inundation areas in the County. **Figure 5.22** shows the Carpinteria area.

Figure 5.20: Dam Locations

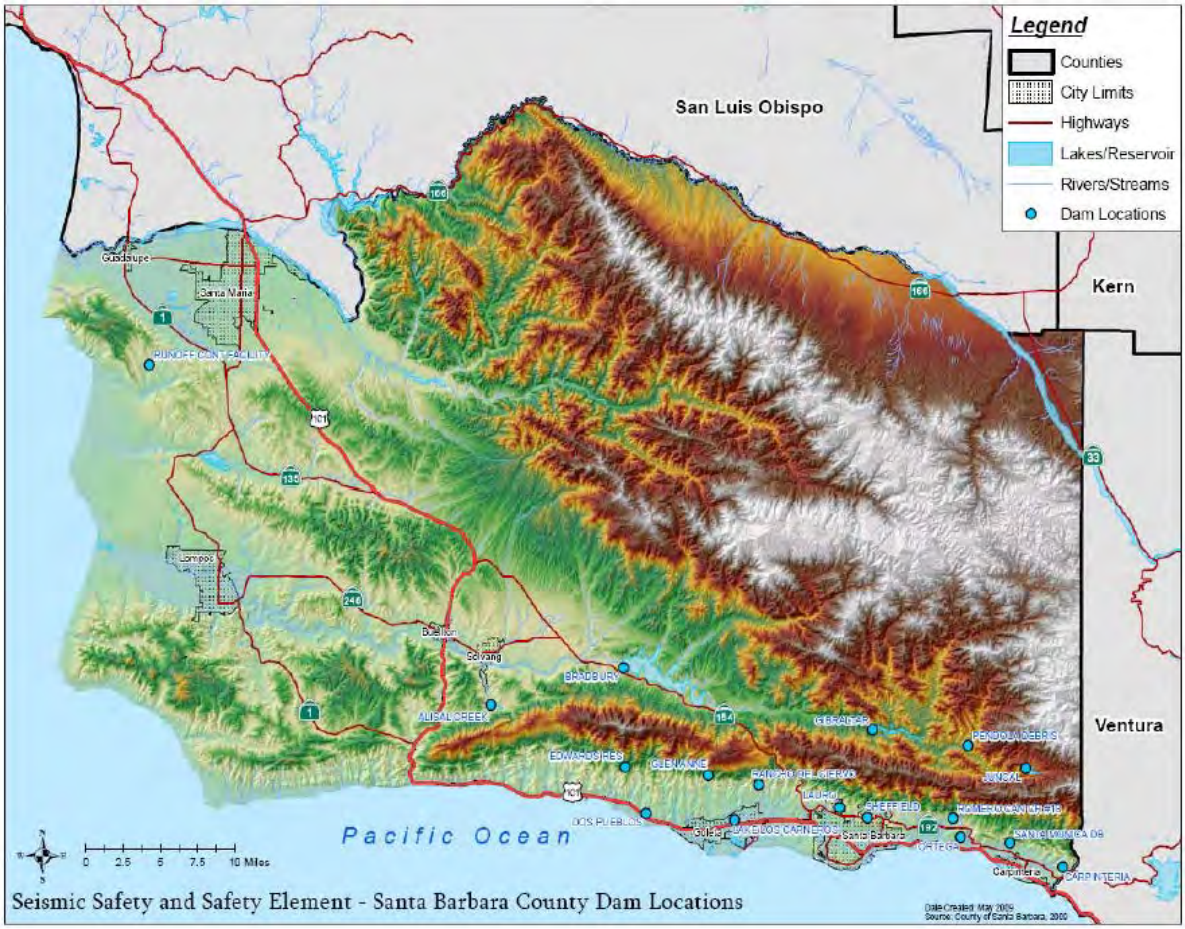


Figure 5.21: Dam Inundation Zones

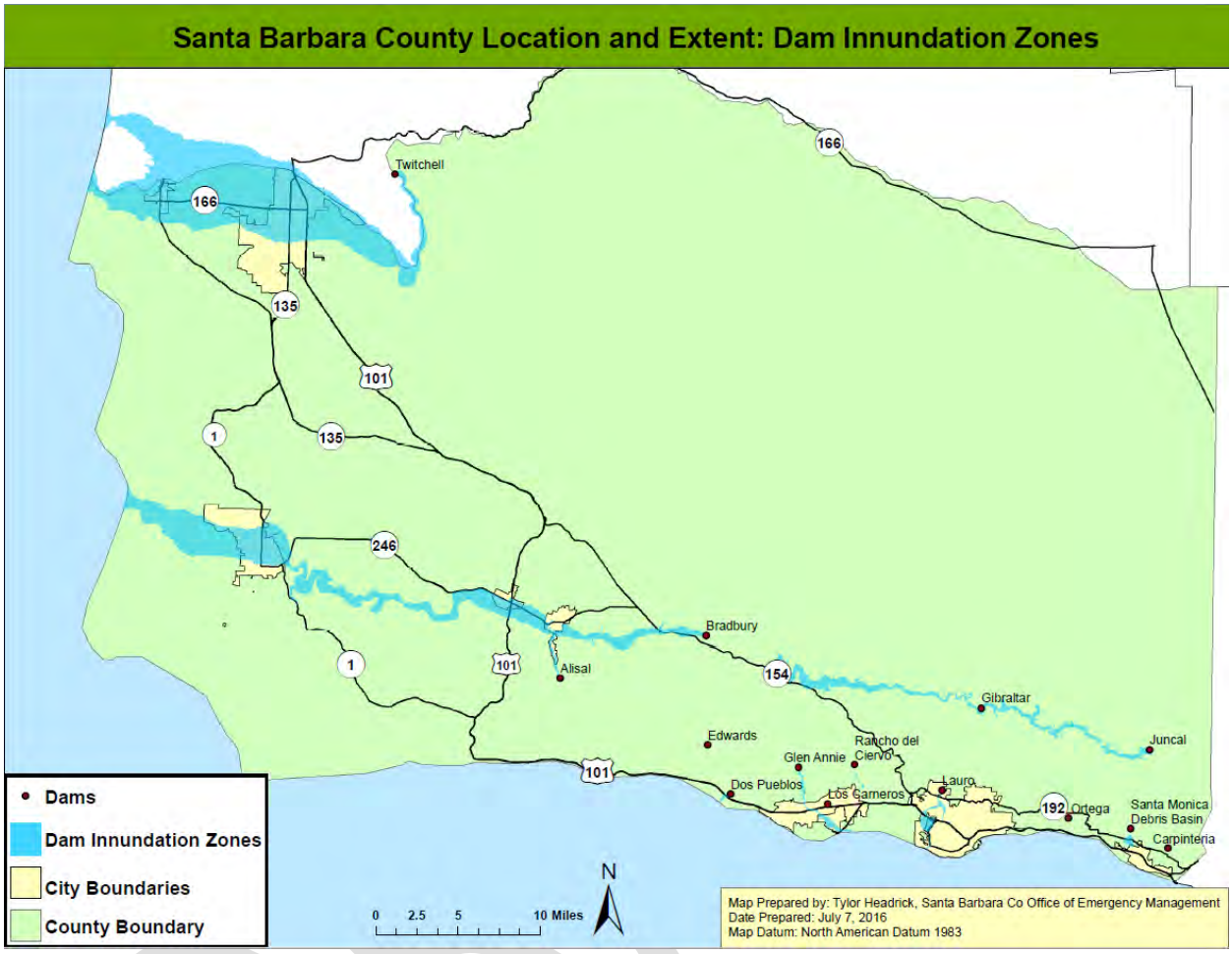
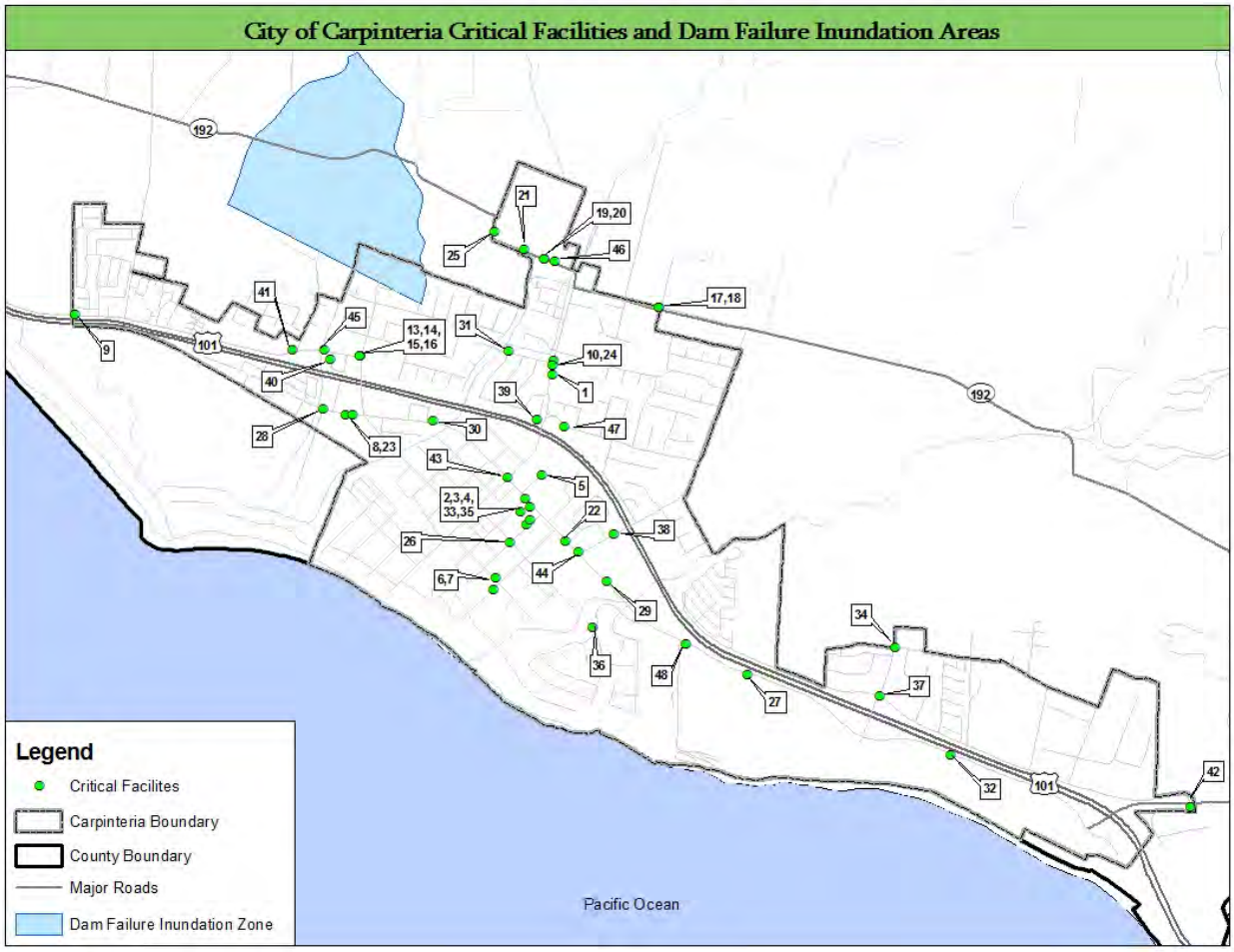


Figure 5.22: City of Carpinteria Dam Failure Inundation Areas



Source: Santa Barbara County Flood Control and Water Conservation District

5.3.8.4 Probability of Occurrence

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

5.3.8.5 Climate Change Considerations

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

5.3.9 Agricultural Pests

5.3.9.1 Description of Hazard

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

5.3.9.2 History of Hazard

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.

5.3.9.3 Location and Extent of Hazard

Figure 5.23 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 5.24** portrays crop land. These areas are also susceptible to agricultural pests and diseases.

Figure 5.23: Agricultural Preserves, 2010

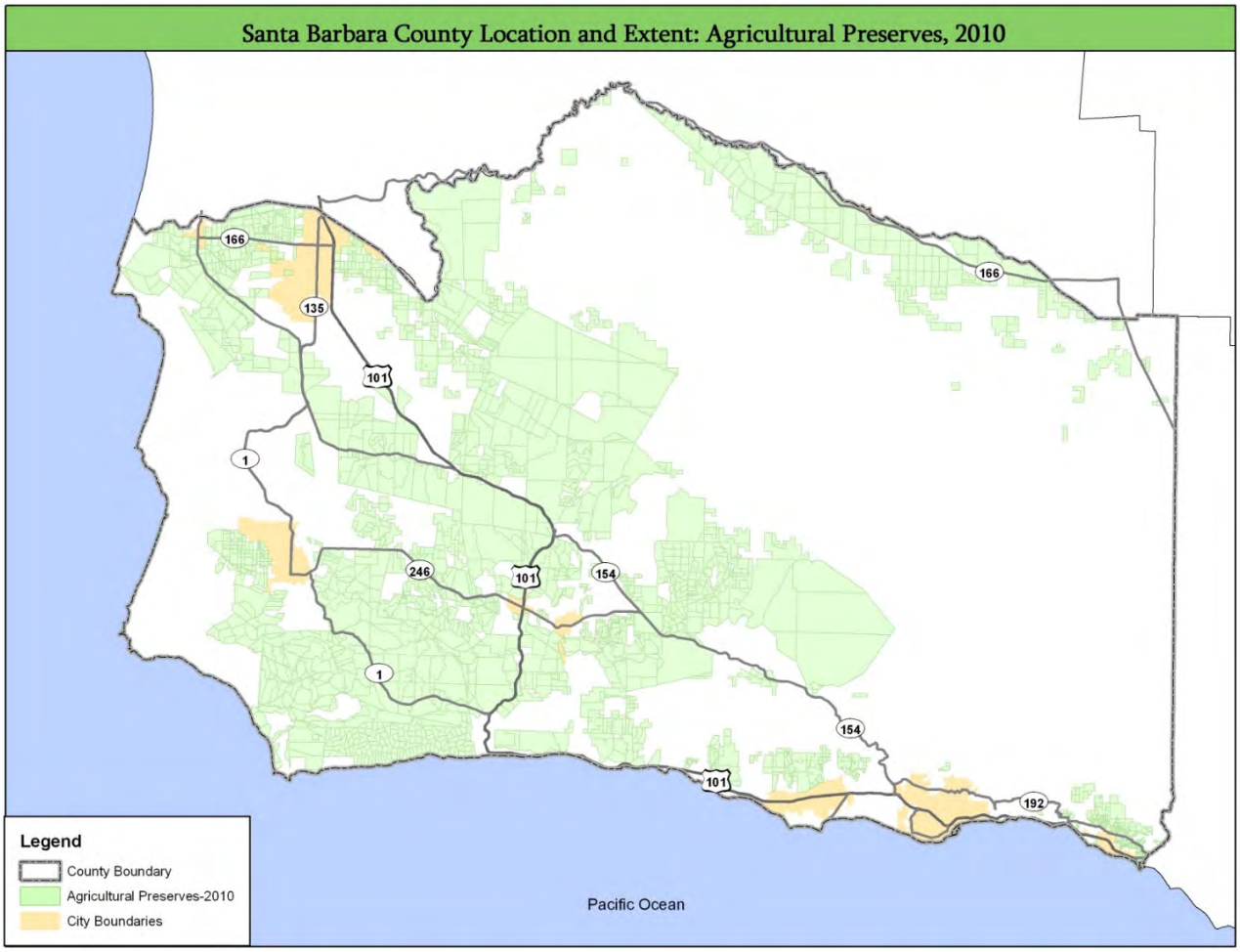
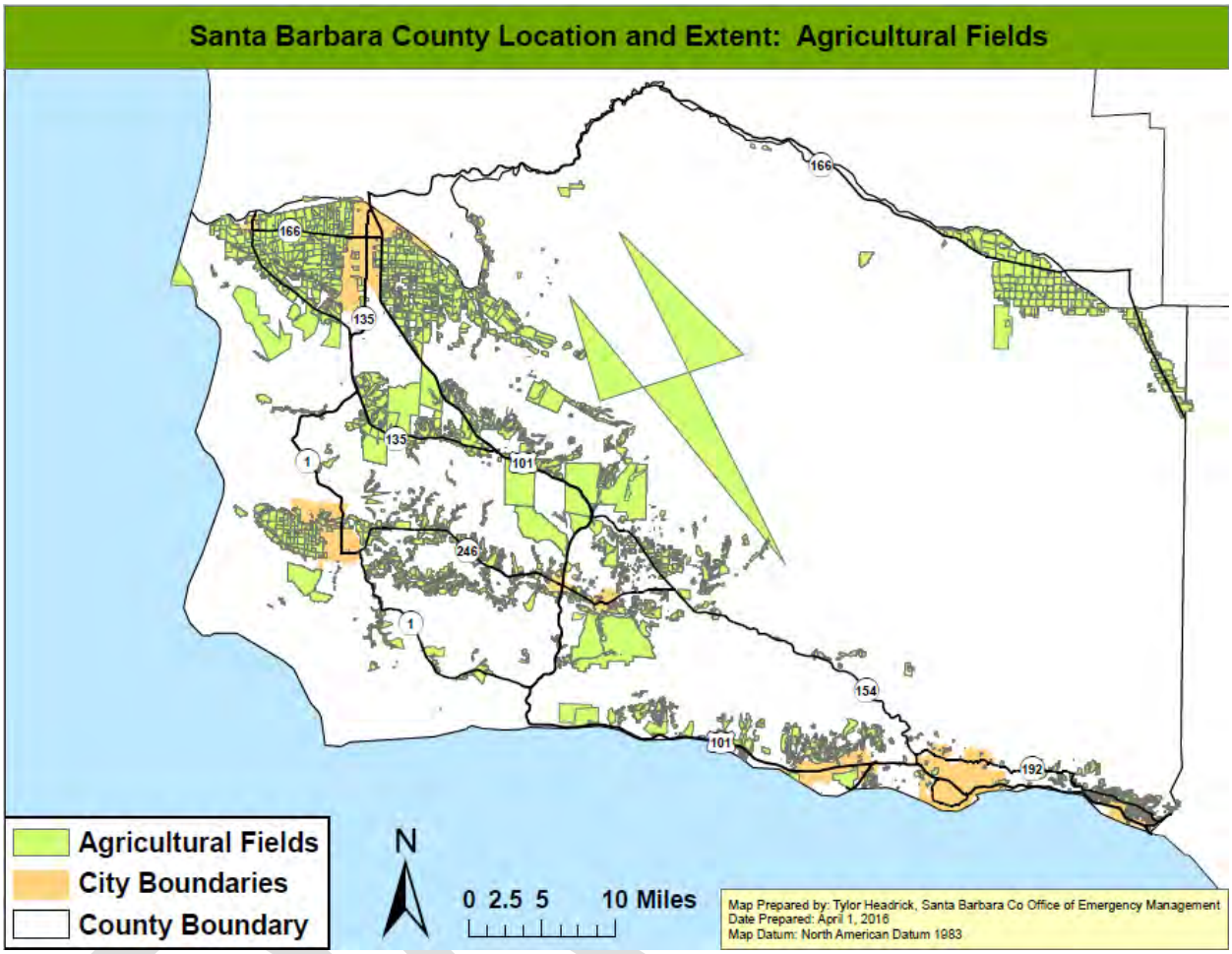


Figure 5.24: Agricultural Fields



5.3.9.4 Probability of Occurrence

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

5.3.9.5 Climate Change Consideration

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

northward, which could lead to substantial economic and ecological consequences for the state.

Temperature is not the only climatic influence on pests. For example, some insects are unable to cope in extreme drought, while others cannot survive in extremely wet conditions. Furthermore, while warming speeds up the lifecycles of many insects, suggesting that pest problems could increase, some insects may grow more slowly as elevated carbon dioxide levels decrease the protein content of the leaves on which they feed (California Climate Change Center 2006).

5.3.10 Epidemic/Pandemic/Vector Borne Disease

5.3.10.1 Description of Hazard

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

Infectious disease emergencies may be caused by:

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

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

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

Outbreaks, Epidemics, and Pandemics

An **outbreak** is when there are more cases than would be normally expected, often suddenly, of an infectious disease in a community or facility.

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

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

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

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

Vector control to eliminate vectors such as mosquitos that carry the disease from person to person.
The Vector Borne Disease Section of the California Department of Public Health identifies the following types of diseases:

• *Africanized Honeybees*	• *Bed Bugs*	• *Body Lice*
• *Cat Scratch Disease*	• *Conenose Bugs*	• *Hantavirus Cardiopulmonary Syndrome*
• *Head lice*	• *Lyme Disease*	• *Mosquitoes*
• *Murine Typhus*	• *Plague*	• *Ticks*
• *West Nile Virus*	• *Red Imported Fire Ants*	• *Scabies*
• *Swimmer's Itch*	• *Tularemia*	• *Zika Virus*

5.3.10.2 Location and Extent of Hazard

With close proximity to the larger populations in Santa Barbara and Los Angeles County, an infectious disease hazard that occurs there would likely spread to the City of Carpinteria.

5.3.10.3 History of Hazard

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.

5.3.10.4 Probability of Occurrence

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

5.3.10.5 Climate Change Consideration

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

5.3.11 Hazardous Materials Release

5.3.11.1 Description of Hazard

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

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

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

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

5.3.11.2 Location and Extent of Hazard

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.

5.3.11.3 History of Hazard

No significant historical events to report to date

5.3.11.4 Probability of Occurrence

Carpinteria sits in a main corridor for north south travel in California. Highway 101 and the railroad run through the City limits.The release of hazardous materials can occur throughout the entire City. 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.

5.3.11.5 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.

5.3.12 Terrorism

5.3.12.1 Description of Hazard

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

5.3.12.2 Location and Extent of Hazard

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

5.3.12.3 History of Hazard

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. There have been no events in the City of Carpinteria.

5.3.12.4 Probability of Occurrence

All City businesses and facilities are perceived as a soft target resulting in increased property crimes by criminals who live outside the City. However, there are no known events in the City's history.

5.3.12.5 Climate Change Consideration

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

5.3.13 Cyber Threats

5.3.13.1 Description of Hazard

A cyber security threat is a circumstance or event that has or indicates the potential to exploit vulnerabilities and to adversely impact organizational operations, organizational assets (including information and information systems), individuals, other organizations, or society. Critical infrastructure, such as utilities and telecommunications, are also potential targets. Examples of cyber threats include malware, phishing, denial of service attacks, ransomware, and state-sponsored hacking.

5.3.13.2 Location and Extent of Hazard

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

5.3.13.3 History of Hazard

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

5.3.13.4 Probability of Occurrence

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

5.3.13.5 Climate Change Consideration

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

5.3.14 Train Accidents

5.3.14.1 Description of Hazard

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

5.3.14.2 Location and Extent of Hazard

Trains running through the City of Carpinteria, 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.

5.3.14.3 History of Hazard

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.

5.3.14.4 Probability of Occurrence

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

5.3.14.5 Climate Change Consideration

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

5.3.15 Natural Gas Pipeline Rupture & Storage Facilities

5.3.15.1 Description of Hazard

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

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

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

5.3.15.2 Location and Extent of Hazard

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

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

Figure 5.25 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 5.25: Natural Gas Pipeline and Service Providers in California

5.3.15.3 History of Hazard

No significant historical events to report to date.

5.3.15.4 Probability of Occurrence

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

5.3.15.5 Climate Change Consideration

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

5.3.16 Tsunami

5.3.16.1 Description of Hazard

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

5.3.16.2 Location and Extent of Hazard

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.

5.3.16.3 History of Hazard

The relative threat for local tsunamis in the City of Carpinteria can be considered low due to low recurrence frequencies. Large, locally-generated tsunamis are estimated to occur once every 100 years. Thirteen possible tsunamis have been observed or recorded from local earthquakes between 1812 and 1988. These tsunami events were poorly documented and some are very questionable. There is no doubt that earthquakes occurring along submarine faults off the coast 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 area 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.

5.3.16.4 Probability of Occurrence

The University Of Southern California (USC) Tsunami Research Group has modeled areas in Santa Barbara County that could potentially be inundated in the event of a tsunami. This model is based on potential earthquake sources and hypothetical extreme undersea, near-shore landslide sources. The data was mapped by Cal OES for the purpose of Tsunami Evacuation Planning. Extreme tsunami inundation areas were mapped and used to profile maximum potential exposure. The figure below (**Figure 5.26**) 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: Santa Barbara County Tsunami Inundation Area

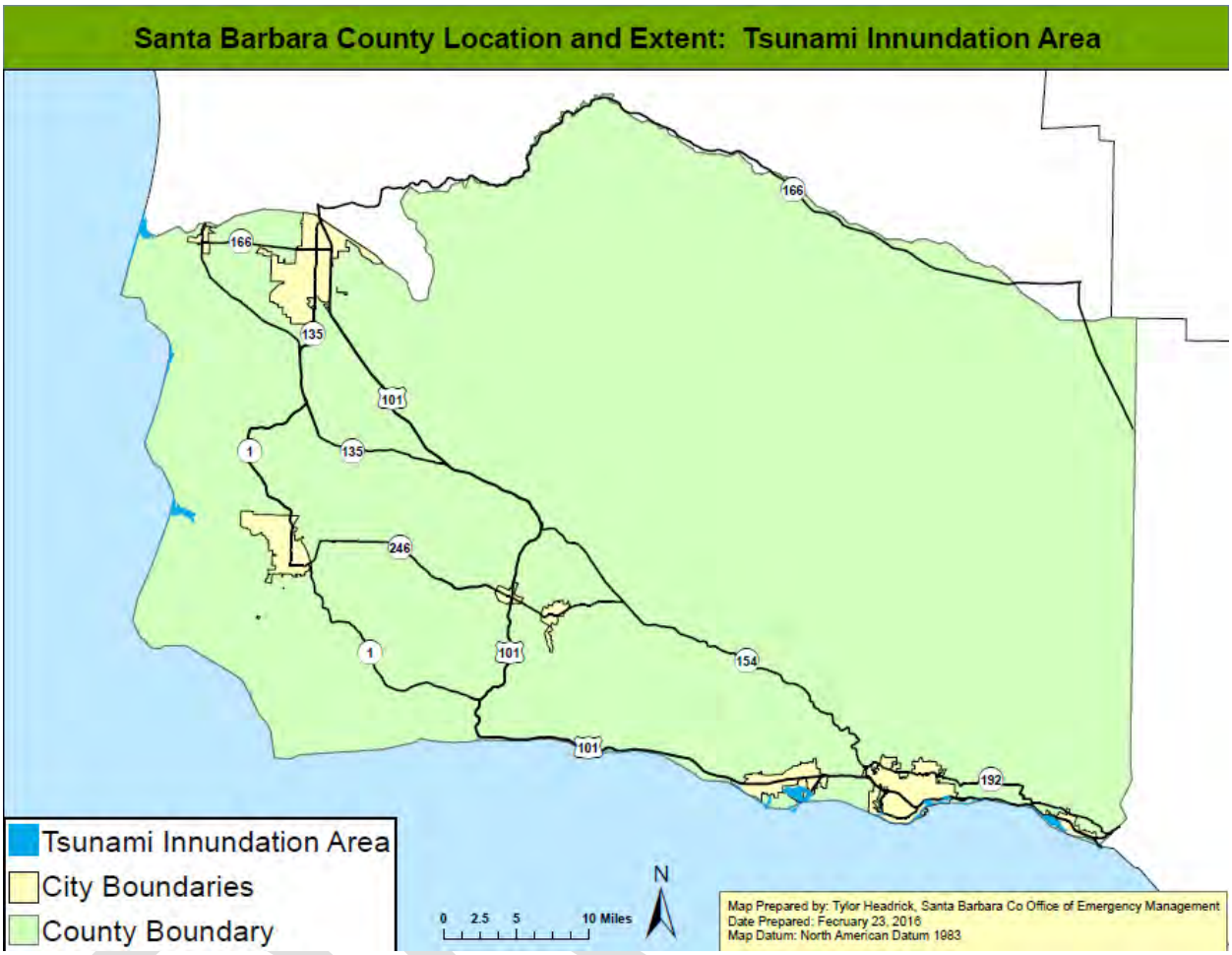
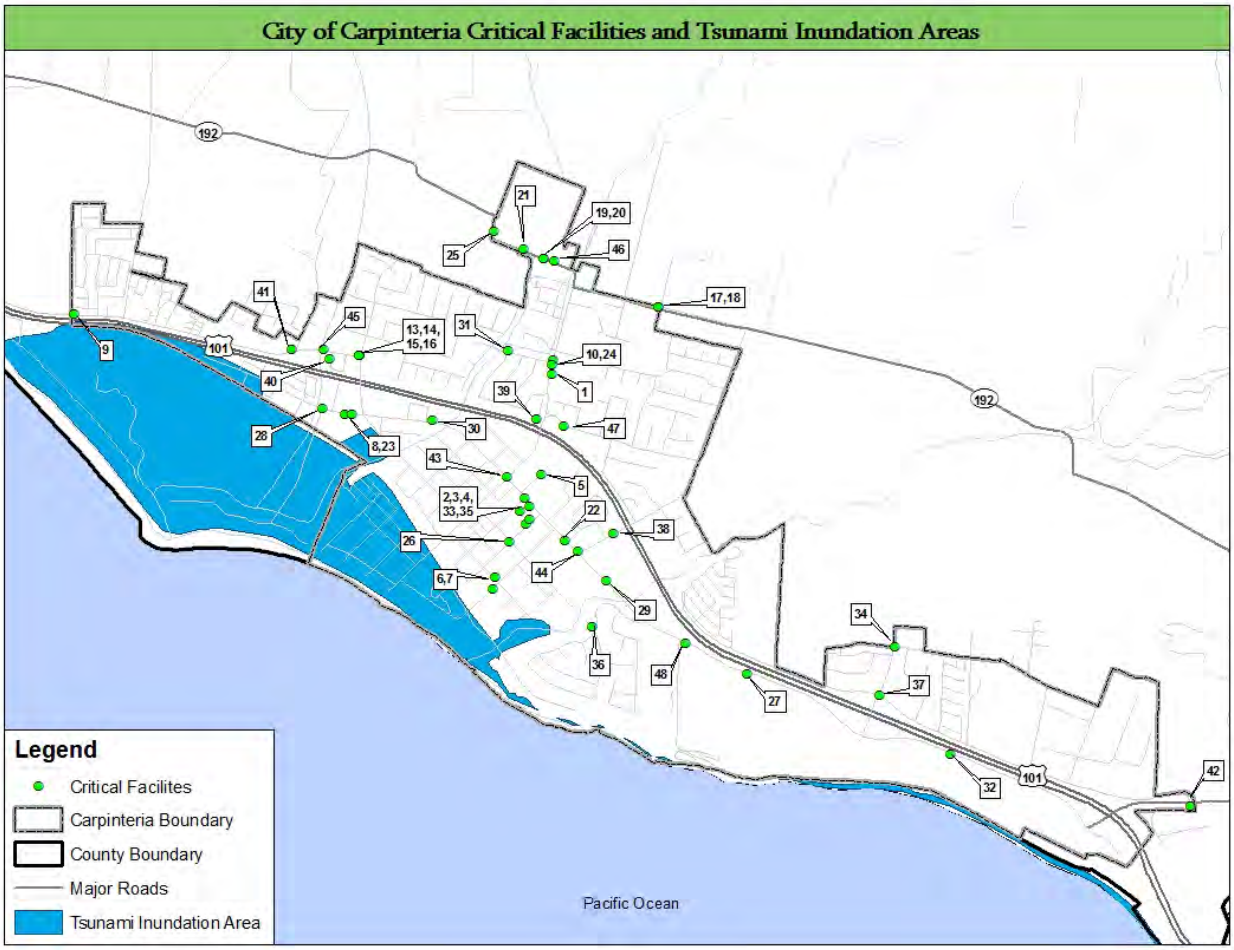


Figure 5.27: City of Carpinteria Tsunami Inundation Areas



Source: Tsunami Runup Limits, Santa Barbara County GIS available at http://www.countyofsb.org/itd/gis/default.aspx?id=2802&ekmensel=e2f22c9a_486_496_btnlink, September 2009.

Based on the tsunami inundation map above (**Figure 5.27**), several areas along the coast of Carpinteria have the potential to be inundated by a tsunami. However, since the probability of an earthquake occurring is rare, the probability of a tsunami is also rare.

5.3.16.5 Climate Change Consideration

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

5.3.17 Civil Disturbance

5.3.17.1 Description of Hazards

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

5.3.17.2 Location and Extent of Hazard

Civil Disturbance can occur anywhere, however, it will generally be located within larger metropolitan areas.

5.3.17.3 History of Hazard

There is no data in the City of Carpinteria regarding civil disturbances.

5.3.17.4 Probability of Occurrence

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

5.3.17.5 Climate Change Consideration

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

5.3.18 Marine Invasive Species

5.3.18.1 Description of Hazard

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

Colorado River Aqueduct System and California waterways, and the propagation of aquatic weeds, such as water hyacinth, in the California Delta.

5.3.18.2 Location and Extent of Hazard

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

5.3.18.3 History of Hazard

In 2015, the start of crab-fishing was delayed for several month's due to a massive coastal algae bloom fueled by El Nino. The potentially fatal toxin delayed caused the delay causing several businesses to suffer economic loss.

5.3.18.4 Probability of Occurrence

There is always a potential for threat of indigenous species occurrence that is subject to many factors in Carpinteria's coastal area.

5.3.18.5 Climate Change Consideration

With the climate change water temperature can rise and fall; causing disruption to the ecosystem of the ocean. This can cause many instances of invasive marine life to cause ecological and economic devastation throughout the City's coastline.

Section 6 VULNERABILITY ASSESSMENT

6.1 OVERVIEW

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

6.1.1 Scientific Loss Estimation Models

To assess potential impacts on infrastructure and the population in the County and incorporated cities, earthquake and flood scenarios have been analyzed using Hazus[5], FEMA's geographic information system (GIS) based, standardized, multi-hazard earthquake, flood and hurricane loss estimation methodology and software. The latest version of Hazus (Hazus 3.0, released in November, 2015) has been used to conduct the county-wide earthquake and flood risk assessments. Hazus' standard configuration allows for "out-of-the-box" regional or community-wide loss assessment using default ("Level 1") building inventory databases, aggregated to the census tract (earthquake) or census block (flood) level. A summary of Hazus' default building inventory data for Santa Barbara County, and the City of Carpinteria, are given in **Table 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 6.2** 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).

[5] For more information on Hazus, see: http://www.fema.gov/hazus

Table 6.1: Hazus 3.0 Default Building Inventory Data for Santa Barbara County and the City of Carpinteria, by General Occupancy

Jurisdiction	General Occupancy	Building Replacement Value ($1,000)	Contents Replacement Value ($1,000)	Building Square Footage (1,000 Sq. Ft.)	Building Count
Santa Barbara County	Residential	$34,724,716	$17,364,871	231,312	116,304
	Commercial	$6,387,442	$6,837,941	38,617	7,325
	Industrial	$1,307,134	$1,815,947	9,609	1,934
	Other	$1,805,563	$1,905,059	11,455	1,810
	Total	**$44,224,855**	**$27,923,818**	**290,993**	**127,373**
City of Carpinteria	Residential	$1,062,997	$531,565	7,385	3,776
	Commercial	$271,769	$281,018	1,654	311
	Industrial	$73,145	$104,668	555	80
	Other	$82,225	$82,225	630	66
	Total	**$1,490,136**	**$999,476**	**630**	**4,233**
	% of County Total	33.8%	31.9%	33.1%	35.2%

Table 6.2: Hazus 3.0 Default Building Inventory Data for Santa Barbara County and the City of Carpinteria, by General Building Type

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

City of Carpinteria	Concrete	$85,015	5.7%	90	2%
	Manufactured Housing	$31,845	2.1%	592	14%
	Precast Concrete	$76,345	5.1%	86	2%
	Reinforced Masonry	$115,651	7.8%	144	3%
	Steel	$112,689	7.6%	110	3%
	Unreinforced Masonry	$27,259	1.8%	30	1%
	Wood Frame (Other)	$60,691	4.1%	73	2%
	Wood Frame (Single-family)	$980,643	65.8%	3,108	73%
	TOTAL	**$1,490,138**		**4,233**	

The lifeline inventory within HAZUS-MH is divided between transportation and utility lifeline systems. There are seven transportation systems that include highways, railways, light rail, buses, ports, ferries and airports; and six utility systems that include potable water, wastewater, natural gas, crude & refined oil, electric power, and communications. The lifeline inventory data are provided in **Tables 6-3** and **Table 6-4**.

Table 6-3: 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 6-4: Utility System Lifeline Inventory

System	Component	# Locations/ Segments	Replacement value (millions of dollars)
Potable Water	Distribution Lines	NA	**323.20**
	Facilities	0	**0.00**
	Pipelines	0	**0.00**
		Subtotal	**323.20**
Waste Water	Distribution Lines	NA	**193.90**
	Facilities	8	**628.70**
	Pipelines	0	**0.00**
		Subtotal	**822.60**
Natural Gas	Distribution Lines	NA	**129.30**
	Facilities	0	**0.00**
	Pipelines	0	**0.00**
		Subtotal	**129.30**

Oil Systems	Facilities	2	**0.20**
	Pipelines	0	**0.00**
		Subtotal	**0.20**
Electrical Power	Facilities	4	**519.20**
		Subtotal	**519.20**
Communication	Facilities	42	**5.00**
		Subtotal	**5.00**
		TOTAL	**1,799.50**

6.1.2 Analysis of Exposure of Critical Facilities to Hazards

The City of Carpinteria Local Planning Team identified 68 critical facilities as shown in **Table 6.5** below. This list of critical facilities presents the buildings and structures that are the City's primary concern for ensuring resiliency; they include both City owned or operated facilities as well as privately owned and operated facilities. Information for City owned or operated facilities (building replacement cost and building content costs) were reviewed and updated as needed; where available the same information was reviewed and updated for the privately owned or operated facilities.

These facilities primarily included utilities, government, and educational structures. For the vulnerability assessment, structure and content values were available for some, but not all of the critical facilities.

Table 6.5: Critical Facilities in Carpinteria

Facility Name/Description	Building Replacement Value	Contents Value
Carpinteria Fire Station 1	$7,000,000	$150,000
Carpinteria Fire Station 2	$4,000,000	$75,000
Carpinteria Summerland HQ	$0	$60,000
Wastewater Treatment Plant	$60,000,000	
Sewage Pump Station 1	$2,000,000	
Sewage Pump Station 2	$1,500,000	
Sewage Pump Station 4	$1,000,000	
Sewage Pump Station 5	$500,000	
Sewage Pump Station 6	$400,000	
Sewage Pump Station 7	$5,000,000	
Water District Main Office	$1,200,000	$200,000
Water District Maintenance Building	$1,800,000	$466,000

Facility Name/Description	Building Replacement Value	Contents Value
Headquarters Well	$1,500,000	
Headquarters Filtration Plant	$500,000	
Headquarters Well Control Building	$700,000	
Headquarters Well Enclosure	$90,000	
Lateral 10 Booster Station	$10,000	
Foothill Tank	$5,500,000	
Foothill Tank Control Building	$1,500,000	
El Carro Well	$1,500,000	
El Carro Well Filtration Plant	$1,500,000	
Lyon Well	$800,000	
Smillie Well	$400,000	
High School Well	$1,500,000	
High School Well Treatment Plant	$800,000	
Carpinteria Reservoir	COMB	
Carpinteria Reservoir Control Building	COMB	
Lateral 30 Booster Station	$180,000	
Gobernador Booster Station	$58,000	
Gobernador Reservoir	$1,250,000	
Shepard Mesa Tank	$500,000	
Carpinteria High School	$28,535,898	
Carpinteria Middle School	$14,366,233	
Aliso Elementary	$6,457,908	
Canalino Elementary	$10,583,606	
Rincon/Foothill High School	$210,720	
Carpinteria Children's Project @ Main	$4,360,870	
City Hall (Sheriff's Substation, Maintenance)	$4,084,877	$351,910
Bridge #51C-0143	$10,000,000	
Bridge #51C-0172	$10,000,000	
Bridge #51C-0142	$10,000,000	
Bridge #51C-0295	$10,000,000	
Viola Fields Public Facilities	$262,210	
Cavalli Property	$1,320,927	
Monte Vista Park Public Facilities	$59,810	
Veteran's Memorial Building		

Facility Name/Description	Building Replacement Value	Contents Value
8th Street Bridge (Crossing Carpinteria Ck)	$1,000,000	
Highway 101 Corridor & Interchange		
Highway 101 Corridor & Interchange		
Highway 101 Corridor & Interchange		
Highway 101 Corridor & Interchange		
Highway 101 Corridor & Interchange		
Highway 101 Corridor & Interchange		
Downtown "T" Business District	$100,000,000	
Casitas Pass Road Business District		
Eastside Corridor Business Parks		
Westside Corridor Business District		
Santa Monica Business District		
Southern CA Edison - Substation		
Verizon		
Natural Gas Odorant Station (Pita's Point)		
Natural Gas Odorant (Carpinteria Oil & Gas)		
Casitas Pier		
Union Pacific RR & AMTRAK		
Bailard Residential Property	$1,799,574	
CUSD District Office	$781,008	
Carpinteria Valley Museum of History		
Carpinteria Public Library		

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 LPT summarized the remaining hazards which the City is vulnerable and assessed the amount and type of damage that could be expected. This approach was done for Droughts/Water Shortage, Energy Shortage, 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

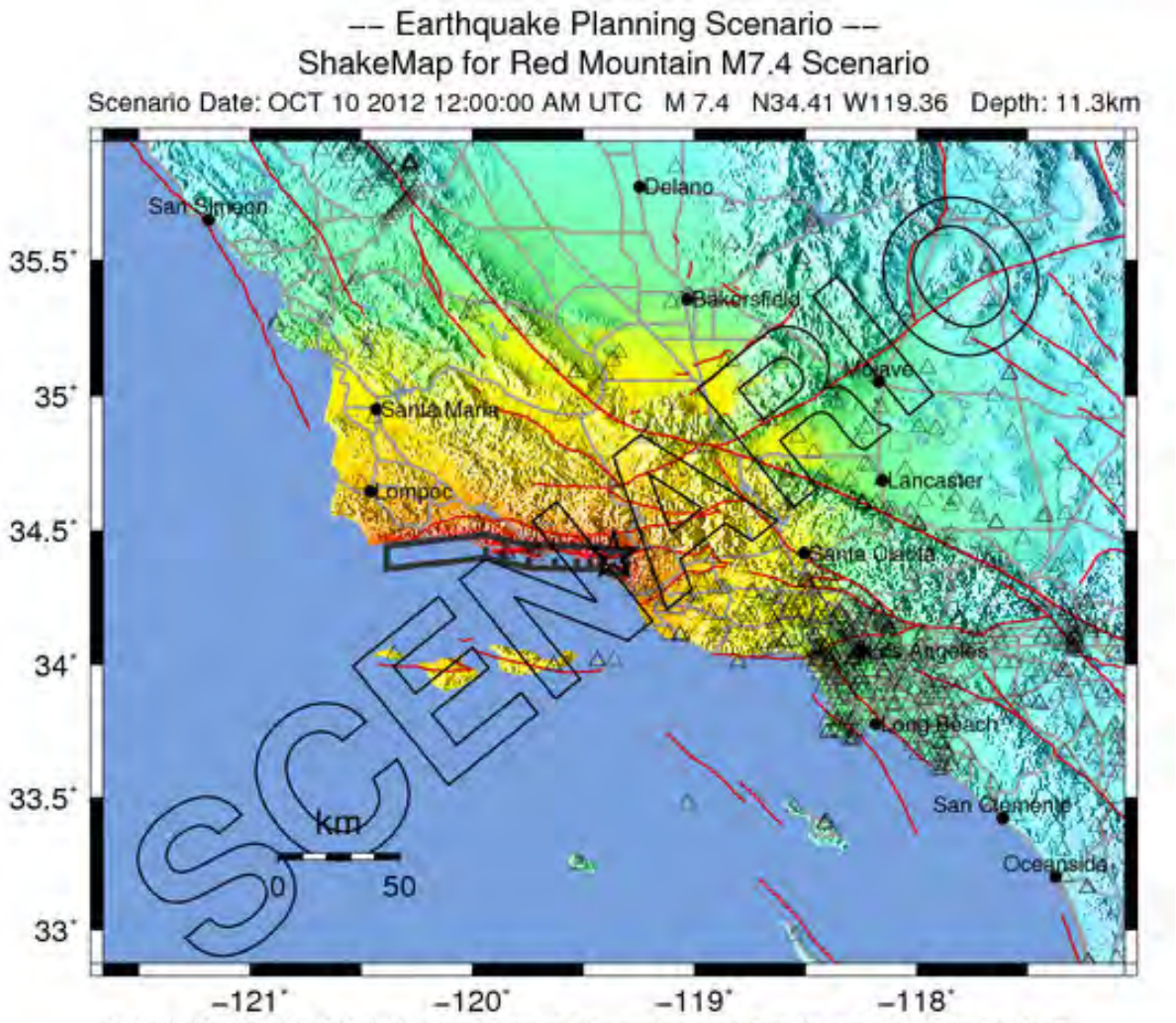
6.2.1 Earthquake and Liquefaction (High Impact/Medium Probability)

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

An earthquake scenario developed by the United States Geological Survey (USGS), as shown in **Figure 6.1** was selected to assess the impact to Carpinteria. County-level and City of Carpinteria maps of ground shaking for this scenario is shown in **Figure 6.2 and Figure 6.3**.

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: USGS ShakeMap Ground Motions for Santa Barbara County for a M7.4 Earthquake on the Red Mountain Fault

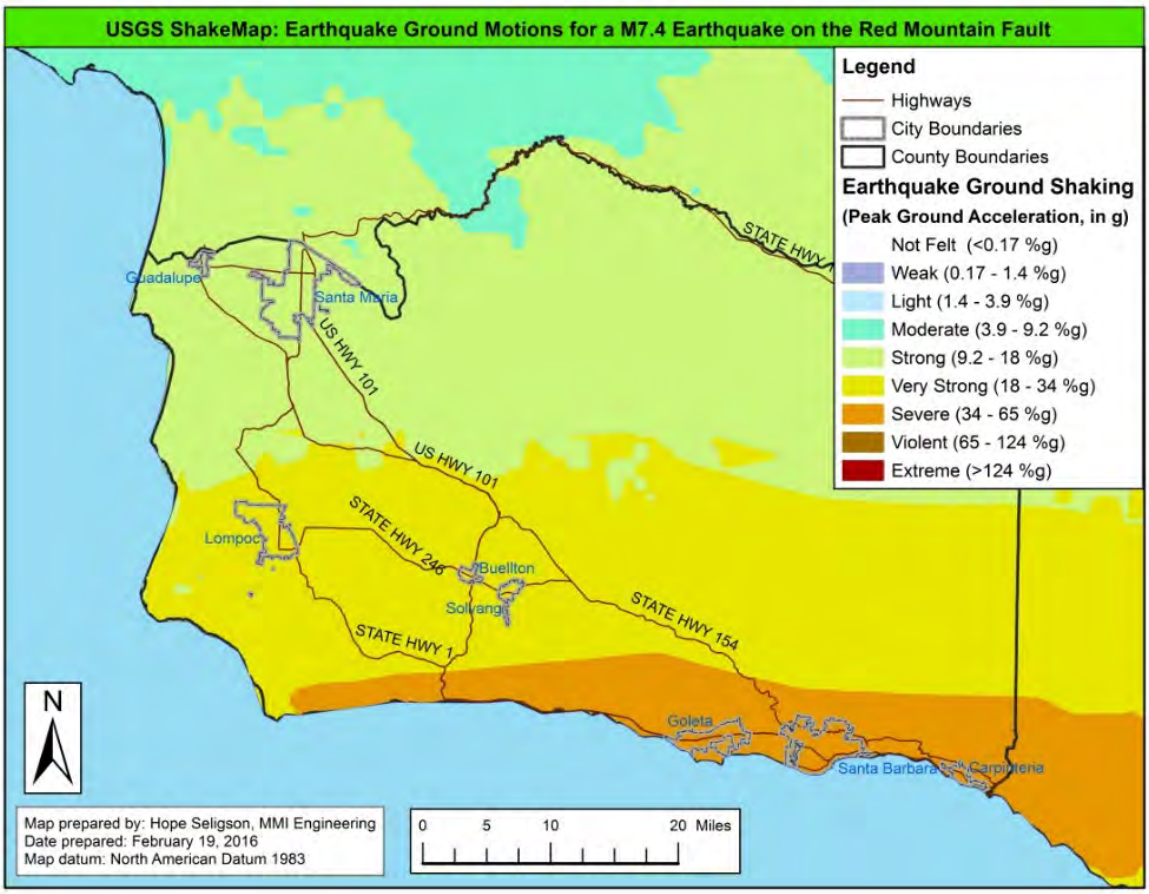
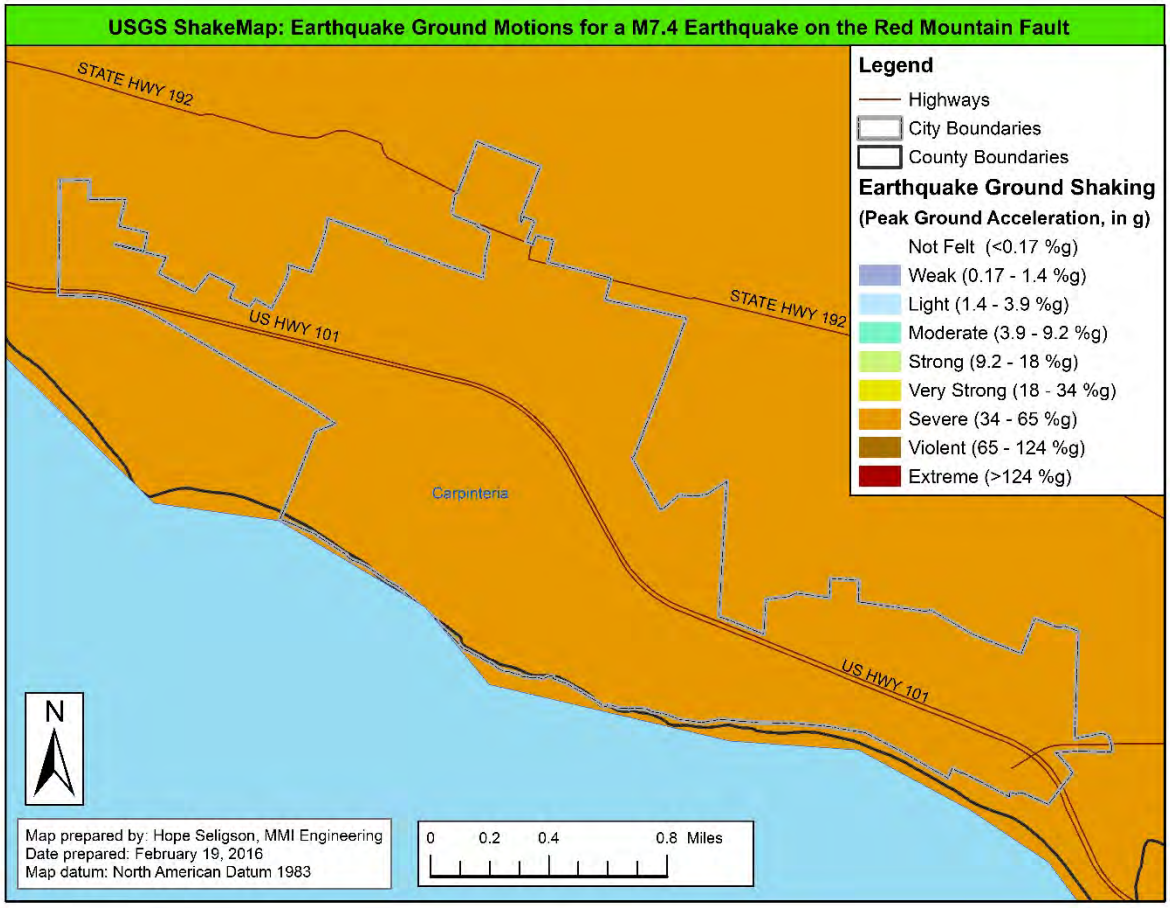


Figure 6.3: USGS ShakeMap Ground Motions for the City of Carpinteria for a M7.4 Earthquake on the Red Mountain Fault



The latest version of Hazus (Hazus 3.0, released in November, 2015) was used to conduct county-wide earthquake risk assessments. The Hazus results, computed at the census tract level, were aggregated to produce city-level impact summaries. An overview of the City results is provided in **Table 6.6**.

Table 6.6: Estimated Impact for Earthquake Scenario Event Affecting the City of Carpinteria

Direct Economic Losses for Buildings ($1,000)		
	Total Building Exposure Value	**1,490,136**
Capital Stock Losses	Cost of Structural Damage	29,038
	Cost of Non-Structural Damage	104,377
	Total Building Damage (Str. + Non-Str.)	**133,415**
	Building Loss Ratio %	9.0%
	Cost of Contents Damage	39,940
	Inventory Loss	1,374
Income Losses	Relocation Loss	11,917
	Capital-Related Loss	10,307
	Rental Income Loss	6,938
	Wage Losses	10,780
	Total Direct Economic Loss	**214,672**
	% Of Countywide Loss	**6.1%**
Casualties		
Day Casualties	**Casualties - 2 pm**	
	Level 1 - minor injuries, basic first aid	80
	Level 2 - hospital treat & release	21
	Level 3 - injuries requiring hospitalization	3
	Level 4 - fatalities	**6**
	Total Casualties	**110**
Night Casualties	**Casualties - 2 am**	
	Level 1 - minor injuries, basic first aid	37
	Level 2 - hospital treat & release	7
	Level 3 - injuries requiring hospitalization	1
	Level 4 - fatalities	**1**
	Total Casualties	**46**
Shelter		
Shelter	Number of Displaced Households	155
	Number of People Requiring Short-term Shelter	103
Debris (thousands of tons)		
Debris	Brick, Wood & Other (Light) Debris	19.3
	Concrete & Steel (Heavy) Debris	40.0
	Total Debris	**59.3**

Table 6.7 provides a breakdown of estimated building damage (building count by Hazus damage state) by general building type, allowing for an understanding of the distribution of predicted damage in the modeled scenarios. Functionality of essential facilities included in the Hazus default database. **Table 6.8** follows with a building damage count by General Building Type. **Table 6.9** shows the predicted essential facility functionality in M7.4 Red Mountain earthquake scenario affecting Carpinteria.

Table 6.7: Building Damage Count by General Building Type (Based on Hazus Default Building Data)

Concrete	None	9
	Slight	26
	Moderate	30
	Extensive	17
	Complete	7
	TOTAL	**89**
Manuf. Housing	None	0
	Slight	6
	Moderate	159
	Extensive	331
	Complete	97
	TOTAL	**593**
Precast Concrete	None	5
	Slight	18
	Moderate	40
	Extensive	19
	Complete	5
	TOTAL	**87**
Reinforced Masonry	None	23
	Slight	40
	Moderate	54
	Extensive	21
	Complete	5
	TOTAL	**143**
Steel	None	4
	Slight	15
	Moderate	43
	Extensive	36
	Complete	11
	TOTAL	**109**
Unrei nforc	None	1
	Slight	4

	Moderate	10
	Extensive	9
	Complete	5
	TOTAL	**29**

Table 6.8: Building Damage Count by General Building Type (Based on Hazus Default Building Data, Continued)

Wood Frame (Other)	None	8
	Slight	29
	Moderate	27
	Extensive	8
	Complete	2
	TOTAL	**74**
Wood Frame (Single-family)	None	728
	Slight	1921
	Moderate	454
	Extensive	4
	Complete	0
	TOTAL	**3,107**
ALL BUILDING TYPES	None	778
	Slight	2,059
	Moderate	817
	Extensive	445
	Complete	132
	TOTAL	**4,231**

Table 6.9: Predicted Essential Facility Functionality in M7.4 Red Mountain Earthquake Scenario Affecting Carpinteria

Fire Stations	**Carpinteria-Summerland Fire Protection District**	
	Total Number of Facilities in Hazus Default Database*	**2**
	Default Structural Class and Design Level	**W1 (Wood Frame ≤ 5,000 SqFt), Moderate Code Design Level**
	Damage:	
	# Facilities with >50% Probability of Moderate or Greater Damage	0
	# Facilities with >50% Probability of Complete Damage	0
	Functionality:	
	Functionality < 50 % on Day 1	2
	Functionality 50 - 75% on Day 1	0
	Functionality >75% Day 1	0
Police Stations	**Santa Barbara County Sheriff****	
	Total Number of Facilities in Hazus Default Database	**1 (Coastal Bureau)**
	Default Structural Class and Design Level	**W1 (Wood Frame ≤ 5,000 SqFt), Moderate Code Design Level**
	Damage:	
	# Facilities with >50% Probability of Moderate or Greater Damage	0
	# Facilities with >50% Probability of Complete Damage	0
	Functionality:	
	Functionality < 50 % on Day 1	1
	Functionality 50 - 75% on Day 1	0
	Functionality >75% Day 1	0
Schools	**Carpinteria Unified School District**	
	Total Number of Facilities in Hazus Default Database	**9 Schools**
	Default Structural Class and Design Level	**W1 (Wood Frame ≤ 5,000 SqFt), High Code Design Level**
	Damage:	
	# Facilities with >50% Probability of Moderate or Greater Damage	0
	# Facilities with >50% Probability of Complete Damage	0
	Functionality:	
	Functionality < 50 % on Day 1	9
	Functionality 50 - 75% on Day 1	0

	Functionality >75% Day 1	0
	** The default fire station database was revised to include missing stations* *** County Sheriff Station performance is also reported on the Unincorporated County Risk Assessment Report*	

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 6.4** and the City of Carpinteria 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 City of Carpinteria. **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 and the City of Carpinteria. **Table 6.13** depicts the predicted essential facility functionality affecting the City of Carpinteria.

Figure 6.4: Hazus-Estimated Flood Depths for a 1-percent Annual Chance (100-year) Flood

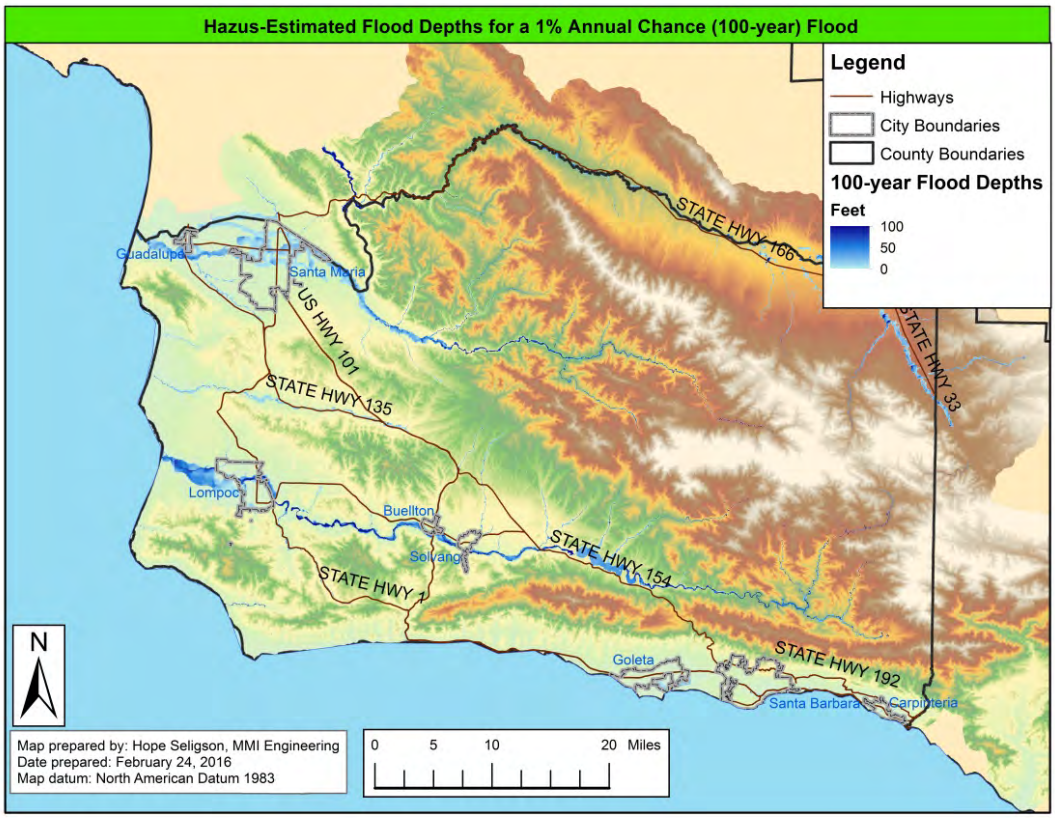


Figure 6.5: Carpinteria -100 year flood depths

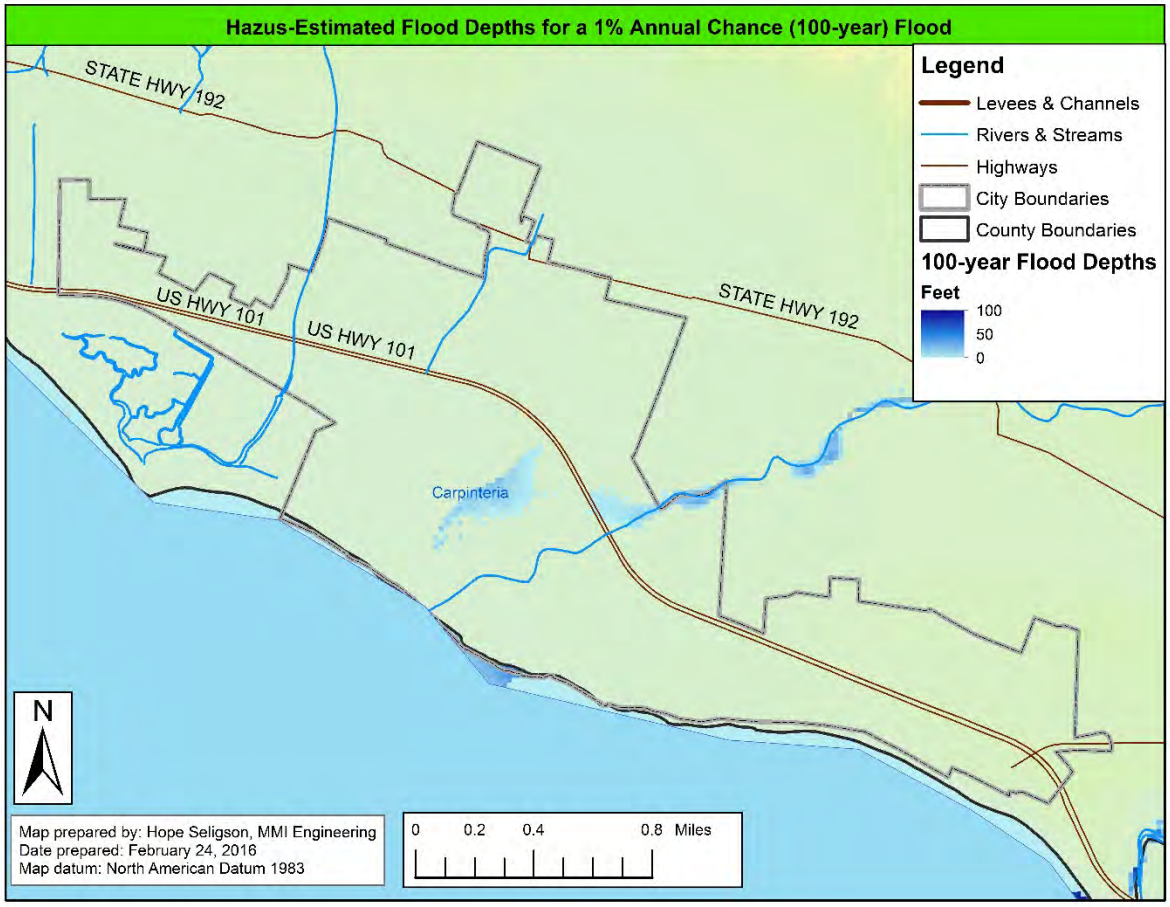


Table 6.10: Hazus-Estimated Impacts for the 1-Percent Annual Chance (100-Year) Flood Scenario Affecting Santa Barbara County and the City of Carpinteria

		Santa Barbara County	City of Carpinteria
Direct Economic Losses for Buildings ($1,000)			
	Total Building Exposure Value	**44,224,855**	**1,490,136**
Capital Stock Losses	Total Building Damage	549,710	1,749
	Building Loss Ratio %	1.2%	0.1%
	Cost of Contents Damage	566,373	1,784
	Inventory Loss	9,022	22
Income Losses	Relocation Loss	1,624	7
	Capital-Related Loss	1,736	13
	Rental Income Loss	472	0
	Wage Losses	2,880	22
	Total Direct Economic Loss	**1,131,817**	**3,597**
	% Of Countywide Loss	100.0%	0.3%
Shelter			
Shelter	Displaced Population	57,963	313
	Number of People Requiring Short-term Shelter	54,248	266
Debris (thousands of tons)			
Debris	Finishes	41.3	0.2
	Structures	7.8	0.0
	Foundations	7.7	0.1
	Total Debris	**56.7**	**0.3**

Table 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 and the City of Carpinteria

		Santa Barbara County	City of Carpinteria
Building Damage Count in Flooded Census Blocks by Occupancy			
Single Family Homes	None	2,344	22
	1 - 10%	1,775	10
	11 - 20%	2,472	5
	21 - 30%	867	2
	31 - 40%	662	0
	41 - 50%	276	0
	Substantial Damage	196	0
	TOTAL	**8,592**	**39**
Manufactured Housing	None	208	0
	1 - 10%	14	0
	11 - 20%	29	0
	21 - 30%	31	0
	31 - 40%	0	0
	41 - 50%	19	0
	Substantial Damage	76	0
	TOTAL	**377**	**0**
Other Residential	None	70	0
	1 - 10%	8	0
	11 - 20%	23	0
	21 - 30%	8	0
	31 - 40%	0	0
	41 - 50%	0	0
	Substantial Damage	0	0
	TOTAL	**109**	**0**
Commercial	None	16	0
	1 - 10%	42	0
	11 - 20%	47	0
	21 - 30%	4	0
	31 - 40%	0	0
	41 - 50%	0	0
	Substantial Damage	0	0
	TOTAL	**109**	**0**

Table 6.12: (Continued): Estimated Building Damage (Building Count by General Occupancy, by Percent Damage Range) for a 1-percent Annual Chance (100-year) Flood Scenario Affecting Santa Barbara County

		Santa Barbara County	Unincorporated County
Building Damage Count in Flooded Census Blocks by Occupancy			
Industrial	None	0	0
	1 - 10%	1	0
	11 - 20%	4	0
	21 - 30%	0	0
	31 - 40%	0	0
	41 - 50%	0	0
	Substantial Damage	1	0
	TOTAL	**6**	**0**
Other Occupancies	None	4	0
	1 - 10%	6	0
	11 - 20%	1	0
	21 - 30%	0	0
	31 - 40%	0	0
	41 - 50%	0	0
	Substantial Damage	1	0
	TOTAL	**12**	**0**
ALL OCCUPANCIES	None	2,642	22
	1 - 10%	1,846	10
	11 - 20%	2,576	5
	21 - 30%	910	2
	31 - 40%	662	0
	41 - 50%	295	0
	Substantial Damage	274	0
	TOTAL	**9,205**	**39**

Table 6.13: Predicted Essential Facility Functionality for a 1-percent Annual Chance (100-year) Flood Scenario Affecting the City of Carpinteria

FACILITY TYPE		
Fire Stations	**Carpinteria-Summerland Fire Protection District**	
	Total Number of Facilities in Hazus Default Database*	**2**
	Flood Exposure	
	# facilities located within flooded areas	0
	Damage:	
	# Facilities with Moderate or Greater Damage	0
	# Facilities with Substantial Damage	0
	Functionality:	
	# facilities expected to be non-functional on Day 1	0
Police Stations	**Santa Barbara County Sheriff****	
	Total Number of Facilities in Hazus Default Database	**1 (Coastal Bureau)**
	Flood Exposure	
	# facilities located within flooded areas	0
	Damage:	
	# Facilities with Moderate or Greater Damage	0
	# Facilities with Substantial Damage	0
	Functionality:	
	# facilities expected to be non-functional on Day 1	0
Schools	**Carpinteria Unified School District**	
	Total Number of Facilities in Hazus Default Database	**9 Schools**
	Flood Exposure	
	# facilities located within flooded areas	3
	Damage:	
	# Facilities with Moderate or Greater Damage	3
	# Facilities with Substantial Damage	0
	Functionality:	
	# facilities expected to be non-functional on Day 1	3
	** The default fire station database was revised to include missing stations* *** County Sheriff Station performance is also reported on the Unincorporated County Risk Assessment Report*	

6.3 Critical Facilities Analysis

6.3.1 Critical Facilities and Vulnerability

Table 6.14 below presents the mapped critical facilities. The Map ID number for each critical facility corresponds to those found on the following maps showing the location of the critical facilities in relation to the County's profiled hazards. Using a GIS and the data shown in these maps, it was determined which critical facilities are exposed to which hazards by whether or not they fall within the mapped hazard area. **Table 6.15** shows the impact to the City of Carpinteria's critical facilities by threat. It is worth noting that a majority of the City of Carpinteria's critical facilities evaluated were at least moderately impacted by the following threats:

- FEMA Flood Zone
- Wildland Urban Interface
- Fire Threat
- Groundwater/Liquefaction Severity

A full description of the threats in the table below is provided in Section 5 of the countywide mitigation plan. As the City continues to assess its vulnerability to the identified hazards, the collection of better data will help to improve the risk assessment process in order to direct planning and mitigation decisions.

Table 6.14: Critical Facilities List Map ID

Map ID	Critical Facility	Type	Address	Bldg. Value	Contents Value	Total Value
1	CUSD District Office	Education	1400 Linden Ave	$ 781,008		$ 781,008
2	Carpinteria Valley Museum of History	Education	956 Maple Ave			
3	Carpinteria Public Library	Education	5141 Carpinteria Ave			
4	Carpinteria Fire Station 1	Government	911 Walnut Ave	$ 7,000,000	$ 150,000	$ 7,150,000
5	Carpinteria Summerland HQ	Government	1140 Eugenia Pl		$ 60,000	$ 60,000
6	Wastewater Treatment Plant	Government	5300 Sixth St	$ 60,000,000		$ 60,000,000

Map ID	Critical Facility	Type	Address	Bldg. Value	Contents Value	Total Value
7	Sewage Pump Station 1	Government	546 Palm Ave	$ 2,000,000		$ 2,000,000
8	Sewage Pump Station 2	Government	4527 Carpinteria Ave	$ 1,500,000		$ 1,500,000
9	Sewage Pump Station 4	Government	3950 Via Real	$ 1,000,000		$ 1,000,000
10	Sewage Pump Station 7	Government	1488 Linden Ave	$ 5,000,000		$ 5,000,000
11	Water District Main Office	Government	1301 Santa Ynez Ave	$ 1,200,000	$ 200,000	$ 1,400,000
12	Water District Maintenance Building	Government	1301 Santa Ynez Ave	$ 1,800,000	$ 466,000	$ 2,266,000
13	Headquarters Well	Utilities	1301 Santa Ynez Ave	$ 1,500,000		$ 1,500,000
14	Headquarters Filtration Plant	Utilities	1301 Santa Ynez Ave	$ 500,000		$ 500,000
15	Headquarters Well Control Building	Utilities	1301 Santa Ynez Ave	$ 700,000		$ 700,000
16	Headquarters Well Enclosure	Utilities	1301 Santa Ynez Ave	$ 90,000		$ 90,000
17	El Carro Well	Utilities	5315 Foothill Rd	$ 1,500,000		$ 1,500,000
18	El Carro Well Filtration Plant	Utilities	5315 Foothill Rd	$ 1,500,000		$ 1,500,000
19	High School Well	Utilities	4859 Foothill Rd	$ 1,500,000		
20	High School Well Treatment Plant	Utilities	4859 Foothill Rd	$ 800,000		

Map ID	Critical Facility	Type	Address	Bldg. Value	Contents Value	Total Value
21	Carpinteria High School	Education	4810 Foothill Rd	$ 28,535,898		$ 28,536,719
22	Carpinteria Middle School	Education	5351 Carpinteria Ave	$ 14,366,233		$ 14,366,805
23	Aliso Elementary	Education	4545 Carpinteria Ave	$ 6,457,908		$ 6,458,376
24	Canalino Elementary	Education	1480 Linden Ave	$ 10,583,606		$ 10,584,175
25	Rincon/Foothill High School	Education	4698 Foothill Rd	$ 210,720		$ 210,800
26	Carpinteria Children's Project @ Main	Education	5201 Eighth St	$ 4,360,870		$ 4,360,908
27	City Hall (Sheriff's Substation, Maintenance)	Government	5775 Carpinteria Ave	$ 4,084,877	$ 351,910	$ 4,084,907
28	Bridge #51C-0143	Government	4488 Carpinteria Ave	$ 10,000,000		$ 10,000,000
29	Bridge #51C-0172	Government	5454 Carpinteria Ave	$ 10,000,000		$ 10,000,000
30	Bridge #51C-0142	Government	4692 Carpinteria Ave	$ 10,000,000		$ 10,000,000
31	Bridge #51C-0295	Government	4824 Malibu Dr	$ 10,000,000		$ 10,000,000
32	Viola Fields Public Facilities	Government	6145 Carpinteria Ave	$ 262,210		$ 262,210
33	Cavalli Property	Government	5103 Carpinteria Ave	$ 1,320,927		$ 1,320,927
34	Monte Vista Park Public Facilities	Government	1100 Bailard Rd	$ 59,810		$ 59,810

Map ID	Critical Facility	Type	Address	Bldg. Value	Contents Value	Total Value
35	Veteran's Memorial Building	Government	941 Walnut Ave			
36	8th Street Bridge (Crossing Carpinteria Ck)	Government	5470 Calle Ocho	$ 1,000,000		$ 1,000,000
37	Highway 101 Corridor & Interchange	Government	1000 Bailard Ave			
38	Highway 101 Corridor & Interchange	Government	1115 Casitas Pass Rd			
39	Highway 101 Corridor & Interchange	Government	1301 Linden Ave			
40	Highway 101 Corridor & Interchange	Government	1234 Cramer Pl			
41	Highway 101 Corridor & Interchange	Government	4290 Via Real			
42	Highway 101 Corridor & Interchange	Government	6500 Camino Carreta			
43	Downtown "T" Business District	Commercial	4994 Carpinteria Ave	$100,000,000		$ 100,000,000
44	Casitas Pass Road Business District	Commercial	1001 Casitas Pass Rd			
45	Santa Monica Business District	Commercial	4410 Via Real			
46	Southern CA Edison - Substation	Utilities	4918 Foothill Rd			
47	Verizon	Utilities	5115 Ogan Rd			

Map ID	Critical Facility	Type	Address	Bldg. Value	Contents Value	Total Value
48	Natural Gas Odorant (Carpinteria Oil & Gas)	Industrial	5675 Carpinteria Ave			

Table 6.15: Impact to Critical Facilities by Threat

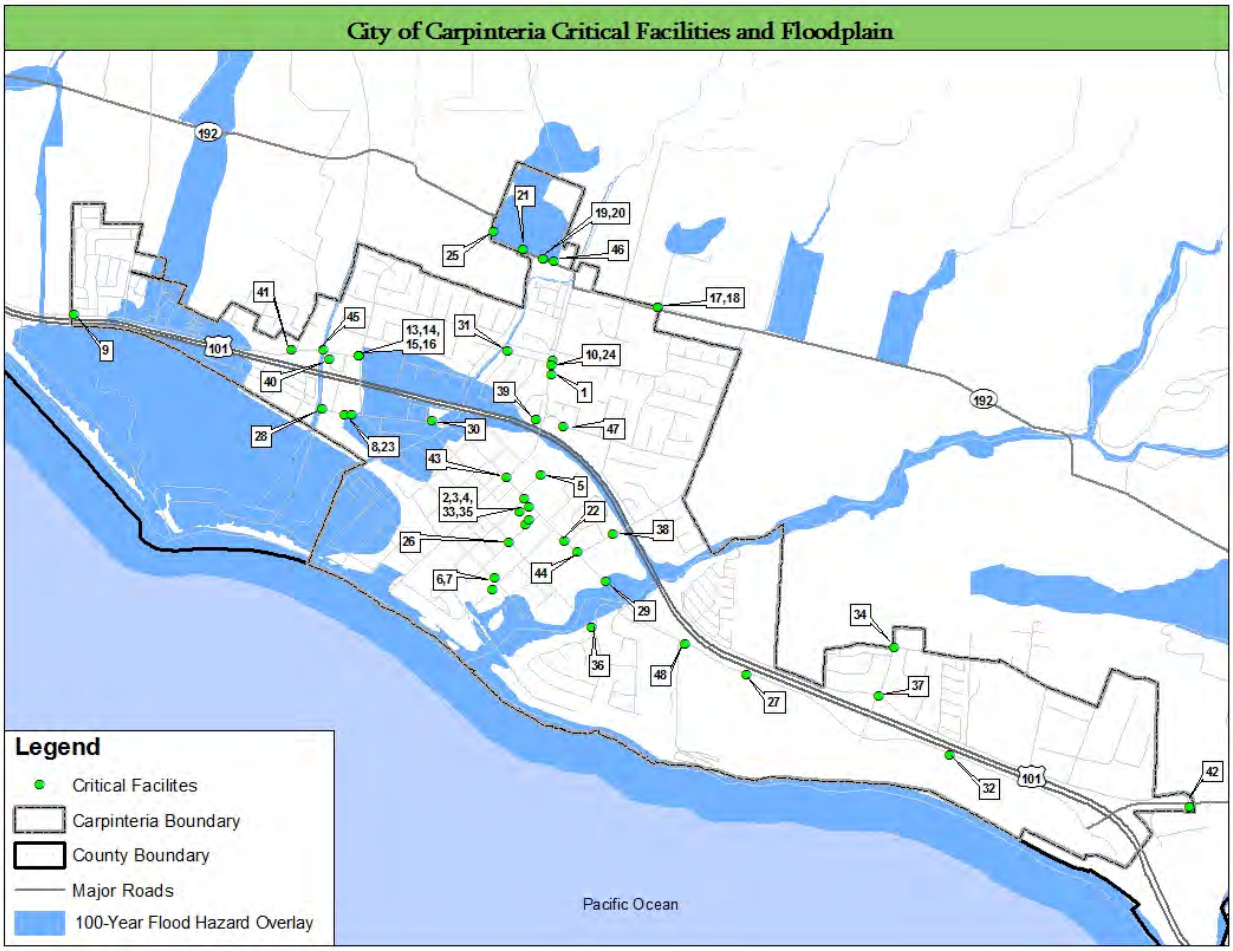
Hazard Type	Specific Risk	Count or (Average)	% of Critical Facilities Impacted	Exposure
Flood				
	FEMA Flood Zone	7	14.5%	$65,205,895
	Flood Overlay Zone	7	14.5%	$65,205,895
Fire				
	Fire Severity Zone	0	0%	$0
	WUI	25	52%	$75,902,822
	Fire Threat	44	92%	$294,981,845
Dam Inundation	Dam inundation zone	0	0%	$0
Landslide	Landslide incidence	0	0%	$0
Earthquake				
	Groundwater/Liquefaction Severity	48	100%	$298,192,645
	Peak Ground Acceleration	(2.45)	N/A	N/A
Tsunami	Tsunami inundation area	0	0%	$0

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

Although Flood and Coastal Surge damage was well delineated in the previous section (Scientific Loss Estimation modeling), the Local Planning Team and the MAC wanted to include additional vulnerability data for the Critical Facilities. The exposure of the critical facilities to 100 Year flood zone is depicted on **Figure 6.6.** t is worth noting that the City of Carpinteria has less

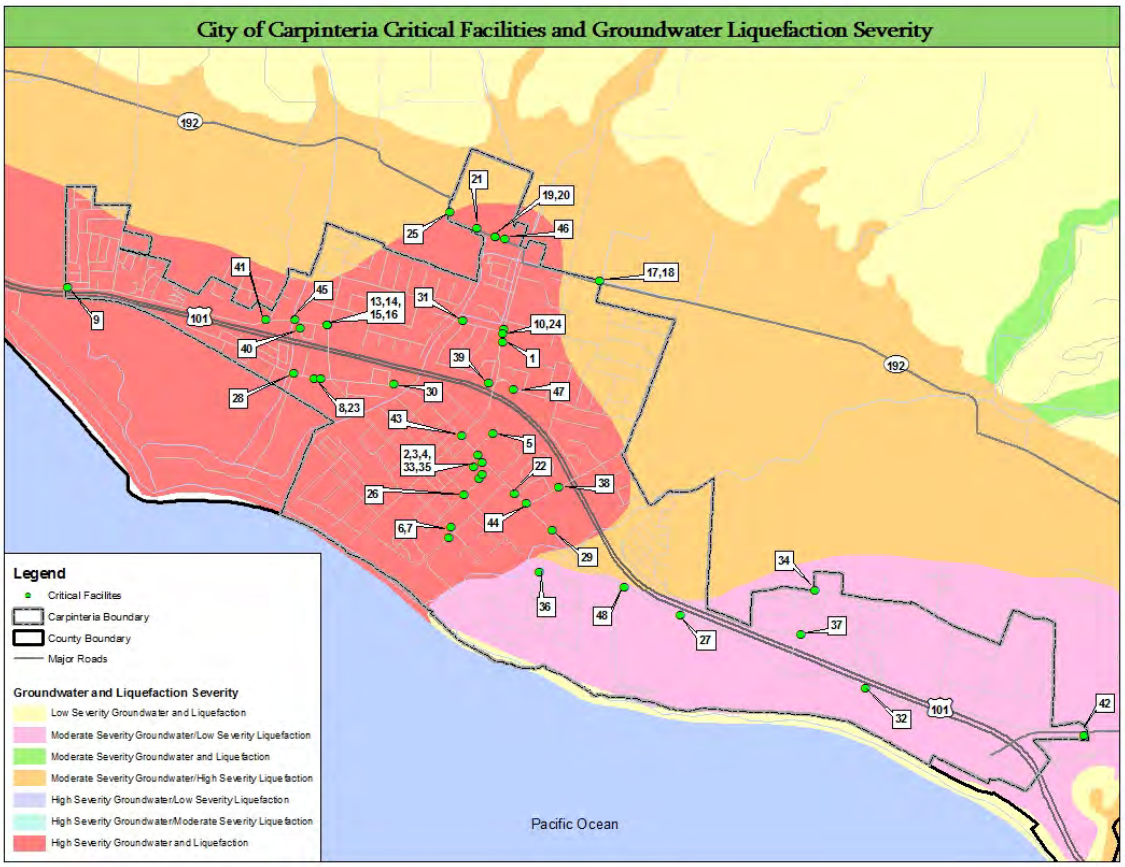
than ten critical facilities located within the 100 year flood zone and could be moderately impacted by a flood event. The City continues to assess its vulnerabilities with the continued collection of data. This will assist in improving the City's risk assessment process in order to direct planning and mitigation decisions.

Figure 6.6: City of Carpinteria Critical Facilities in 100 Year Flood Zone



Source: Overlay – Flood Hazard, Santa Barbara County GIS, available at http://www.countyofsb.org/itd/gis/default.aspx?id=2802, November 23, 2010

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



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

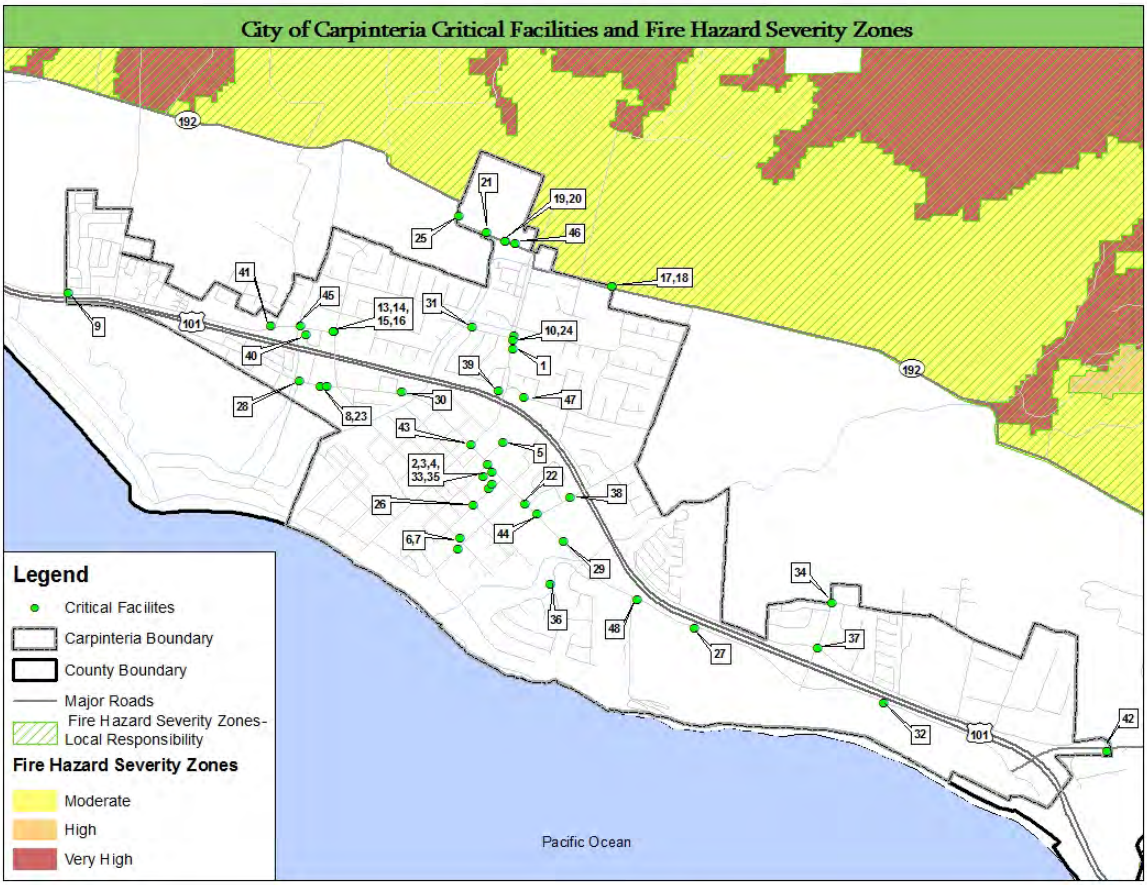
Figure 6.7: Groundwater Liquefaction Severity Zones

Source: Groundwater Liquefaction, Santa Barbara County GIS, available at http://www.countyofsb.org/itd/gis/default.aspx?id=2802, July 15, 2010, originally prepared by Moore and Taber in 1974.

6.3.4 Wildfire *(Medium Impact/High Probability)*

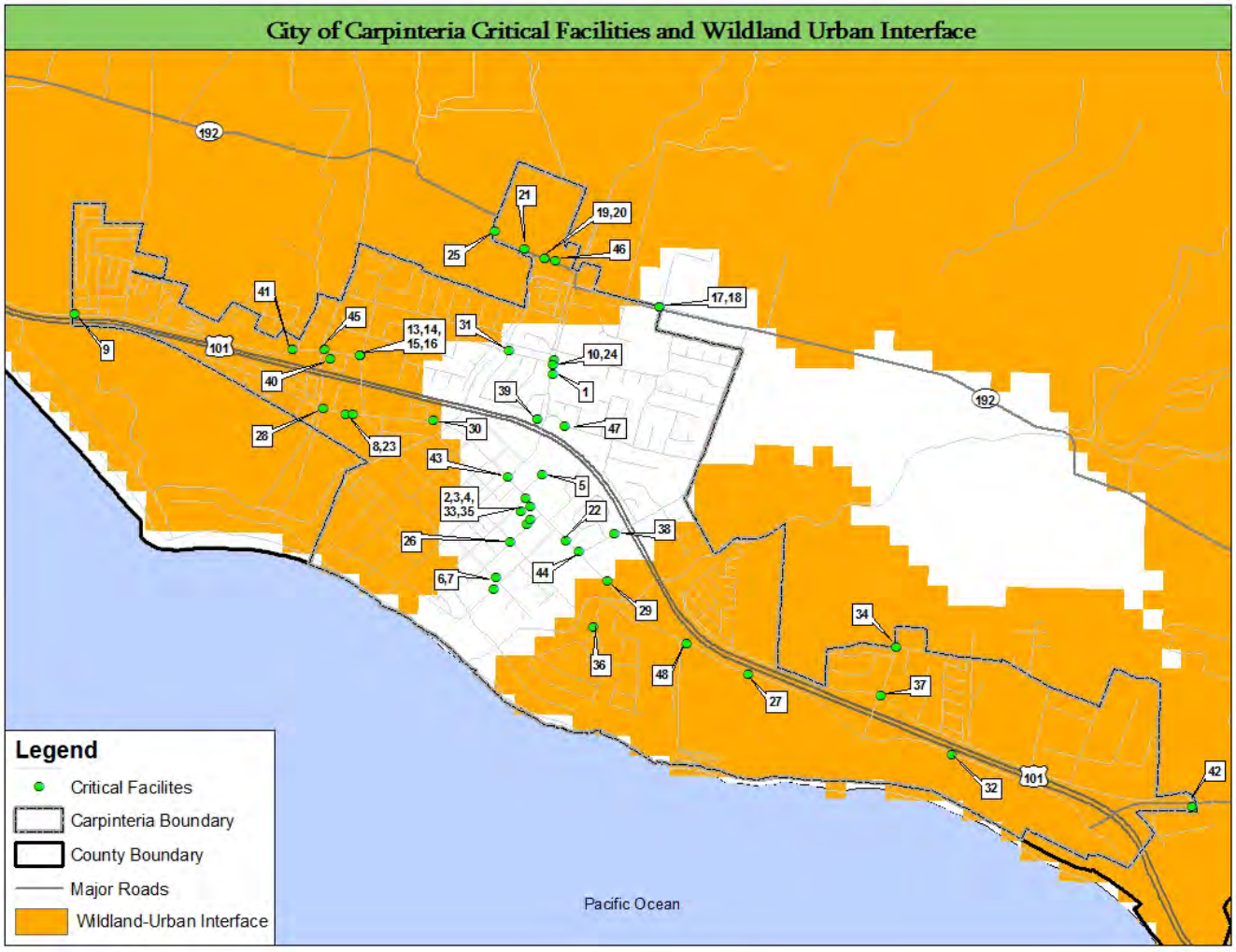
In looking at critical facilities' vulnerability to wildfire, there were three aspects that were evaluated. The first is whether a critical facility is within the Fire Severity Zone (FSZ). The FSZ is mapped by the CA Department of Forestry and Fire Protection. It shows the geographic extents for areas of significant fire hazards based on fuels, terrain, weather, and other relevant factors. The second measure for vulnerability is the Wildland Urban Interface which is the potential treatment zone where projects could be conducted to reduce wildland fire threats to people. For the purposes of this analysis, "within the WUI" represents those critical facilities that are in the geographical area where the three factors of "threat to people", "communities at risk", and "distance to developed areas" intersect. The final measure is that of "Fire Threat". Fire Threat is a combination of the factors of fire frequency and potential fire behavior. The two factors are combined to create five (5) threat classes ranging from "Little or No Threat" to "Extreme". The exposure of the critical facilities to these three measures is indicated in figures (**Figure 6.8**., **Figure 6.9**, and **Figure 6.10**) below. It is worth noting that all critical facilities have at least some threat from one or more of the three measures. Because of this, the exposure has been color coded low too high in a yellow, orange, red scheme to make it easier for the reader to discern the different designations.

Figure 6.8: City of Carpinteria Critical Facilities and Fire Hazard Severity Zones



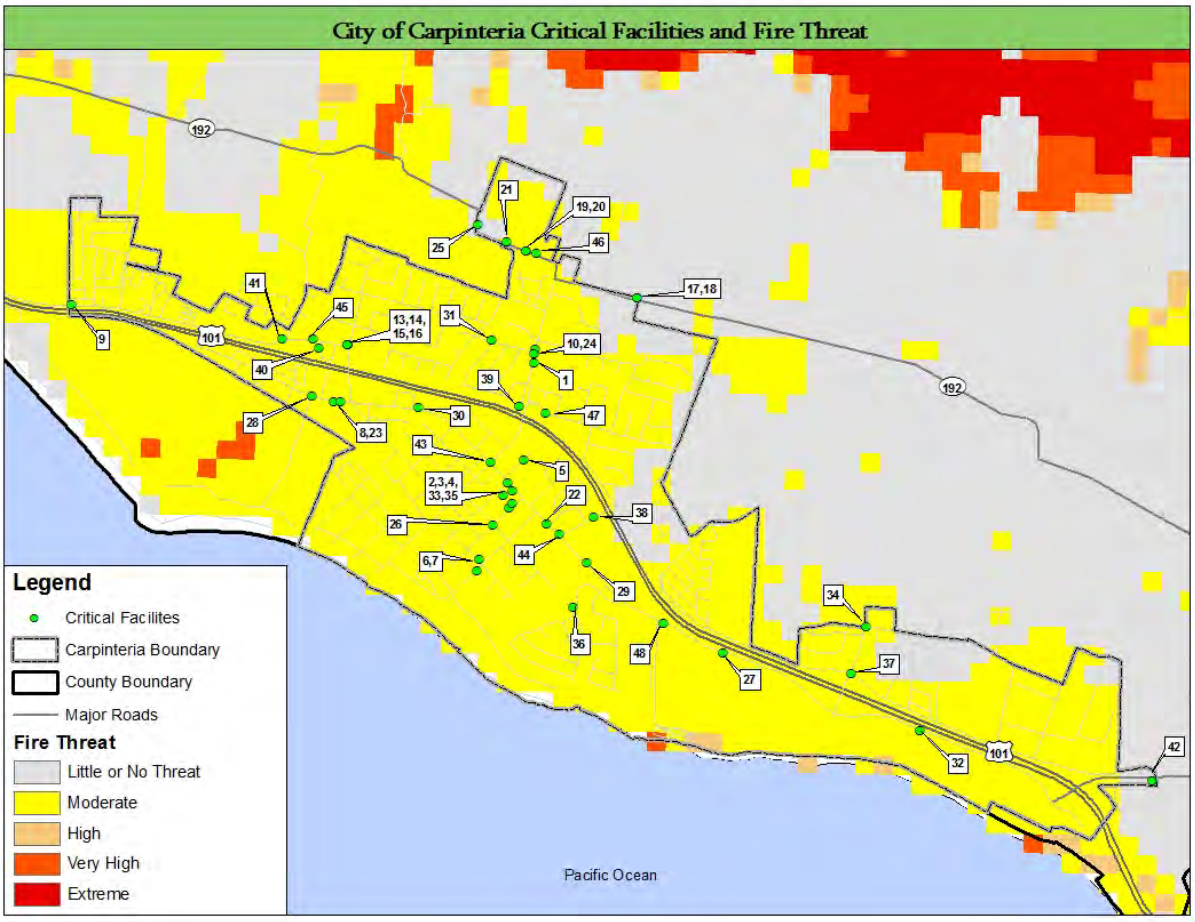
Source: County of Santa Barbara Fire GIS

Figure 6.9: City of Carpinteria Critical Facilities and Wildland Urban Interface



Source: Wildland Urban Interface (WUI) Fire Threat, Fire and Resource Assessment Program (FRAP) available at http://frap.cdf.ca.gov/data/frapgisdata/select.asp?theme=5

Figure 6.10: City of Carpinteria Critical Facilities and Fire Threat



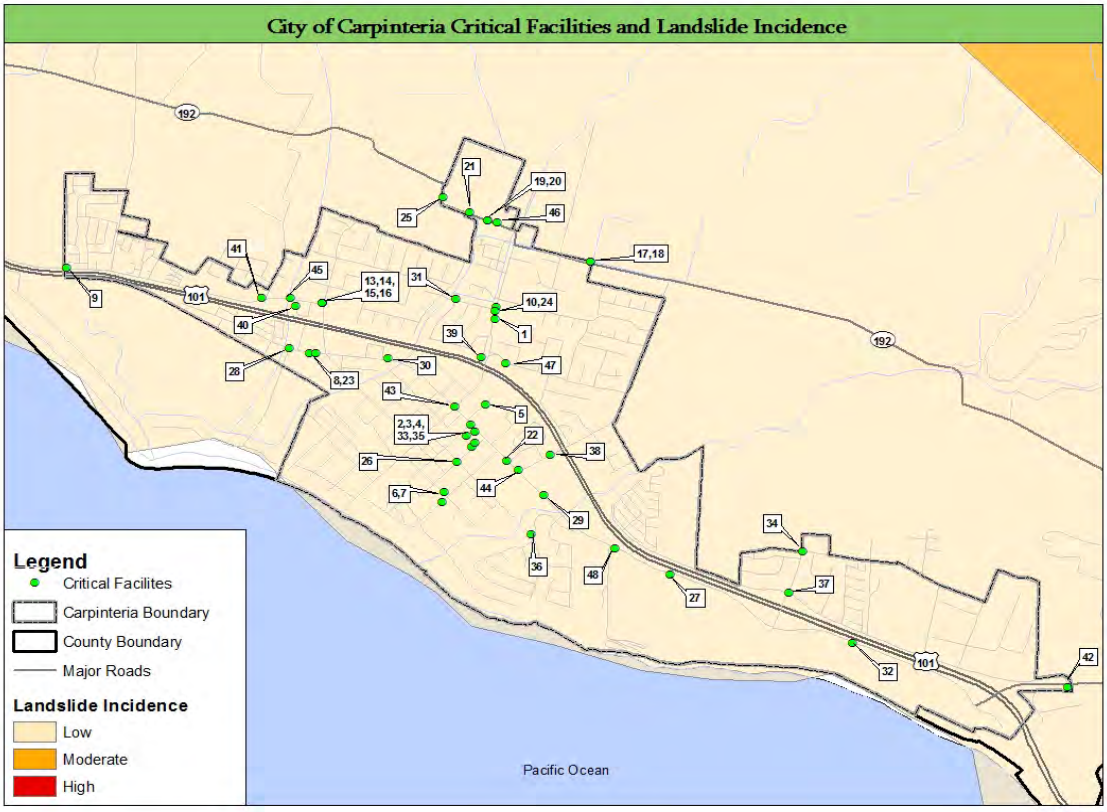
Source: Fire Threat, Fire and Resource Assessment Program (FRAP) available at http://frap.cdf.ca.gov/data/frapgisdata/select.asp?theme=5, 2004

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

In an effort to assess vulnerability for landslides, data was collected from the United States Geological Survey (USGS) that represents landslide incidence and susceptibility. The geographies impacted are categorized into low, moderate, and high zones. These layers were intersected with the critical facilities to estimate exposure and show that there is at least a moderate risk to landslides. **Figure 6-11** depicts the location of those facilities that fall into a moderate risk. Currently in the City of Carpinteria there are no impacts to critical facilities in the landslide areas identified. The City continues to assess

its vulnerabilities with the continued collection of data. This will assist in improving the City's risk assessment process in order to direct planning and mitigation decisions.

Figure 6.11: City of Carpinteria Critical Facilities and Landslide Incidence

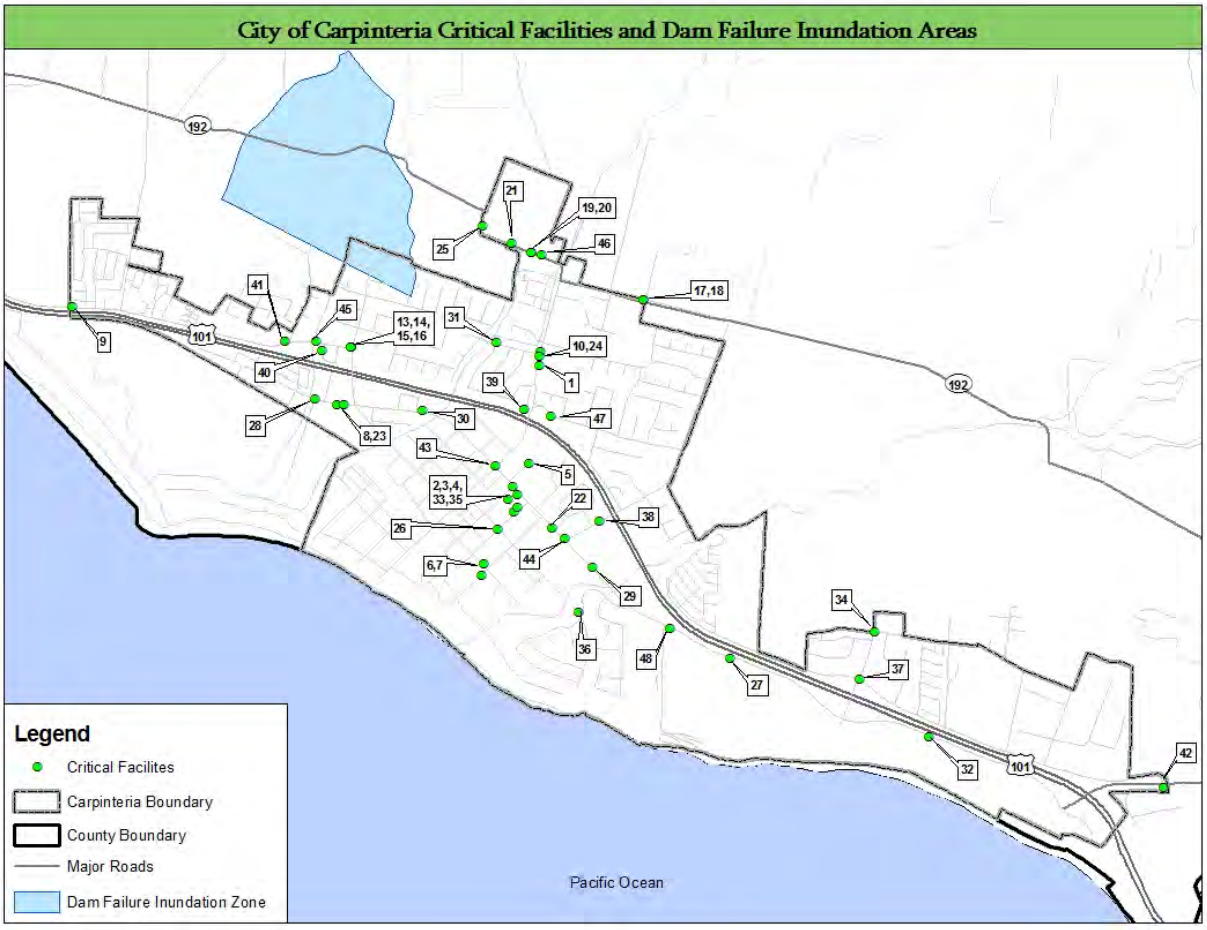


Source: Landslide Incidence and Susceptibility in the Conterminous US, National Atlas available at http://www.nationalatlas.gov/atlasftp.html#lsoverp, September 2002, Prepared by USGS

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. **Figure 6.12** shows that there are no critical facilities within the dam inundation zones near the City of Carpinteria.

Figure 6.12: City of Carpinteria Critical Facilities and Dam Failure Inundation Areas



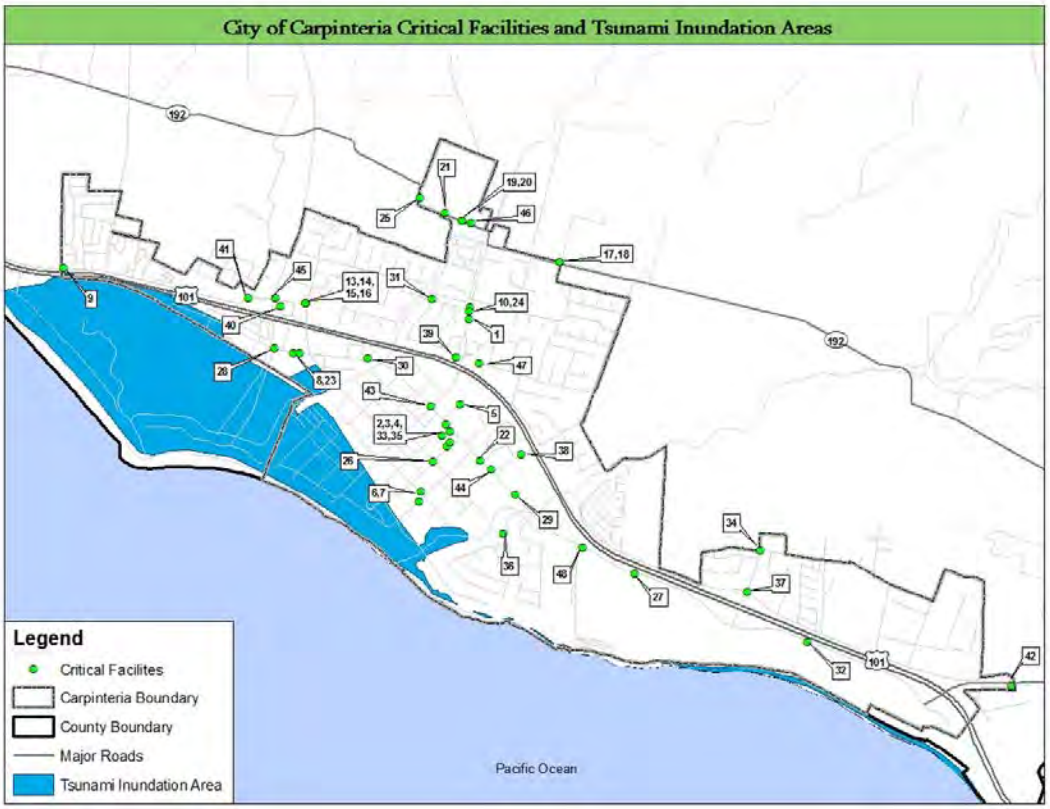
6.3.7 Tsunami *(Medium Impact/Low Probability)*

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 City were compared against the extreme tsunami inundation zone overlay to see whether they fell within the geographic extent of the hazard. When the structures were compared to the tsunami hazard areas, only one facility borders the risk area. **Figure 6.13** depicts the location of the critical facilities in relation to the extreme tsunami inundation zone.

Figure 6.13: City of Carpinteria Critical Facilities and Tsunami Inundation Areas



Source: Tsunami Run-up Limits, Santa Barbara County GIS available at http://www.countyofsb.org/itd/gis/default.aspx?id=2802&ekmensel=e2f22c9a_486_496_btnlink, September 2009.

Infrastructure/Critical Facilities

There is no data regarding Cyber Terrorism and City critical facilities.

SECTION 7 MITIGATION STRATEGY

7.1 MITIGATION GOALS AND OBJECTIVES

The county-wide mitigation priorities are represented by identifying common goals and objectives shown in **Table 7.1**. Using the 2011 HMP, the MAC reviewed and revised the goals and objectives to reflect the current county-wide capabilities, exposure to hazards, and vulnerability assessment findings. As part of the planning process, the City Local Planning Team reviewed and validated these goals and objectives.

Table 7.1: Goals and Objectives

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

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

7.2 MITIGATION ACTION PROGRESS

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

Table 7.2: Previous Mitigation Actions

Action #	Mitigation Action Description	Status	Completion Date	Comments
EQ-1	Work with Venoco, Inc. to research Earthquake Related Risks at the Venoco Oil and Gas Processing Facility	Not started		Will research regulatory requirements pertaining to earthquake preparedness by 2017
EQ-2	Work with So. Calif. Gas Company and the State PUC to review gas pipeline safety documents and to conduct public outreach related to gas pipeline safety	Not started		Will review safety documents and conduct public outreach and education related to pipeline safety on an ongoing basis by 2015
FLD-1	Update Master Drainage Plan	Completed	2015	2007 plan completed in 2015
FLD-2	Update Floodplain Management Ordinance	Completed	2015	Will update current plan as necessary.
FLD-3	Expand participation in NFIP Community Rating System (CRS)	On-going		The City will work actively to expand their participation in the NFIP CRS.
FLD-4	Carpinteria Avenue Bridge Replacement	On-going		The Carpinteria Avenue Bridge Replacement project began in 2011. The projected completion is 2018
GEN-1	Community Emergency Response Team (CERT) Training	On -going		Over 300 CERT Graduates. Two Basic classes offered each year. Advanced classes and refresher classes offered yearly
GEN-2	Create a disaster response supplies warehouse for emergency	Consideration for future		Will secure location and update supplies and materials - budgetary restrictions may apply

	supplies at City Hall			
GEN-3	Provide information to residents to increase community awareness of early warning systems	On-going		Provide information to residents on Reverse 911/NIXLE/Home Alert/RadioReady on an ongoing basis. Santa Barbara County upgraded to a new alert system, Everbridge, in 2016
GEN-4	Conduct Critical Facility Audit	Not started		Will conduct critical facility update by 2017
GEN-5	Update Comprehensive Emergency Response Plan	Completed	2015	The updated plan was completed in 2015. Will continue to update as needed
GEN-6	Conduct community disaster education programming related to general disaster preparedness	Ongoing		Will conduct public outreach related to general disaster preparedness on an ongoing basis.
WDF-3	Perform a Comprehensive Evaluation of all Wildfire Hazard Reduction Programs	Not started		Programs driven by federal grant moneys and ongoing in various phases based on funding
WDF-4	Firewise Community Planning and Prevention Techniques	Completed	2012	The plan was completed in 2012

7.3 MITIGATION ACTIONS

The following table (**Table 7.3**) presents the list of mitigation actions which will be considered and implemented during the life of this plan update. Projects not started or not completed listed above are included.

Table 7.3: Prioritized and Recommended Mitigation Actions

Action #	Mitigation Action Description	Completion Date	Comments
EQ-1	Work with Venoco, Inc. to research Earthquake Related Risks at the Venoco Oil and Gas Processing Facility		Will research regulatory requirements pertaining to earthquake preparedness by 2017
EQ-2	Work with Southern California Gas Company and the State Public Utilities Commission to review gas pipeline safety documents and to conduct public outreach related to gas pipeline safety		Will review safety documents and conduct public outreach and education related to pipeline safety on an ongoing basis by 2017
FLD-3	Expand participation in NFIP Community Rating System (CRS)		The City continues to work actively to expand their participation in the NFIP CRS.
FLD-4	Carpinteria Avenue Bridge Replacement		The Carpinteria Avenue Bridge Replacement project began in 2011. The projected completion is projected to be 2018
FLD-5	Linden/Casitas Interchanges		The Linden Ave and Casitas Pass Road Interchanges Project began in 2009. The projected completion date is 2020

GEN-1	Community Emergency Response Team (CERT) Training		Over 300 CERT Graduates. Two Basic classes offered each year. Advanced classes and refresher classes offered yearly.
GEN-2	Create a disaster response supplies warehouse for emergency supplies at City Hall		Will secure location and update supplies and materials - budgetary restrictions may apply
GEN-3	Provide information to residents to increase community awareness of early warning systems		Provide information to residents on County alert system “Aware & Prepare”. The new system was implemented in 2016
GEN-4	Conduct Critical Facility Audit		An audit was conducted completed in 2011. Updates are made to the existing list as needed.
GEN-5	Update Comprehensive Emergency Response Plan	2015	The updated plan was completed in 2015. Will continue to update as needed
GEN-6	Conduct community disaster education programming related to general disaster preparedness		Will conduct public outreach related to general disaster preparedness on an ongoing basis.
WDF-3	Perform a Comprehensive Evaluation of all Wildfire Hazard Reduction Programs		Programs driven by federal grant moneys and ongoing in various phases based on funding.

7.4 IMPLEMENTATION PLAN

Mitigation Action # EQ-1		
Project Description: Work with Venoco, Inc. to research earthquake related risks at the Venoco Oil and Gas Processing Facility.		
Applicable Hazards		
Significant	**Moderate**	**Limited**
☐ Flooding (including coastal surge) ☐ Wildfire ☐ Agriculture (pests and disease) ☒ Earthquake	☐ Landslide / Coastal Erosion	☐ Dam Failure ☐ Tsunami
Existing and Potential Resources: Regulatory agencies that oversee oil and gas processing facilities will serve as valuable resources related to information collection and dissemination.		
Responsible Department: Emergency Services		
Target Completion Date: 2017		
Additional Comments / Status Report:		

Mitigation Action # EQ-2

Project Description: Work with Southern California Gas Company and the Public Utilities Commission to review pipeline safety documents and to conduct public outreach and education related to pipeline safety.		
Applicable Hazards		
Significant	**Moderate**	**Limited**
☐ Flooding (including coastal surge) ☐ Wildfire ☐ Agriculture (pests and disease) ☒ Earthquake	☐ Landslide / Coastal Erosion	☐ Dam Failure ☐ Tsunami
Existing and Potential Resources: Southern California Gas Company and the State Public Utilities Commission will serve as valuable resources related to information collection and dissemination.		
Responsible Department: Emergency Services		
Target Completion Date: 2017		
Additional Comments / Status Report:		

Mitigation Action # FLD-3

Project Description: Expand participation in NFIP Community Rating System (CRS).		
Applicable Hazards		
Significant	**Moderate**	**Limited**
☒ Flooding (including coastal surge) ☐ Wildfire ☐ Agriculture (pests and disease) ☐ Earthquake	☐ Landslide / Coastal Erosion	☐ Dam Failure ☐ Tsunami
Existing and Potential Resources:		
Responsible Department: Public Works		
Target Completion Date: 2017		
Additional Comments / Status Report: The City continues to work actively to expand their participation in the NFIP CRS.		

Mitigation Action # FLD-4

Project Description: Coordinate Carpinteria Avenue Bridge Replacement		
Applicable Hazards		
Significant	**Moderate**	**Limited**
☒ Flooding (including coastal surge) ☐ Wildfire ☐ Agriculture (pests and disease) ☒ Earthquake	☐ Landslide / Coastal Erosion	☐ Dam Failure ☐ Tsunami
Existing and Potential Resources: Federal Highway Administration – Highway Bridge Program		
Responsible Department: Public Works		
Target Completion Date: 2020		
Additional Comments / Status Report: The Carpinteria Avenue Bridge Replacement Project began in 2011. Bridge construction is expected to begin in 2018 with projected completion in 2020.		

Mitigation Action # FLD-5

Project Description: Coordinate Linden/Casitas Interchanges		
Applicable Hazards		
Significant	**Moderate**	**Limited**
☒ Flooding (including coastal surge) ☐ Wildfire ☐ Agriculture (pests and disease) ☒ Earthquake	☐ Landslide / Coastal Erosion	☐ Dam Failure ☐ Tsunami
Existing and Potential Resources: Federal Highway Administration – Highway Bridge Program		
Responsible Department: Public Works		
Target Completion Date: 2020		
Additional Comments / Status Report: The Linden Ave and Casitas Pass Road Interchanges Project began in 2009. The projected completion date is 2020		

Mitigation Action # GEN-1

Project Description: Provide training opportunities for communities to prepare for effective disaster response through the Community Emergency Response Team (CERT) Program. Participation in CERT will allow individuals and groups to be prepared to serve as a crucial resource capable of performing many of the emergency functions needed in the immediate post-disaster time frame.

Applicable Hazards

Significant	**Moderate**	**Limited**
☒ Flooding (including coastal surge) ☒ Wildfire ☐ Agriculture (pests and disease) ☒ Earthquake	☒ Landslide / Coastal Erosion	☒ Dam Failure ☒ Tsunami

Existing and Potential Resources: The CERT Program was started in Carpinteria in 2006. Over 300 individuals have graduated from the CERT Program in Carpinteria and will serve as vital community resources. Community relationship building and program promotion has been strong and we will continue to leverage community resources to engage residents.

Responsible Department: Emergency Services

Target Completion Date: 2020

Additional Comments / Status Report: The CERT program in Carpinteria is expanding to allow CERT volunteers more opportunities to stay engaged with the community. Advanced trainings as well as Train the Trainer opportunities are being added to the training calendar.

Mitigation Action # GEN-2		
Project Description: Create a disaster response supplies warehouse for emergency supplies at City Hall.		
Applicable Hazards		
Significant	**Moderate**	**Limited**
☒ Flooding (including coastal surge) ☒ Wildfire ☐ Agriculture (pests and disease) ☒ Earthquake	☒ Landslide / Coastal Erosion	☒ Dam Failure ☒ Tsunami
Existing and Potential Resources: Work with other city jurisdictions to compile information on how they warehouse disaster response supplies at city facilities for staff and visitors.		
Responsible Department: Emergency Services		
Target Completion Date: 2018		
Additional Comments / Status Report: Budgetary restrictions have made this project a future consideration.		

Mitigation Action # GEN-3		
Project Description: Increase community awareness of early warning systems by providing residents information on County alert systems.		
Applicable Hazards		
Significant	**Moderate**	**Limited**
☒ Flooding (including coastal surge) ☒ Wildfire ☐ Agriculture (pests and disease) ☒ Earthquake	☒ Landslide / Coastal Erosion	☒ Dam Failure ☒ Tsunami
Existing and Potential Resources: We have provided early warning systems information at community disaster education presentations through *Don't Panic! Prepare!* since 2008. We will continue to utilize every opportunity to register residents at AwareandPrepare.org, a new alert system adopted by Santa Barbara County.		
Responsible Department: Emergency Services		
Target Completion Date: On		
Additional Comments / Status Report: In December 2015, the Santa Barbara County Office of Emergency Management adopted a new emergency alert system from Everbridge. This system is using AwareandPrepare.org, a familiar emergency preparedness program name, encouraging the community to opt-in for alerts.		

Mitigation Action # GEN-4		
Project Description: Audit and update the City of Carpinteria's Critical Facility list.		
Applicable Hazards		
Significant	**Moderate**	**Limited**
☒ Flooding (including coastal surge) ☒ Wildfire ☐ Agriculture (pests and disease) ☒ Earthquake	☒ Landslide / Coastal Erosion	☒ Dam Failure ☒ Tsunami
Existing and Potential Resources: The Critical Facility list was audited and updated in 2011. Updates are made to the existing list as needed.		
Responsible Department: Emergency Services		
Target Completion Date: 2020		
Additional Comments / Status Report:		

Mitigation Action # GEN-5		
Project Description: Update the City of Carpinteria's Emergency Response Plan.		
Applicable Hazards		
Significant	**Moderate**	**Limited**
☒ Flooding (including coastal surge) ☒ Wildfire ☐ Agriculture (pests and disease) ☒ Earthquake	☒ Landslide / Coastal Erosion	☒ Dam Failure ☒ Tsunami
Existing and Potential Resources: The Emergency Response Plan was updated in 2015. Updates are made to the existing plan as needed.		
Responsible Department: Emergency Services		
Target Completion Date: 2020		
Additional Comments / Status Report:		

Mitigation Action # GEN-6		
Project Description: *Don't Panic! Prepare!* is a public education and awareness campaign designed to increase preparedness at home, school and work. We will deliver emergency preparedness presentations to residents on an ongoing basis with community partners.		
Applicable Hazards		
Significant	**Moderate**	**Limited**
☒ Flooding (including coastal surge) ☒ Wildfire ☐ Agriculture (pests and disease) ☒ Earthquake	☒ Landslide / Coastal Erosion	☒ Dam Failure ☒ Tsunami
Existing and Potential Resources: The *Don't Panic! Prepare!* campaign was started in 2008. Presentations and materials have already been developed. Community relationship building has been strong and we will continue to leverage community resources to reach residents and visitors with life-saving information.		
Responsible Department: Emergency Services		
Target Completion Date: 2018		
Additional Comments / Status Report: Presentations will be included in the Neighbor to Neighbor outreach program in development. The City plans to launch this new program in 2017. Presentations and materials are updated as needed.		

Mitigation Action # WDF-3		
Project Description: Perform a comprehensive evaluation of all Wildfire Hazard Reduction programs.		
Applicable Hazards		
Significant	**Moderate**	**Limited**
☐ Flooding (including coastal surge) ☒ Wildfire ☐ Agriculture (pests and disease) ☐ Earthquake	☐ Landslide / Coastal Erosion	☐ Dam Failure ☐ Tsunami
Existing and Potential Resources: Programs are driven by federal grant moneys and are provided in various phases on an ongoing basis based on funding.		
Responsible Department: Carpinteria-Summerland Fire District		
Target Completion Date: 2018		
Additional Comments / Status Report:		

SECTION 8 PLAN MAINTENANCE

8.1 PLAN PROGRESS

The 2011 Hazard Mitigation Plan was reviewed and project status was updated in 2012 and 2015.

8.2 PLAN MAINTENANCE

The City of Carpinteria's Program Manager will be responsible for ensuring that this plan is monitored on an on-going basis. The Local Planning Team will meet on an annual basis to review the mitigation actions set forth in this plan and discuss progress. During this meeting the Local Planning Team will develop a list of items to be updated, added, or removed in future revisions of this plan.

The City will continue to participate in the countywide Mitigation Advisory Committee and attend the annual meeting organized by the County Office of Emergency Management to discuss items to be updated/added in future revisions of this plan.

Major disasters affecting the City of Carpinteria's community, legal changes, notices from Santa Barbara County (lead agency for the County-wide Plan), and other significant events may trigger revisions to this plan or a convening of the Local Planning Team.

The City is committed to reviewing and updating this plan at least once every five years, as required by the Disaster Mitigation Act of 2000. The City will continue to work with County OEM and the Mitigation Advisory Committee (MAC) on updating any annexes related to the City of Santa Barbara within the County's multi-jurisdictional plan.

The public will continue to be involved whenever the plan is updated and as appropriate during the monitoring and evaluation process. Prior to adoption of updates, the City will provide the opportunity for the public to comment on the updates. A public notice will be published prior to the meeting to announce the comment period and meeting logistics. Moreover, the City will engage stakeholders in community emergency planning.

8.3 POINT OF CONTACT

Comments or suggestions regarding this plan may be submitted at any time to Mimi Audelo, Program Manager using the following information:

Mimi Audelo, Program Manager
City of Carpinteria
5775 Carpinteria Avenue
Carpinteria, CA 93013,
mimia@ci.carpinteria.ca.us,
805-755-4401

APPENDIX A

Attachment 1 Meeting Documentation

This attachment includes documentation of the meetings conducted within Carpinteria's Local Planning Team separately from the County Mitigation Advisory Committee.

Santa Barbara County Operational Area

2016 Hazard Mitigation Plan Update
Meeting Log

Agenda & Notes

City of Carpinteria

Date: 2/10/16

Time: 4-5pm

Attendees:
Dave Durflinger, City Manager
Charlie Ebeling, Public Works Director
Steve Goggia, Community Development Director
Matt Roberts, Parks and Recreation Director
Kevin Silk, Assistant to the City Manager
Mimi Audelo, Program Manager

Discussion Topics:

- Overview of MAC meeting
- Review 2011 plan and tasks to be updated/completed.
- Divide tasks into appropriate departments.
- Establish a submittal deadline.

Meeting Outcomes:

Reviewed MAC meeting information
Established community outreach plan
No prior events to report
Reviewed City plan
Assigned stated projects for update/completion dates

Santa Barbara County Operational Area
2016 Hazard Mitigation Plan Update
Meeting Log

Agenda & Notes

City of Carpinteria

Date: 3/21/16

Time: 3:30-4:30pm

Attendees:

Charlie Ebeling, Public Works Director
Steve Goggia, Community Development Director
Kevin Silk, Assistant to the City Manager
Mimi Audelo, Program Manager

Discussion Topics:

- Overview of MAC meeting
- Review projects status
- Review critical facilities list
- Review MAC Hazard Prioritization Rating List

Meeting Outcomes:

Reviewed MAC meeting information

Agreed on MAC Hazard Prioritization List with minor change
No changes to the critical facilities list
Status on all listed projects submitted

Santa Barbara County Operational Area
2016 Hazard Mitigation Plan Update
Meeting Log

Agenda & Notes

City of Carpinteria

Date: 5/31/16

Time: 1:00-1:30pm

Attendees:

Charlie Ebeling, Public Works Director
Mimi Audelo, Program Manager

Discussion Topics:

- Overview of MAC meeting
- Review public works projects
- Discuss possible hazards

Meeting Outcomes:

Reviewed MAC meeting information
Reviewed public works projects current and future
Discussed possible hazards in relation to projects

2016 Hazard Mitigation Plan Update
Meeting Log

Agenda & Notes

City of Carpinteria

Date: 6/21/16

Time: 3:00-3:30pm

Attendees:

Dave Durflinger, City Manager
Mimi Audelo, Program Manager

Discussion Topics:

- Overview of MAC meeting
- Review development history and infill projects

Meeting Outcomes:

Development is focused on under developed areas

Attachment 2: Outreach Materials

This attachment includes website postings, press releases, and newspaper articles demonstrating the City's efforts to engage the public and interested stakeholders in the mitigation planning process.

CITY OF CARPINTERIA
NOTICE OF PUBLIC REVIEW
Review Draft of the City of Carpinteria annex
to the Santa Barbara County Local Hazard Mitigation Plan 2016 Update

Notice is hereby given that public review and comment is being solicited for the Review Draft of the City of Carpinteria annex to the Santa Barbara County Local Hazard Mitigation Plan 2016 update.

A public review draft may be downloaded from www.carpinteria.ca.us or can be viewed at City Hall and the Public Library. All interested persons are invited to review and comment. Written comments can be submitted to Mimi Audelo, Program Manager, City Hall, 5775 Carpinteria Avenue, Carpinteria, CA 93013 or mimia@ci.carpinteria.ca.us

Comments received by May 10th will be considered for incorporation in the plan prior to adoption by the City Council. Comments received after this date will be held for consideration in future updates to this plan.

For the webpage:
The City of Carpinteria is requesting public review and comment during the Local Multi-jurisdiction Hazard Mitigation Plan 2016 Update process. This plan identifies the primary natural hazards of risk and presents measures to increase resiliency throughout the City of Carpinteria. Please submit your comments and questions to Mimi Audelo at (805)755-4401 or mimia@ci.carpinteria.ca.us.
Comments received prior to May 10th will be considered for incorporation in the plan prior to adoption by the City Council. Comments received after this date will be held for consideration in future updates to this plan.

Hazard Mitigation Plan Update

Local governments are required to create a plan that identifies risks and ways to minimize damage from natural and manmade disasters in order to qualify for federal disaster aid.

How can you help? The City would like the community to review and provide input on the current Mitigation Plan. To review the current plan visit **http://carpinteria.ca.us** under *What's New?* Hard copies are available at City Hall and the Carpinteria Library.

Please submit your comments and questions to Mimi Audelo at (805)755-4401 or mimia@ci.carpinteria.ca.us. Comments received prior to May 10th will be considered for incorporation in the plan prior to adoption by the City Council. Comments received after this date will be held for consideration in future updates to this plan.

City Invites Input on Hazard Mitigation Plan Update

The Federal Disaster Mitigation Act of 2000 requires all local governments to create a plan that identifies risks and ways to minimize damage from natural and manmade disasters in order to qualify for federal mitigation funds in the future. This plan identifies the primary natural hazards of risk and presents measures to increase resiliency throughout the City of Carpinteria. The City is inviting the public to review and comment on the City's local multi-jurisdiction Hazard Mitigation Plan 2016 update and is participating with Santa Barbara County in this process; it is anticipated that the plan will be available for review in August.

The public will be able to download the updated plan at **http://www.carpinteria.ca.us** in the near future. Hard copies will also be available at City Hall. For additional information regarding the comment process please contact Mimi Audelo at (805)755-4401 or mimia@ci.carpinteria.ca.us. Your input is invaluable to increasing disaster resiliency in our community.

References

Emergency Operations Plan
http://www.carpinteria.ca.us/PDFs/Emer%20Oper%20Plan.pdf

General Plan (Local Coastal Land Use Plan & Environmental Impact Report)
http://www.carpinteria.ca.us/PDFs/cd_GP%20Annual%20Report.pdf (Update)
http://www.carpinteria.ca.us/PDFs/cd_General%20Plan.pdf (Original)

Zoning District Map
http://www.carpinteria.ca.us/PDFs/cd_zoning%20map.pdf

Land Use Map
http://www.carpinteria.ca.us/PDFs/cd_Land%20Use%20Map.pdf

Storm Water Management Plan
http://www.carpinteria.ca.us/PDFs/pw_2009%20SWMP.pdf

New Projects (Housing Plans)
http://www.carpinteria.ca.us/edd/new_projects.shtml

Cumulative Projects List (Future Development)
http://www.carpinteria.ca.us/PDFs/cd_Cumulative%20Projects.pdf

Economic Profile
http://www.carpinteria.ca.us/edd/economic_profile.shtml