



# 2015

## Ventura County Multi-Hazard Mitigation Plan

September 2015

Unincorporated Ventura County

City of Camarillo

City of Fillmore

City of Moorpark

City of Ojai

City of Oxnard

City of Port Hueneme

City of Santa Paula

City of Thousand Oaks

City of Ventura

Calleguas Municipal Water District

Casitas Municipal Water District

Channel Islands Beach Community Services District

Ojai Valley Sanitary District

United Water Conservation District

Ventura County Fire Protection District

Ventura County Watershed Protection District

**AECOM**

*This page intentionally left blank*



1. Section 1 Introduction .....	1-1
1.1 Overview.....	1-1
1.2 Hazard Mitigation Planning.....	1-1
1.3 Disaster Mitigation Act of 2000 .....	1-1
1.4 Community Rating System – Activity 510 Floodplain Management Planning .....	1-2
1.5 Local Participants .....	1-2
1.6 Community Profile .....	1-3
1.6.1 Unincorporated Ventura County.....	1-3
1.6.2 Participating Cities.....	1-3
1.6.3 Participating Special Districts.....	1-4
1.7 Description of the Multi-Hazard Mitigation Plan.....	1-6
1.7.1 Section 2: Record of Adoption .....	1-6
1.7.2 Section 3: Planning Process.....	1-6
1.7.3 Section 4: Hazard Analysis.....	1-6
1.7.4 Section 5: Vulnerability Analysis.....	1-7
1.7.5 Section 6: Capability Assessment.....	1-7
1.7.6 Section 7: Mitigation Strategy .....	1-7
1.7.7 Section 8: Plan Maintenance .....	1-7
1.7.8 Section 9: References .....	1-7
1.7.9 Appendices .....	1-7
1.7.10 Annex.....	1-8
2. Section 2 Record of Adoption.....	2-1
2.1 Overview.....	2-1
2.2 Adoption Documentation.....	2-1
3. Section 3 Planning Process .....	3-1
3.1 Overview.....	3-1
3.2 MHMP Review and Revision.....	3-1
3.2.1 MHMP Review and Recommendations .....	3-1
3.2.2 Floodplain Management Coordination with Communities and Other Agencies .....	3-3
3.3 MHMP Update Process .....	3-4
3.4 Planning Committees.....	3-5
3.4.1 MHMP Committee .....	3-6
3.4.2 FMP Committee.....	3-9
3.5 Public Outreach and Stakeholder Involvement .....	3-10
3.5.1 Multi-Media Releases .....	3-10
3.5.2 MHMP Website .....	3-10
3.5.3 Online Questionnaire .....	3-10
3.5.4 Web Portal .....	3-11
3.5.5 Emergency Planning Council .....	3-11
3.5.6 Town Hall .....	3-11
3.5.7 Virtual Town Hall.....	3-11

## Table of Contents

---

3.5.8	Brochure .....	3-12
4.	Section 4 Hazards Analysis.....	4-1
4.1	Overview.....	4-1
4.2	Hazard Identification and Screening .....	4-1
4.3	Hazard Profiles .....	4-3
4.3.1	Agricultural Biological .....	4-4
4.3.2	Climate Change .....	4-6
4.3.3	Dam Failure Inundation .....	4-8
4.3.4	Drought.....	4-11
4.3.5	Earthquake .....	4-14
4.3.6	Flood .....	4-18
4.3.7	Landslide.....	4-24
4.3.8	Levee Failure Inundation .....	4-26
4.3.9	Post-Fire Debris Flow .....	4-28
4.3.10	Tsunami .....	4-30
4.3.11	Wildfire.....	4-32
4.3.12	Winter Storm .....	4-35
5.	Section 5 Vulnerability Analysis .....	5-1
5.1	Overview.....	5-1
5.2	Asset Inventory .....	5-1
5.3	Methodology.....	5-2
5.4	Exposure Analysis and Summary of Impacts .....	5-3
5.4.1	Summary of Impacts to Climate Change (Rising Tides Inundation Areas – 2030).....	5-4
5.4.2	Summary of Impacts to Climate Change (Combined Storm Flood Hazard Zones – 2030).....	5-5
5.4.3	Summary of Impacts to Dam Failure Inundation .....	5-6
5.4.4	Summary of Impacts to Earthquakes (Severe Ground Shaking) .....	5-7
5.4.5	Summary of Impacts to Earthquakes (Violent Ground Shaking).....	5-8
5.4.6	Summary of Impacts to Earthquakes (Extreme Ground Shaking) .....	5-9
5.4.7	Summary of Impacts to Earthquakes (Liquefaction).....	5-10
5.4.8	Summary of Impacts to Flood (100-Year Flood Zone) .....	5-11
5.4.9	Summary of Impacts to Flood (500-Year Flood Zone) .....	5-13
5.4.10	Summary of Impacts to Landslides (Susceptibility Class VIII) .....	5-14
5.4.11	Summary of Impacts to Landslides (Susceptibility Class IX).....	5-15
5.4.12	Summary of Impacts to Landslides (Susceptibility Class X) .....	5-16
5.4.13	Summary of Impacts to Levee Failure Inundation (Reduced Flood Risks Due to Levees) .....	5-17
5.4.14	Summary of Impacts to Tsunami Inundation (Phase 3) .....	5-18
5.4.15	Summary of Impacts to Tsunami Inundation (Maximum Phase).....	5-20
5.4.16	Summary of Impacts to Wildfires (High Fire Severity Zone).....	5-21
5.4.17	Summary of Impacts to Wildfires (Very High Fire Severity Zone).....	5-22
5.5	Repetitive Loss Properties .....	5-23

6. Section 6 Capability Assessment .....	6-1
6.1 Overview.....	6-1
6.2 Capability Assessment.....	6-1
7. Section 7 Mitigation Strategy.....	7-1
7.1 Overview.....	7-1
7.2 Update of Local Hazard Mitigation Goals.....	7-1
7.3 Review of the 2010 MHMP Mitigation Action Plan.....	7-2
7.4 Identification of New and Updated Potential Mitigation Actions .....	7-2
7.5 Prioritization of The 2015 MHMP Mitigation actions .....	7-7
7.5.1 2015 MHMP Local Participant-Specific Mitigation Action Plans.....	7-8
8. Section 8 Plan Maintenance.....	8-1
8.1 Overview.....	8-1
8.2 Monitoring, Evaluating, and Updating the Plan .....	8-1
8.3 Implementation Through Existing Planning Mechanisms .....	8-2
8.4 Continued Public Involvement .....	8-3
9. Section 9 References.....	9-1

## List of Tables

Table 3-1. 2010 MHMP Review and Recommendations .....	3-2
Table 3-2. Review and Incorporation of Other Studies and Plans.....	3-3
Table 3-3. Floodplain Management Coordination with Communities and Other Agencies .....	3-4
Table 3-4. Plan Update Schedule.....	3-5
Table 3-5. MHMP Committee .....	3-6
Table 3-6. MHMP Stakeholders – City/District Contacts .....	3-7
Table 3-7. FMP Committee .....	3-9
Table 4-1. Dams Under State Jurisdiction with Inundation Areas within Ventura County* .....	4-9
Table 4-2. Dam Inundation Areas.....	4-10
Table 4-3. Recent Droughts in California.....	4-12
Table 4-4. Magnitude/Intensity/Ground-Shaking Comparisons.....	4-15
Table 4-5. Likely Maximum Magnitudes and Recurrence Intervals .....	4-17
Table 4-6. Major Disaster Declarations for Floods, 1995-2015 .....	4-20
Table 4-7. Historical Tsunami Run-Ups in Ventura County .....	4-30
Table 4-8. Ten Largest Ventura County Fires in the Last 50 years, 1965 through 2015 .....	4-33
Table 5-1. Summary of Total Assets .....	5-1
Table 5-2. Hazards Included in Exposure Analysis.....	5-2
Table 5-3. Total: Climate Change Exposure Analysis (Rising Tides Inundation Areas – 2030) .....	5-4
Table 5-4. Total: Climate Change Exposure Analysis (Combined Storm Flood Hazard Zones – 2030) .....	5-5
Table 5-5. Total: Dam Failure Inundation Exposure Analysis .....	5-6

## Table of Contents

---

Table 5-6. Total: Earthquake Exposure Analysis (Severe Ground Shaking) .....	5-7
Table 5-7. Total: Earthquake Exposure Analysis (Violent Ground Shaking) .....	5-8
Table 5-8. Total: Earthquake Exposure Analysis (Extreme Ground Shaking).....	5-9
Table 5-9. Total: Earthquake Exposure Analysis (Liquefaction) .....	5-10
Table 5-10. Total: Flood Exposure Analysis (100-Year Flood Zone).....	5-11
Table 5-11. Total: Flood Exposure Analysis (500-Year Flood Zone).....	5-13
Table 5-12. Total: Landslide Exposure Analysis (Susceptibility Class VIII) .....	5-14
Table 5-13. Total: Landslide Exposure Analysis (Susceptibility Class IX) .....	5-15
Table 5-14. Total: Landslide Exposure Analysis (Susceptibility Class X) .....	5-16
Table 5-15. Total: Levee Failure Inundation Exposure Analysis (Reduced Flood Risks Due to Levees) .....	5-17
Table 5-16. Total: Tsunami Inundation Exposure Analysis (Phase 3) .....	5-18
Table 5-17. Total: Tsunami Inundation Exposure Analysis (Maximum Phase) .....	5-20
Table 5-18. Total: Wildfire Exposure Analysis (High FHSZ) .....	5-21
Table 5-19. Total: Wildfire Exposure Analysis (Very High FHSZ *) .....	5-22
Table 5-20. Repetitive Loss Properties .....	5-23
Table 6-1. Date of Initially Mapped FIRM and Emergency/Regular Program Entrance Date into NFIP for Unincorporated Ventura County and Cities.....	6-2
Table 7-1. Mitigation Goals .....	7-2
Table 7-2. Potential Overarching Mitigation Actions.....	7-4
Table 7-3. Priority Project Criteria (HMA Program Requirements) .....	7-7

## List of Appendices

Appendix A	FEMA Compliance
Appendix B	Adoption Resolutions
Appendix C	MHMP Committee
Appendix D	FMP Committee
Appendix E	Public Outreach and Stakeholder Involvement
Appendix F	Figures
Appendix G	Unincorporated Ventura County
Appendix H	City of Camarillo
Appendix I	City of Fillmore
Appendix J	City of Moorpark
Appendix K	City of Ojai
Appendix L	City of Oxnard
Appendix M	City of Port Hueneme
Appendix N	City of Santa Paula
Appendix O	City of Thousand Oaks
Appendix P	City of Ventura
Appendix Q	Calleguas Municipal Water District
Appendix R	Casitas Municipal Water District
Appendix S	Channel Islands Beach Community Services District
Appendix T	United Water Conservation District
Appendix U	Ventura County Fire Protection District
Appendix V	Ventura County Office of Education



Appendix W	Ventura County Watershed Protection District
Appendix X	Plan Maintenance

## List of Annexes

Annex A	Activity 610 – Flood Warning Program
---------	--------------------------------------

## List of Acronyms and Abbreviations

ACP	Asian citrus psyllid
Cal FIRE	California Department of Forestry and Fire Protection
Cal OES	California Governor’s Office of Emergency Services
CalARP	California Accidental Release Prevention
CFR	Code of Federal Regulations
cfs	cubic feet per second
CGS	California Geological Survey
CO <sub>2</sub>	carbon dioxide
CPG 201	<i>Threat and Hazard Identification and Risk Assessment Guide: Comprehensive Preparedness Guide (CPG) 201</i> , Second Edition, August 2013
CRS	Community Rating System
DFIRM	Digital Flood Insurance Rate Map
DMA 2000	Disaster Mitigation Act of 2000
DSOD	Division of Safety of Dams
EnSo	El niño-Southern oscillation
EO	Executive Order
EPC	Emergency Planning Council
FEMA	Federal Emergency Management Agency
FHSZ	Fire Hazard Severity Zones
FIRM	Flood Insurance Rate Map
FMP	Floodplain Management Plan
GIS	Geographic Information System
HLB	Huanglongbing (disease)
HMA	Hazard Mitigation Assistance
IPCC	Intergovernmental Panel on Climate Change
LCR	Levee Certification Report
MHMP	Multi-Hazard Mitigation Plan
NCDC	National Climatic Data Center
NFIP	National Flood Insurance Program
NOAA	National Oceanic and Atmospheric Administration
NRCS	Natural Resources Conservation Service
NWS	National Weather Service
OES	Office of Emergency Services
PAL	Provisionally Accredited Levee
PGA	peak ground acceleration
PRR	PAL (Provisionally Accredited Levee)-Response Report

## Table of Contents

---

RL	Repetitive Loss
SFHA	Special Flood Hazard Areas
SRL	Severe Repetitive Loss
Stafford Act	Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1988
STAS	State Threat Assessment System
USACE	United States Army Corps of Engineers
USGS	U.S. Geological Survey
VCFPD	Ventura County Fire Protection District
VCOE	Ventura County Office of Education
VCWPD	Ventura County Watershed Protection District

## 1.1 OVERVIEW

This 2015 Multi-Hazard Mitigation Plan (2015 MHMP) is written to (1) address the local mitigation planning requirements of the Disaster Mitigation Act of 2000 (DMA 2000) for Unincorporated Ventura County and other local participants (**Section 1.5**); and (2) address the 510 Floodplain Management Planning activities of the Community Rating System (CRS) for the Ventura County Watershed Protection District (VCWPD) on behalf of Unincorporated Ventura County and the City of Oxnard.

This section provides an introduction to hazard mitigation planning as well as a brief description of DMA 2000 and CRS. This section also identifies the other local participants, provides a brief narrative about Unincorporated Ventura County and the other local participants, and describes the various sections and appendices of the 2015 MHMP.

The 2015 MHMP supersedes the 2010 MHMP.

## 1.2 HAZARD MITIGATION PLANNING

As defined in Title 44 of the Code of Federal Regulations (CFR), Subpart M, Section 206.401, hazard mitigation is “any action taken to reduce or eliminate the long-term risk to human life and property from natural hazards.” As such, hazard mitigation is any work to minimize the impacts of any type of hazard event before it occurs. Hazard mitigation aims to reduce losses from future disasters. It is a process in which hazards are identified and profiled, the people and facilities at risk are analyzed, and mitigation actions to reduce or eliminate hazard risk are developed. The implementation of the mitigation actions, which include short- and long-term strategies that may involve planning, policy changes, programs, projects, and other activities, is the end result of this process.

## 1.3 DISASTER MITIGATION ACT OF 2000

In recent years, hazard mitigation planning has been driven by a new federal law known as DMA 2000. On October 30, 2000, Congress passed DMA 2000 (Public Law 106-390), which amended the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1988 (Stafford Act) (Title 42 of the United States Code Section 5121 et seq.) by repealing the act’s previous mitigation planning section (409) and replacing it with a new mitigation planning section (322). This new section emphasized the need for state, tribal, and local entities to closely coordinate mitigation planning and implementation efforts. This new section also provided the legal basis for the Federal Emergency Management Agency’s (FEMA’s) mitigation plan requirements for mitigation grant assistance.

To implement these planning requirements, FEMA published an Interim Final Rule in the Federal Register on February 26, 2002 (44 CFR Part 201). The tribal planning requirements were updated in 44 CFR Part 201.7 in 2009. The local mitigation planning requirements are identified in their appropriate sections throughout the 2015 MHMP and also within the FEMA Plan Review Tool included in **Appendix A**.

## 1.4 COMMUNITY RATING SYSTEM – ACTIVITY 510 FLOODPLAIN MANAGEMENT PLANNING

CRS is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum National Flood Insurance Program (NFIP) requirements. Under CRS, flood insurance premium rates are discounted to reflect the reduced flood risk that results when community actions meet the three goals of CRS: reducing flood damage to insurable property, strengthening and supporting the insurance aspects of the NFIP, and encouraging a comprehensive approach to floodplain management. In 2011, Unincorporated Ventura County joined CRS as a class 6 rating, entitling flood insurance policy holders to receive a 20 percent premium discount annually. In 2013, the City of Oxnard joined CRS as a class 9 rating, entitling flood insurance policy holders to receive a 5 percent discount annually.

There are 18 programs or “activities” in CRS that are intended to reduce or eliminate exposure to floods, including Activity 510 Floodplain Management Planning. To implement these activities, FEMA published the 2013 NFIP CRS Coordinators Manual (FIA 15-2013), which spells out the credit and credit criteria for CRS activities. The floodplain management planning activities for Unincorporated Ventura County (administered by the VCWPD) and the City of Oxnard are identified in their appropriate sections throughout the 2015 MHMP and also in the 510 FMP Checklist included in **Appendix A**.

## 1.5 LOCAL PARTICIPANTS

The participating jurisdictions and special districts, referred to in this plan as local participants, are listed below.

- Unincorporated Ventura County
- City of Camarillo
- City of Fillmore
- City of Moorpark
- City of Ojai
- City of Oxnard
- City of Port Hueneme
- City of Santa Paula
- City of Thousand Oaks
- City of Ventura
- Calleguas Municipal Water District
- Casitas Municipal Water District
- Channel Islands Beach Community Services District
- Ojai Valley Sanitary District
- United Water Conservation District



- Ventura County Fire Protection District (VCFPD)
- Ventura County Office of Education (VCOE), on behalf of the following school districts: Briggs Elementary School District, Conejo Valley Unified School District, Fillmore Unified School District, Hueneme School District, Mesa Union School District, Moorpark Unified School District, Moorpark Unified School District, Mupu Elementary School District, Oak Park Unified School District, Ocean View School District, Ojai Unified School District, Oxnard Elementary School District, Pleasant Valley School District, Rio School District, Santa Clara Elementary School District, Santa Paula Union High School, Simi Valley Unified School District, Somis Union School District, Ventura County Community College District, and Ventura Unified School District.
- Ventura County Watershed Protection District (VCWPD)

## 1.6 COMMUNITY PROFILE

### 1.6.1 Unincorporated Ventura County

Ventura County, one of 58 counties in the state, is located on southern California's Pacific coast, just northwest of Los Angeles. Ventura County is bordered by Kern County to the north; Santa Barbara County and the Pacific Ocean to the northwest and southwest, respectively; and Los Angeles County to the east and southeast. Ventura County stretches across 2,208 square miles, of which 1,845 square miles is land and 363 square miles is water. Anacapa Island of the Channel Islands National Park and San Nicholas Island are in Ventura County.

Ventura County consists of 10 cities and a number of unincorporated communities. The majority of the county's population resides in the cities. According to the U.S. Census Bureau, and using the Population Estimates Program which produces July 1 estimates for years after the last published decennial census (2010), Ventura County has a population of 846,178 as of July 1, 2014. In Unincorporated Ventura County, the population was 93,770 as of 2010, with 31,670 housing units.

### 1.6.2 Participating Cities

Nine of the 10 Ventura County cities participated in the preparation of the 2015 MHMP. Key information about each city's area (square miles) and population (U.S. Census Bureau 2010) and building stock (Hazus 2.2 data, 2010) is provided below.

#### 1.6.2.1 City of Camarillo

The City of Camarillo had an estimated population of 65,235 in 2010, with 21,980 housing units. The city has a total area of 19.75 square miles.

#### 1.6.2.2 City of Fillmore

The City of Fillmore had an estimated population of 15,002 in 2010, with 3,959 housing units. The city has a total area of 3.36 square miles.

### ***1.6.2.3 City of Moorpark***

The City of Moorpark had an estimated population of 34,421 in 2010, with 9,393 housing units. The city has a total area of 12.47 square miles.

### ***1.6.2.4 City of Ojai***

The City of Ojai had an estimated population of 7,461 in 2010, with 2,885 housing units. The city has a total area of 4.37 square miles.

### ***1.6.2.5 City of Oxnard***

The City of Oxnard had an estimated population of 197,911 in 2010, with 40,914 housing units. The city has a total area of 27.08 square miles.

### ***1.6.2.6 City of Port Hueneme***

The City of Port Hueneme had an estimated population of 21,750 in 2010, with 5,530 housing units. The city has a total area of 4.51 square miles.

### ***1.6.2.7 City of Santa Paula***

The City of Santa Paula had an estimated population of 29,595 in 2010, with 7,162 housing units. The city has a total area of 5.71 square miles.

### ***1.6.2.8 City of Thousand Oaks***

The City of Thousand Oaks had an estimated population of 126,693 in 2010, with 39,847 housing units. The city has a total area of 55.41 square miles.

### ***1.6.2.9 City of Ventura***

The City of San Buenaventura (Ventura) is the county seat of Ventura County. The City had an estimated population of 107,195 in 2010, with 32,961 housing units. The city has a total area of 22.15 square miles.

## **1.6.3 Participating Special Districts**

As noted previously, half of the participating communities are special districts. Information about each of the eight districts is provided below.

### ***1.6.3.1 Calleguas Municipal Water District***

The Calleguas Municipal Water District was formed in 1953. In 1960, the District joined the Metropolitan Water District of Southern California as a way of securing water from the state water system. In 1965, the District completed Lake Bard. The 2005 state-of-the-art treatment plant for Lake Bard treats 65 million gallons of water a day.

Communities served include the cities of Oxnard, Port Hueneme, Camarillo, Thousand Oaks, Moorpark, Simi Valley; the unincorporated areas of Oak Park, Santa Rosa Valley, Bell Canyon, Lake Sherwood, Somis, Camarillo Estates, Camarillo Heights, and Naval Base Ventura County.

The district serves an area of approximately 365 square miles and approximately 75 percent of Ventura County's population.

### ***1.6.3.2 Casitas Municipal Water District***

The Casitas Municipal Water District was formed in 1952. In 1956, the Ventura River Project was authorized by Congress, which included the Robles Diversion facility on the Ventura River, the Robles Canal, and the Casitas Dam.

Currently, the district supplies water to 60,000 to 70,000 people in western Ventura County and to hundreds of farms. The district boundaries encompass the City of Ojai, Upper Ojai, the Ventura River Valley area, the City of Ventura to Mills Road and the Rincon and beach area to the ocean and Santa Barbara County line. The district is governed by a five-member board of directors.

### ***1.6.3.3 Channel Islands Beach Community Services District***

Channel Islands Beach Community Services District was created on December 13, 1982, as a result of the demand of the citizens of the beach community for an independent governmental entity to provide solutions to their need for various services, including but not limited to water, sewer, and trash services.

### ***1.6.3.4 Ojai Valley Sanitary District***

The Ojai Valley Sanitary District was established in 1985 as the result of a consolidation of the Ventura Avenue, Oak View, and Meiners Oaks sanitary districts and the Sanitation Department of the City of Ojai. The district provides sanitary sewer service for about 20,000 residents of the City of Ojai and the unincorporated Ojai Valley. It collects and transports wastewater for treatment at the Ojai Valley Treatment Plant and disposes of effluent and sludge.

The district is a public agency organized under the Sanitary District Act of 1923 and is governed by an elected seven-member board. The district's collection system consists of approximately 120 miles of trunk and main sewer lines.

### ***1.6.3.5 United Water Conservation District***

Local landowners formed the Santa Clara River Water Conservation District in 1927. As cities and agricultural areas grew, water usage increased rapidly. By 1950, the district was reorganized and renamed the United Water Conservation District. The district constructed the Santa Felicia Dam, three spreading grounds, and distribution facilities, all of which were urgently needed to combat seawater intrusion.

The United Water Conservation District is governed by seven directors, one elected from each of the seven district divisions. The district administers a "basin management" program for the Santa Clara Valley and Oxnard Plain, using the surface flow of the Santa Clara River and its tributaries for replenishment of groundwater. Facilities include Santa Felicia Dam; Lake Piru Recreation Area; the Piru, Saticoy, and El Rio spreading grounds; the Pleasant Valley Pipeline and Reservoirs; the Oxnard-Hueneme Pipeline, Pumping Plant, and Pumping Trough Pipeline; and other facilities.

#### ***1.6.3.6 Ventura County Fire Protection District***

In 1928, the VCFPD was formed to provide fire protection to the county, with the exception of the four established cities. Since that time, six additional cities have become incorporated. Today, the VCFPD acts as the Ventura County Fire Department for Unincorporated Ventura County and as the City fire department for six cities (Camarillo, Moorpark, Ojai, Port Hueneme, Thousand Oaks, and Simi Valley).

#### ***1.6.3.7 Ventura County Office of Education***

Ventura County comprises 20 K-12 school districts. The VCOE provides facility planning, construction, and maintenance to the school districts. VCOE also operates specialized schools in the county. For the 2010 MHMP, the VCOE will represent all of 20 K-12 school districts in Ventura County, as well as the Ventura County Community College District.

#### ***1.6.3.8 Ventura County Watershed Protection District***

The VCWPD, formerly known as the Ventura County Flood Control District, was formed on September 12, 1944, by an act of the California State Legislature. It is governed by the Ventura County Board of Supervisors. The District is the responsible sponsoring local agency for federal flood control projects throughout Ventura County. The entire county, except for the islands of Anacapa and San Nicholas, is within the District's sphere of influence and boundaries. The VCWPD also serves as the principal co-permittee and manages the implementation of the Ventura Countywide Stormwater Quality Management Program under the municipal National Pollutant Discharge Elimination System permit for urban stormwater runoff discharges in Ventura County. The VCWPD also manages FEMA's NFIP and CRS for Unincorporated Ventura County.

### **1.7 DESCRIPTION OF THE MULTI-HAZARD MITIGATION PLAN**

The remainder of the 2015 MHMP consists of the sections and appendices described below.

#### **1.7.1 Section 2: Record of Adoption**

Section 2 addresses the adoption of the 2015 MHMP. The adoption resolution is provided in **Appendix B**.

#### **1.7.2 Section 3: Planning Process**

Section 3 describes the planning process. Specifically, this section describes major milestones achieved during the MHMP update process and identifies key stakeholders, including the members of the MHMP Committee and Floodplain Management Plan (FMP) Committee (**Appendix C**). This section also includes a description of the committee meetings held as part of the plan update process. Additionally, this section documents public outreach activities (**Appendix D**) and discusses the review and incorporation of relevant plans, reports, and other appropriate information.

#### **1.7.3 Section 4: Hazard Analysis**

Section 4 describes the process through which the Ventura County Project Management Team reviewed and re-selected the hazards to be profiled in the 2015 MHMP. The hazard analysis



includes the nature, history, location, extent, and probability of future events for each hazard. Location and historical hazard figures are provided in **Appendix F**.

#### 1.7.4 Section 5: Vulnerability Analysis

Section 5 identifies the methodology for analyzing potentially vulnerable assets—population, residential building stock, Repetitive Loss (RL) properties, and critical facilities and infrastructure such as emergency response, government, and education facilities. This information was compiled by assessing the potential impacts from each hazard using Geographic Information System (GIS) data. The resulting information identifies the full range of hazards that Unincorporated Ventura County and the other local participants could face and the potential social impacts, damages, and economic losses.

#### 1.7.5 Section 6: Capability Assessment

Section 6 includes the component of a capability assessment. The capability assessment evaluates the human and technical, financial, and legal and regulatory resources available for hazard mitigation. It also describes current, ongoing, and completed mitigation projects and programs. In addition, it includes an overview of local participation in the NFIP.

#### 1.7.6 Section 7: Mitigation Strategy

Section 7 provides a blueprint for reducing the potential losses identified in the vulnerability analysis. This process included a review of each local participant's 2010 MHMP mitigation action plan; development of a list of potential mitigation actions for each local participant; and selection and prioritization of a new mitigation action plan for each local participant. In addition, Unincorporated Ventura County (as detailed in the VCWPD mitigation strategy) and the City of Oxnard addressed additional CRS activities, including the review of each potential mitigation action.

#### 1.7.7 Section 8: Plan Maintenance

Section 8 describes the formal plan maintenance process to ensure that the 2015 MHMP remains an active and applicable document. The plan maintenance process consists of monitoring, evaluating, and updating the plan; monitoring mitigation projects and closeout procedures; implementing the plan through existing planning mechanisms; and achieving continued public involvement. Forms to assist in plan maintenance are found in **Appendix X**. In addition, **Appendix X** includes the annual plan maintenance review performed by the VCWPD from 2011 to 2014.

#### 1.7.8 Section 9: References

Section 9 includes references used to develop this document.

#### 1.7.9 Appendices

The following appendices follow the main body of the plan:

- A FEMA Compliance
- B Adoption Resolutions

- C MHMP Committee
- D FMP Committee
- E Public Outreach and Stakeholder Involvement
- F Figures
- G Unincorporated Ventura County
- H City of Camarillo
- I City of Fillmore
- J City of Moorpark
- K City of Ojai
- L City of Oxnard
- M City of Port Hueneme
- N City of Santa Paula
- O City of Thousand Oaks
- P City of Ventura
- Q Calleguas Municipal Water District
- R Casitas Municipal Water District
- S Channel Islands Beach Community Services District
- T United Water Conservation District
- U Ventura County Fire Protection District
- V Ventura County Office of Education
- W Ventura County Watershed Protection District
- X Plan Maintenance

#### 1.7.10 Annex

The following annex follows the appendices:

- Annex A: Activity 610 – Flood Warning Program

## 2.1 OVERVIEW

This section describes the adoption requirements for the 2015 MHMP.

## 2.2 ADOPTION DOCUMENTATION

The local hazard mitigation planning requirements and floodplain management planning activities for the adoption of the 2015 MHMP are as follows:

<b>Regulation Checklist – 44 CFR 201.6 Local Mitigation Plans</b>	
<b>Element E: Plan Adoption</b>	
<b>E1.</b>	Does the Plan include documentation that the Plan has been formally adopted by the governing body of the jurisdiction requesting approval? (Requirement § 201.6(c)(5))
<b>E2.</b>	For multi-jurisdictional plans, has each jurisdiction requesting approval of the plan documented formal plan adoption? (Requirement §201.6(c)(5))

<b>Regulation Checklist – CRS 510 Floodplain Management Planning</b>	
<b>CRS Step 9: Adopt the Plan</b>	
No additional information.	

Unincorporated Ventura County; the cities of Camarillo, Moorpark, Ojai, Oxnard, Port Hueneme, Santa Paula, Thousand Oaks, and Ventura; and the participating special districts of Calleguas Water District, Casitas Municipal Water District, Channel Islands Beach Community Services District, United Water Conservation District, VCFPD, VCOE, and VCWPD are the local participants represented in this MHMP and meet the requirements of Section 409 of the Stafford Act and Section 322 of the DMA 2000.

Each local participant's governing body has adopted this 2015 MHMP by resolution. A scanned copy of each resolution is included in **Appendix B**.

*This page intentionally left blank*



### 3.1 OVERVIEW

This section summarizes:

- MHMP review and revision, including the incorporation of existing plans and other relevant information and coordination with other agencies
- MHMP update process
- Planning committees
- Public outreach and stakeholder involvement

Supporting information is provided in **Appendix E**.

### 3.2 MHMP REVIEW AND REVISION

The local hazard mitigation planning and floodplain management planning requirements for the plan review and evaluation as well as coordination with communities and other agencies are as follows:

<b>Regulation Checklist – 44 CFR 201.6 Local Mitigation Plans</b>
<b>Element D: Plan Review, Evaluation, and Implementation</b>
<b>D1.</b> Was the Plan revised to reflect changes in development? (Requirement § 201.6(d)(3))

<b>Regulation Checklist – 44 CFR 201.6 Local Mitigation Plans</b>
<b>Element A: Planning Process</b>
<b>A4.</b> Does the Plan describe the review and incorporation of existing plans, studies, reports, and technical information? (Requirement § 201.6(b)(3))

<b>Regulation Checklist – CRS 510 Floodplain Management Planning</b>
<b>CRS Step 3: Coordinate with Other Agencies</b>
<b>A.</b> Review of existing studies and plans.
<b>B.</b> Coordinating with other communities and agencies.

#### 3.2.1 MHMP Review and Recommendations

This 2015 MHMP is the third iteration of the plan. The MHMP was originally developed for Ventura County in 2005, and a second version was developed in 2010. Prior to developing the 2015 version of the plan, the consultant, and the MHMP and FMP committees reviewed the 2010 MHMP to identify the areas that require updating. Key recommendations for the 2015 MHMP are noted in **Table 3-1**.

**Table 3-1. 2010 MHMP Review and Recommendations**

Section Reviewed	Recommendation (for 2015 MHMP)
Overall	Include CRS information per the updated CRS Manual (2013 version), and include call out boxes indicating where CRS 510 steps are met throughout the MHMP.
Section 1: Introduction	Streamline this section for a more efficient read, and update demographic information using the most recent census report (2010).
Section 2: Prerequisites	None.
Section 3: Planning Process	Provide more details about who the MHMP Committee members coordinated with within their jurisdictions. Include a description of the FMP Committee.
Section 4: Hazard Analysis	Add two hazards to the hazard analysis: Climate Change and Drought.
Section 5: Vulnerability Analysis	To be developed based on updated critical facilities and the most up-to-date hazard data available. Streamline the section by including Summary of Impact tables for each hazard that very simply but effectively illustrate the impact of each hazard.
Section 6: Capability Assessment	Update based on any changes that may have occurred since the last MHMP.
Section 7: Mitigation Strategy	Incorporate the Hazard Mitigation Assistance Program requirements into the prioritization process for choosing mitigation actions.
Section 8: Plan Maintenance	Update the Mitigation Project Progress Report to include more information about the project's status, including major project milestones, plan goals, project status, and cost status.
Section 9: References	Update to include new references.

During the planning process, the consultant reviewed and incorporated information from existing plans, studies, and reports. Key information sources integrated into this document are listed in **Table 3-2**; additional references are provided in **Section 9**.

**Table 3-2. Review and Incorporation of Other Studies and Plans**

Study/Plan	Key Information
2013 California Hazard Mitigation Plan	Disaster declaration information
Ventura County General Plan: Goals, Policies and Programs (last amended on March 24, 2015)	Community mitigation-related goals and programs
Ventura County General Plan: Hazards Appendix (last amended on October 22, 2013)	Historical hazard and location information
FEMA Flood Insurance Study, Ventura County, CA and Incorporated Areas (Revised January 7, 2015)	Historical flood information
Coastal Resilience Ventura Technical Report for Coastal Hazards Mapping (July 31, 2013)	Rising tide inundation and coastal storm flood hazard information
California Tsunami Evacuation Playbook, City of Ventura – Ventura County (No. 2014-Vent-01)	Tsunami warning and tsunami inundation information
U.S. Geological Survey (USGS) Emergency Assessment of Post-Fire Debris-Flow Hazards for the 2013 Springs Fire, Ventura County, CA (OFR 2014-1001)	Recent post-fire debris flow hazard information
Ventura County Resource Conservation District Long Range Plan 2012 – 2017	Community conservation goals and strategies
2013 VCFPD Unit Strategic Fire Plan	Fire prevention information, unit goals, and objectives

### 3.2.2 Floodplain Management Coordination with Communities and Other Agencies

Shortly after the plan update kick-off process, the VCWPD reached out to several local, state, and federal floodplain management stakeholders to notify them of the 2015 MHMP process; request additional relevant flood data, mapping, and/or information on flood projects; and invite them to participate in the plan update process. The VCWPD mailed personalized letters to 10 city floodplain managers on April 1, 2015, and an additional seven personalized letters to state and federal partners on April 11, 2015. The agencies contacted are listed in **Table 3-3**, and a copy of each mailed letter is included in **Appendix E**. The VCWPD followed up with five city floodplain managers and one federal agency (FEMA) at the Ventura County Floodplain Managers Meeting in Camarillo, California, on May 20, 2015. At this meeting, the consultant presented an overview of the MHMP, including updated flood hazard figures and potential flood mitigation actions; and the group discussed flood hazard data information, including Letter of Map Revisions for levees and The Nature Conservancy's Coastal Resilience project. The meeting agenda and sign-in sheet are included in **Appendix E**.

**Table 3-3. Floodplain Management Coordination with Communities and Other Agencies**

Communities/Agencies	
Camarillo Floodplain Manager*	(City of) Ventura Floodplain Manager*
Fillmore Floodplain Manager	FEMA*
Moorpark Floodplain Manager	U.S. Army Corps of Engineers
Ojai Floodplain Manager	National Oceanic and Atmospheric Administration (NOAA) – National Weather Service (NWS) Forecast Office Los Angeles/Oxnard
Oxnard Floodplain Manager*	NOAA – California-Nevada River Forecast Center
Port Hueneme Floodplain Manager	California Department of Water Resources – Division of Integrated Regional Water Management, Southern Region
Santa Paula Floodplain Manager*	California Department of Water Resources State-Federal Flood Operations Center
Simi Valley Floodplain Manager*	California Department of Water Resources Flood Operations Branch
Thousand Oaks Floodplain Manager	

\* Follow-up on May 20, 2015.

### 3.3 MHMP UPDATE PROCESS

The local hazard mitigation planning requirements to document the planning process are as follows:

Regulation Checklist – 44 CFR 201.6 Local Mitigation Plans
<b>Element A: Planning Process</b>
<b>A1.</b> Does the Plan document the planning process, including how it was prepared and who was involved in the process for each jurisdiction? (Requirement § 201.6(c)(1))

In March 2015, the Ventura County Sheriff's Office of Emergency Services (Ventura County Sheriff's OES) kicked off the 2015 MHMP update process. For the 2015 MHMP update, the Ventura County Project Management Team included Dale Carnathan and Kevin McGowan from the Ventura County Sheriff's OES and Brian Trushinski from the Ventura County Watershed Protection District. The major tasks the Ventura County Project Management Team is responsible for include preparing for the project kick-off, developing the public outreach process, coordinating and developing planning committee meetings, and providing input to and review of plan deliverables. The Ventura County Project Management Team will also be responsible for maintaining the plan. **Table 3-4** shows the key planning tasks and the timeline associated with each task.

**Table 3-4. Plan Update Schedule**

Major Milestones	Month – 2015						
	Mar	April	May	June	July	Aug	Sept
<b>Stakeholder Outreach</b>							
Project Management							
MHMP and FMP Planning Committee Meetings							
<b>Public Outreach</b>							
Project kick-off flyer and media release							
Online Survey							
Public Presentations							
<b>Hazard Analysis</b>							
Draft Hazard Analysis							
<b>Vulnerability Analysis</b>							
Draft Vulnerability Analysis							
<b>Mitigation Strategy</b>							
2010 Capability Assessment and Mitigation Action Plan Review							
2015 Mitigation Action Plan							
<b>Final Draft MHMP</b>							
Administrative Draft MHMP							
Public Review Draft MHMP							
Final Draft MHMP							
California Governor's Office of Emergency Services (Cal OES)/ISO/FEMA Review							

### 3.4 PLANNING COMMITTEES

The local hazard mitigation planning and floodplain management requirements for documenting who was involved in the planning process, including planning committee members, are as follows:

Regulation Checklist – 44 CFR 201.6 Local Mitigation Plans
<b>Element A: Planning Process</b>
<b>A1.</b> Does the Plan document the planning process, including how it was prepared and who was involved in the process for each jurisdiction? (Requirement § 201.6(c)(1))

<b>Regulation Checklist – CRS 510 Floodplain Management Planning</b>
<b>CRS Step 2: Involvement the Public</b>
A. A. Planning process conducted through a planning committee.

### 3.4.1 MHMP Committee

Similar to the past two versions of the plan, a MHMP Committee was formed to help guide development of the 2015 MHMP. The membership of the 2010 MHMP Committee was used as a starting point for the 2015 MHMP Committee. The 2015 MHMP Committee includes staff from relevant County departments and agencies, representatives for each participating city and special district, and other entities including Cal OES. The 2015 MHMP Committee is shown in **Table 3-5**. Committee meetings (including time, date, location, and agenda) were listed on the 2015 MHMP website and were open to the public for any interested stakeholders to attend.

The MHMP Committee met two times during the plan update process to discuss the following:

- **April 9, 2015:** introduction of the project; overview of hazard mitigation planning in general; climate change; 2010 critical facilities and infrastructure review; 2010 capability assessment review
- **May 19, 2015:** hazard maps, vulnerability analysis process; 2015 MHMP potential mitigation actions; 2015 MHMP mitigation strategy process

Detailed meeting agendas and minutes are provided in **Appendix D**.

**Table 3-5. MHMP Committee**

City/District/Agency	Name	Title
Cal OES	Yvette Laduke	Emergency Services Coordinator
California State University Channel Islands	Maggie Tougas	Emergency Manager
Calleguas Municipal Water District	Julio Reyes	Operations Supervisor
Camrosa Water District	Bill Keyes	Technical Services Manager
Casitas Municipal Water District	Neil Cole	Civil Engineer
Channel Islands Beach Community Services District	Jared Bouchard	General Manager
City of Camarillo	Heidi Zahrt	Community Emergency Response Team Coordinator
City of Camarillo	John Fraser	Sr. Management Analyst
City of Fillmore	Rigo Landeros	Fire Chief
City of Moorpark	Teri Davis	Senior Management Analyst
City of Ojai	Steve McClary	Deputy City Manager
City of Oxnard	Robert Hearne	Civil Engineer/Floodplain Manager

**Table 3-5. MHMP Committee**

City/District/Agency	Name	Title
City of Port Hueneme	Greg Brown	Community Development Director
City of Santa Paula	Dustin Lazenby	Assistant Chief
City of Thousand Oaks	Jim Taylor	Public Works, Senior Civil Engineer
City of Thousand Oaks	Grahame Watts	Special Projects Manager
City of Ventura	Brian Clark	Fire Marshal
Ojai Valley Sanitary District	Ronald Sheets	Operations Superintendent
United Water Conservation District	Kaili Taniguchi	Assistant Engineer
Ventura County Fire Protection District	Dustin Gardner	Division Chief
Ventura County School's Self-Funding Authority (Office of Education)	Russ Olsen	Director of Risk Management
Ventura County Sheriff's OES	Dale Carnathan – Committee Chair	Program Administrator III
Ventura County Sheriff's OES	Kathy Gibson	Program Assistant
Ventura County Sheriff's OES	Kevin McGowan	Assistant Director
Ventura County Watershed Protection District	Bruce Rindahl	Manager, Watershed Resources and Technology Division
Ventura County Watershed Protection District	Brian Trushinski	Floodplain Manager

The MHMP Committee members were considered initial points of contact for the jurisdictions and special districts they represented. All MHMP Committee members had the responsibility of attending meetings, participating in meeting discussions, providing jurisdiction/special district information, reviewing draft material and serving as a liaison for their jurisdiction/special district. As a liaison, MHMP Committee members were the face of the project for their jurisdiction, but throughout the planning process MHMP Committee members worked with their colleagues from other departments. These additional stakeholders were contacted throughout the planning processes and provided input as appropriate based on their area of expertise. Table 3-6 illustrates these additional contacts.

**Table 3-6. MHMP Stakeholders – City/District Contacts**

City/District	Additional Participant
City of Camarillo, City Manager's Office	Kathy Talley
City of Fillmore, Administrative Services Department	David Rowlands, City Manager
City of Fillmore, Building & Safety Department	Michal Lapraik, City Engineer
City of Fillmore, Building & Safety Department	Michael Koroknay, Building & Safety

Table 3-6. MHMP Stakeholders – City/District Contacts

City/District	Additional Participant
City of Fillmore, Finance Department	Gaylynn Brien, Finance Director
City of Fillmore, Fire Department	Bill Herrera, Assistant Fire Chief
City of Fillmore, Fire Department	Billy Gabriel, Fire Captain
City of Fillmore, Planning Department	Kevin McSweeney, City Planner
City of Moorpark, City Manager's Office	Deborah Traffenstedt, Assistant City Manager
City of Moorpark, Community Development Department	Dave Bobardt, Community Development Director
City of Moorpark, Public Works Department	Dave Klotzle, City Engineer/Public Works Director
City of Moorpark, Parks, Recreation & Community Services	Jeremy Laurentowski, Parks and Recreation Director
City of Port Hueneme – Police	Pete Freiberg, Sergeant
City of Thousand Oaks - Community Development Department	Jeff Spector, Senior Planner
City of Thousand Oaks - Human Resources Department	Kevin Fishman, Health & Safety Specialist
Conejo Recreation and Park District	Matt Kouba, Park Superintendent
Oxnard Union High School District	Steve Dickinson, Assistant Superintendent Administrative Services
Santa Paula High School District	Jeff Argend, District Safety Manager
United Water Conservation District	James Grisham, Engineering Department
United Water Conservation District	Craig Morgan, Engineering Department
United Water Conservation District	Michael Ellis, Operations and Maintenance Department
United Water Conservation District	John Carmen, Operations and Maintenance Department
United Water Conservation District	Brian Collins, Operations and Maintenance Department
Ventura County Community College District Police	Lt. Greg Beckley, Supervisor
Ventura County Community College District Police	Joel Justice, Chief of Police
Ventura County Community College District Police	Lt. Cesar Romero, Supervisor
Ventura County Division of Building and Safety	Matt Wyatt, Supervising Building Inspector
Ventura County Public Works Agency	Phil Raba, Safety Manager
Ventura County Sheriff's OES	Bill Boyd, Program Administrator II
Ventura County Sheriff's OES	Ken Carter, Staff Services Manager II
Ventura County Sheriff's OES	Ivan Rodriguez, Administrative Aid
Ventura County Sheriff's OES	Darryl Smith, Emergency Manager
Ventura County Sheriff's OES	Gil Zavlodaver, Program Administrator II



### 3.4.2 FMP Committee

For the 2015 MHMP, the Ventura County Project Management Team formed a separate FMP Committee to focus on CRS 510 Floodplain Management Planning activities. As listed in **Table 3-7**, committee members consisted of representatives from various Ventura County departments and agencies, including the Ventura County Resource Management Agency's Planning Division and the City of Oxnard. The City of Oxnard and the VCWPD also participated on the MHMP Committee.

The FMP Committee met three times during the plan update process to discuss the following:

- **April 9, 2015:** hazard identification; climate change; 2010 critical facilities and infrastructure review; 2010 capability assessment review
- **April 30, 2015:** draft hazard figures; 2010 MHMP mitigation strategy review; CRS 510 Floodplain Management Planning Activity Step 7 overview
- **June 18, 2015:** updated draft hazard figures; RL property dataset; 2015 MHMP potential mitigation actions; 2015 MHMP mitigation strategy ranking process; 2015 VCWPD/Oxnard mitigation action plan selection

Similar to the MHMP Committee meetings, all meetings were open to the public, and the details for each meeting (including time, date, location, and agenda) were posted on the MHMP website. Detailed meeting agendas and minutes are provided in **Appendix D**.

**Table 3-7. FMP Committee**

Local Participant	Name
VCWPD – Advance Planning: Floodplain Manager & CRS Coordinator	Brian Trushinski – Committee Chair
VCWPD – Advance Planning: Watershed Planning and Permits	Sergio Vargas
VCWPD – Watershed Resources and Technology	Bruce Rindahl
VCWPD – Strategic Decision Group	Gerard Kapuscik
Ventura County Public Works Agency: Development & Inspection Services	Jim O'Tousa
Ventura County Public Works Agency: Safety Officer	Phil Raba
Ventura County Public Works Agency: Transportation Division	Howard De Leon
Ventura County Resource Management Agency: Planning Division	Daniel Klemann
Ventura County Resource Management Agency: Building and Safety Division	Matt Wyatt
Ventura County Sheriff's OES	Dale Carnathan
City of Oxnard Public Works Agency	Robert Hearne

### 3.5 PUBLIC OUTREACH AND STAKEHOLDER INVOLVEMENT

The local hazard mitigation planning and floodplain management planning requirements for public outreach and stakeholder involvement are as follows:

<b>Regulation Checklist – 44 CFR 201.6 Local Mitigation Plans</b>
<b>Element A: Planning Process</b>
<p><b>A2.</b> Does the Plan document an opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, agencies that have the authority to regulate development as well as other interests to be involved in the planning process? (Requirement § 201.6(b)(2))</p> <p><b>A3.</b> Does the Plan document how the public was involved in the planning process during the drafting stage? (Requirement § 201.6(b)(1))</p>

<b>Regulation Checklist – CRS 510 Floodplain Management Planning</b>
<b>CRS Step 2: Involve the Public</b>
<p><b>B.</b> Public meetings held at the beginning of the planning process.</p> <p><b>C.</b> Public meeting held on the draft plan.</p> <p><b>D.</b> Other public information activities to encourage input.</p>

#### 3.5.1 Multi-Media Releases

At the project's initiation, media releases were distributed that announced the project's start, described the purpose of the project, and provided points of contact for anyone who wanted to participate in the planning process or wanted more information about the project. A media release was distributed by the Ventura County Sheriff's Office; information regarding the 2015 MHMP project could also be found on the follow media outlets: Ventura County Sheriff's Office Facebook page, Ventura County Sheriff's Office Nixle account, Ventura County Sheriff's Office Twitter account, Ventura edhat website, and the Ventura County Star (newspaper). Screenshots of the media releases are included in **Appendix E**.

#### 3.5.2 MHMP Website

A website was developed to provide continual public access to information on the 2015 MHMP project: <http://www.venturacountymhmp.com/>. The website provides an overview of the project, points of contact for the consultants and the County project leads, information on all upcoming meetings (including date, time, location, and agenda), and draft pieces of the plan for review. Screenshots of the MHMP website are included in **Appendix E**. The County's CRS website ([www.vcfloodinfo.com](http://www.vcfloodinfo.com)) is also linked to the MHMP website.

#### 3.5.3 Online Questionnaire

A questionnaire was developed for the public to provide feedback on their concerns about natural and human-caused hazards. The questionnaire could be found on the project website under the tab of "Plan Participation". A copy of the questionnaire is included in **Appendix E**.

### 3.5.4 Web Portal

At the conclusion of the project, a web portal was implemented that allows the user to view and manipulate the various hazard maps developed for the 2015 MHMP. The web portal uses Google Earth; each hazard map is a separate layer that can be added to the general Google Earth base map. Multiple hazard layers can be viewed at a time to better understand the relationships between hazards, and the search and zoom functions allow users to personalize their views. The web portal will remain accessible after completion of the plan for continued public use. An example of the web portal is included in **Appendix E**.

### 3.5.5 Emergency Planning Council

As part of the public outreach process, Ventura County Sheriff's OES and the consultant made two presentations about the 2015 MHMP at the Ventura County Emergency Planning Council (EPC). The Ventura County EPC is an advisory body whose mission is to lead a unified effort in improving disaster preparedness, mitigation, response, and recovery countywide. These efforts are achieved through a partnership of cooperation and collaboration with all levels of government, non-government organizations, and the private sector. The 2015 EPC members include representatives from Ventura County Sheriff's OES, VCFPD, American Red Cross of Ventura County, Ventura County Voluntary Organizations Active in Disasters, Ventura County Economic Development Agency, and the California Air National Guard. The Ventura County EPC meetings are open to the public, and the details for each meeting (including time, date, location, and agenda) are posted on the county website. The first presentation (April 30, 2015) was held at the beginning of the planning process. At this presentation, the consultant discussed new information to be included in the 2015 MHMP, including climate change and drought, and answered any questions and comments about the update process. At the July 30 presentation, the consultant discussed the Final Draft 2015 MHMP and the Cal OES and FEMA review and upcoming plan adoption process. The EPC and the general public were also given the opportunity to ask questions, and were encouraged to read the Final Draft 2015 MHMP online and submit comments over a 3-week public comment period from July 24 through August 14, 2015. Agenda's from the EPC meetings are included in **Appendix E**.

### 3.5.6 Town Hall

On July 25, 2015, a town hall was hosted at the Camarillo Police Department. The town hall lasted 2 hours, with a formal presentation scheduled on the hour for each hour. The remainder of each hour was an open forum for attendees to ask questions, view the hazard maps, and interact with the project staff. Attendees were able to provide feedback/comments verbally, by completing a written questionnaire, and through an online web forum that allows anonymous submittals if the participant desires. Images from the town hall are found in **Appendix E**.

### 3.5.7 Virtual Town Hall

From June 25, 2015, to September 4, 2015, a website was created to provide the public with a platform to review and comment on a digital version of the Public Draft 2015 MHMP and engage with planning team staff. An option to review printed copies of the plan, which were distributed to public facilities around the county, and comment on the plan via the website was also made available. The community was informed about the Virtual Town Hall through various marketing platforms, including printed flyers that were distributed at venues and events such as

the Ventura County Fair; digital ads displayed on websites, social media sites, and movie theaters; and traditional print media such as the VC Star.

### 3.5.8 Brochure

On June 11, 2015, the VCWPD and County sent a CRS information brochure (Activity 330) by first-class mail to all 4,675 floodplain property owners in Unincorporated Ventura County. The brochure included a 1-page flyer announcing the MHMP update process, and inviting all floodplain property owners to participate the update process. A copy of this brochure is included in **Appendix E**.

## 4.1 OVERVIEW

A hazards analysis includes identifying, screening, and profiling each hazard. The hazards analysis encompasses natural, human-caused, and technological hazards. Natural hazards result from unexpected or uncontrollable natural events of significant size and destructive power. Human-caused hazards result from human activity and include technological hazards. Technological hazards are generally accidental or result from events with unintended consequences (for example, an accidental hazardous materials release).

This hazards analysis consists of the following two steps:

- Hazard identification and screening
- Hazard profiles

## 4.2 HAZARD IDENTIFICATION AND SCREENING

As the initial step in this hazards analysis, the Ventura County Project Management Team and planning committees reviewed the list of hazards identified in the 2010 MHMP and considered the following factors:

- Is the hazard included in the 2010 MHMP?
- Is the hazard included in the Ventura County General Plan: Hazard Appendix (2013)?
- Is the hazard included in the 2013 State of California MHMP?
- Has the hazard occurred in Ventura County and been declared a Presidential or state emergency or disaster in the past 15 years?

Based on the above analysis, the Ventura County Project Management Team and planning committees determined that all hazards identified in the 2010 MHMP should be included in the 2015 MHMP. In addition, it was decided that two additional hazards, climate change and drought, should be profiled in the 2015 MHMP, based on recent disaster declarations and hazards addressed in the 2013 State of California Multi-Hazard Mitigation Plan.

As such, the following 12 hazards are profiled in the 2015 MHMP.

- |                           |                            |
|---------------------------|----------------------------|
| • Agricultural Biological | • Landslide                |
| • Climate Change          | • Levee Failure Inundation |
| • Dam Failure Inundation  | • Post-Fire Debris Flow    |
| • Drought                 | • Tsunami                  |
| • Earthquake              | • Wildfire                 |
| • Flood                   | • Winter Storm             |

Hazards that were brought up for discussion, but were not included in the 2015 MHMP should be re-reviewed for possible inclusion in the next (2020) iteration of the plan. Ventura County will continue to assess these hazards and as whether or not they are appropriate to include in the County's hazard mitigation plan. The hazards to be re-reviewed are listed below.

**Hazards to be Re-Reviewed for the 2020 MHMP**

Hazard	Description
Hazardous Materials Release	Hazardous materials are substances that may have negative effects on health or the environment. Exposure to hazardous materials may cause injury, illness, or death. Recent hazardous materials releases in Ventura County include the Mission Incident (Santa Paula) and the Cochran Incident (Simi Valley). The California Accidental Release Prevention (CalARP) program is intended to prevent accidental releases of substances and to minimize the damage if releases do occur.
Epidemic	An epidemic is when a disease affects a disproportionately large number of individuals within a population, community, or region at the same time. The recent measles outbreak (of which a few cases were identified in Ventura County) and Ebola scare heightened awareness of an epidemic.
Train Derailment	Train derailments are of most concern when there are volatile or flammable substances on the train and when the train is in a highly populated area. Recent incidents in Ventura County include the Metrolink incident in Oxnard and the derailment that occurred in Chatsworth. The concern is also heightened by reports of potential transport of Bakken crude oil on railways within California.
Cyber-Attack	A cyber-attack is deliberate exploitation of computer systems, technology-dependent enterprises, and networks. Cyber-attacks use malicious code to alter computer code, logic, or data, resulting in disruptive consequences that can compromise data and lead to cybercrimes, such as information and identity theft. Cyber-attack is an ongoing concern that has been increasing in frequency and magnitude.
Aircraft Incident	Aircraft incidents include the Alaska Air crash off the coast of Ventura County in 2000. Efforts directed at preparedness, planning, response, and mitigation of an aircraft incident is generally coordinated, maintained, and exercised by local area airports, along with area fire departments. The Federal Aviation Administration has authority over events resulting from this hazard.
Civil Disturbance	A civil disturbance results from civil unrest, when individuals or groups in the general population feel they are being discriminated against or that their rights are not being upheld. Civil disturbance spans a variety of actions including strikes, demonstrations, riots, and rebellion. Recently there was a small-scale protest incident at the base regarding the housing of children who recently entered the U.S. Preparedness, planning, response, and mitigation efforts pertaining to civil disturbance typically are jointly coordinated by area law enforcement agencies.
Terrorism	In general, terrorism is violence against civilians to achieve a political or ideological objective through fear. Terrorism can occur in various forms: assassinations; kidnappings; hijackings; bomb scares and bombings; cyber-attacks (computer-based); and the use of chemical, biological, nuclear, or radiological weapons. The State of California has a Homeland Security Advisor, who oversees statewide public safety, emergency management, emergency communication, counterterrorism efforts, and the State Threat Assessment System (STAS).
Invasive Species	Inclusion of non-native biological species that are threatening water supplies in Ventura County. Recently, there was a discovery of quagga mussels in Lake Piru that has resulted in much concern about water supply and infrastructure impacts. The Ventura County Watershed Protection District has implemented procedures to prevent the spread of New Zealand mudsnails from the Santa Clara River.

### 4.3 HAZARD PROFILES

The local hazard mitigation planning and floodplain management planning requirements for hazard profiles are as follows:

<b>Regulation Checklist – 44 CFR 201.6 Local Mitigation Plans</b>
<b>Element B: Hazard Identification and Risk Assessment</b>
<b>B1.</b> Does the Plan include a description of the type, location, and extent of all natural hazards that can affect each jurisdiction(s)? (Requirement § 201.6(c)(2)(ii))
<b>B2.</b> Does the Plan include information on previous occurrences of hazard events and on the probability of future hazard events for each jurisdiction? (Requirement § 201.6(c)(2)(i))

<b>Regulation Checklist – CRS 510 Floodplain Management Planning</b>
<b>CRS Step 4: Assess the Hazard</b>
<b>A.</b> Plan includes the assessment of the flood hazard with: <ul style="list-style-type: none"> <li>(1) A map of known flood hazards.</li> <li>(2) A description of known flood hazards.</li> <li>(3) A discussion of past floods.</li> </ul>
<b>B.</b> Plan includes an assessment of less frequent floods.
<b>C.</b> Plan includes an assessment of areas likely to flood.
<b>D.</b> The plan describes other natural hazards.

<b>Regulation Checklist – CRS 510 Floodplain Management Planning</b>
<b>CRS Step 5: Assess the Problem</b>
<b>D.</b> Areas that provide natural floodplain functions.

The hazards selected were profiled based on existing available information. The hazard profiling consists of describing the nature of the hazard, disaster history, location of hazard, and extent and probability of future events. The sources of information are listed in **Section 9** of this document.

According to the *Threat and Hazard Identification and Risk Assessment Guide: Comprehensive Preparedness Guide (CPG) 201*, Second Edition, August 2013 (CPG 201), drought, earthquake, flood, landslide, tsunami, wildfire, and winter storm are classified as natural hazards, and dam failure and levee failure inundation are classified as technological hazards. CPG 201 does not classify agricultural biological, climate change, or post-fire debris flow hazards. Therefore, the hazards profiled for this MHMP are discussed in alphabetical order and not by CPG 201 classification. The order of discussion does not signify level of risk.



### 4.3.1 Agricultural Biological

**Nature:** Agricultural infestation generally involves the artificial introduction of an insect, disease, vertebrate, or weed pest. These pests are particularly destructive to the local agricultural crops because they have no natural enemies to keep them under control. The type and severity of an agricultural infestation will vary based on many factors, including weather, crop diversity, and proximity to urban areas.

The onset for an agricultural infestation can be rapid. Controlling its spread is critical to limiting the impacts of the infestation. Methods for detecting, limiting, and eradicating exotic pests include delimitation trapping, quarantining the area and preventing the shipment of products from the designated area, aerial and ground application of pesticides, and in extreme cases, premature harvest and/or crop destruction. Duration is largely affected by the degree to which the infestation is aggressively controlled, but is commonly more than 1 week. The warning time needed to control infestation is typically more than 24 hours. Maximizing warning time is also critical for reducing damage from this hazard.

The County's agriculture industry provides a very significant base to the County's economy. The agricultural output of Ventura County in 2013 reached almost \$2.1 billion annually and encompasses more than 92,000 acres of irrigated cropland. Ventura County is one of the top 10 agricultural counties in California. The impact of infestation of a particular pest or disease would include economic losses due to crop losses from pest damage, limitations on the ability to export products from the area, and increased costs for pest control. The diversity and location of crops produced in the County is shown on **Figure F-1**. Many of the agricultural areas shown may be affected by the insect pests and agriculture biological diseases described in this section.

Many pests not only damage the agricultural economy but also affect residential areas and open space. Damage to landscape plants and vegetable gardens can be significant. Pests such as the gypsy moth damage primarily hardwood trees in open space areas such as Oak Woodlands.

**History:** In 1994, the Mediterranean fruit fly affected 11 counties in California, including Ventura County. The loss in Ventura County was about \$22 million. In 2007, four gypsy moths were trapped in Ojai; then in October 2008, a 5-square-mile quarantine area was established in the City of Ojai, centered around two egg mass sites on South Rice Road. Since 2008, no gypsy moths have been detected. In 2007 and 2008, the charcoal rot disease suddenly affected strawberry plants in several fields throughout Ventura County, but the loss of crops was limited. The fungus was limited when growers routinely fumigated fields, but because of restrictions on some fumigation chemicals, many growers have turned to less-potent chemical alternatives. Fields afflicted by charcoal rot have typically been fumigated for several successive seasons with these less-potent chemicals; the effectiveness of the chemicals is still being determined. Research is underway in Ventura County on epidemiology and fungicide treatment.

The Asian citrus psyllid (ACP) pest, which carries Huanglongbing (HLB) disease, was identified in San Diego County in 2008, and by 2009 was also found in Imperial, Orange, and Los Angeles counties. All of Ventura County was declared under quarantine for ACP and HLB in December 2010. There have been zero detections of HLB in Ventura County.

**Location:** Ventura County's agricultural areas are most susceptible to insect pests and agriculture biological diseases, such as those described above. The County's farm landscape is illustrated on **Figure F-1**. In addition to agricultural areas, the entire county is susceptible to the



gypsy moth. In 2008, a quarantine area for the gypsy moth was centered on a 6-square-mile area in Ojai. In the spring of 2009, hundreds of gypsy moth traps were placed in the same area; no adult gypsy moths were detected in 2009. Visual inspection in the quarantined area began in the fall of 2009; the regulatory quarantine enforcement ceased on October 4, 2010 for Ventura County.

**Extent:** Future agricultural infestations in Ventura County are likely based on past occurrences. Based on previous history, infestations causing widespread damage have occurred about once every 10 to 20 years. Another factor increasing the likelihood of future infestations is the mild climate in Ventura County, which increases the ability of pests to proliferate. However, the extent and probability of a devastating event are unknown. Other factors that influence agricultural infestations are described below.

Injurious pests commonly enter Ventura County in a number of ways. They may, for example, be inadvertently shipped by a private individual in an infested plant, fruit, or vegetable. When the package is received and the article is found to contain pests, the recipient throws it out and the pests multiply and infest nearby agricultural crops or urban properties. Pests can also travel easily on plants and plant parts shipped from uncertified and unlicensed nurseries; on plants offered for sale at swap meets and other open air markets; or in vehicles or luggage. Inspectors from the Agricultural Commissioner's office inspect incoming plants at nurseries, farmer's markets, and swap meets to check for the presence of pests not occurring in this area. As the state of California experiences budget shortfalls, the usual points of entry at the state border are no longer staffed with inspectors, so this program at the local level becomes one of the main lines of defense against injurious pests.

Methyl bromide has been the fumigant of choice for controlling soil-borne insect and disease pests in many of the county's highest value crops, including bell peppers, tomatoes, berries (including strawberries, raspberries, and blueberries), and cut flowers. With the phase out of methyl bromide, control of diseases such as charcoal rot will depend on the availability of alternative methods, including fumigants such as chloropicrin, 1,3-dichloropropene, metam/potassium sodium, and methyl iodide.

**Probability of Future Events:** The probability and extent of a devastating event would depend on many factors, including the specific pest introduced, climactic conditions at the time of introduction, fluctuations in funding for pest detection and eradication, and public pressure regarding aerial and ground applications of pesticides proximate to urban areas.

### 4.3.2 Climate Change

**Nature:** Climate is defined as the average statistics of weather, which includes temperature, precipitation, and seasonal patterns in a particular region. Climate change refers to a long-term and irrevocable shift in weather-related patterns, either regionally or more globally. The Earth and its natural ecosystem are closely tied to the climate, and any permanent climate change will lead to an imbalance in the existing ecosystem, impacting the way people live, the food they grow, their health, the wildlife, the availability of water, and many other aspects. Research indicates that much of this warming is due to human activities—primarily burning fossil fuels and clearing forests—that release carbon dioxide (CO<sub>2</sub>) and other gases into the atmosphere, trapping heat that would otherwise escape into space. Once in the atmosphere, these heat-trapping emissions remain there for many years—CO<sub>2</sub>, for example, lasts about 100 years. If left unchecked, by the end of the century CO<sub>2</sub> concentrations could reach levels three times higher than the levels in pre-industrial times.

According to most climatologists, the planet is starting to experience shifts in climate patterns and an increased frequency of extreme weather events at both the global level and the local level. Over the next century, increasing atmospheric greenhouse gas concentrations are expected to cause a variety of changes to local climate conditions, including sea-level rise and storm surges in coastal areas; reduced mountain snowpack; increased riverine flooding throughout the county; more frequent, higher temperatures (leading to extreme heat events and wildfires), particularly inland; decreasing air quality; and extended periods of drought.

These effects of climate change are expected to negatively impact water and electricity demand and supplies in Ventura County. Also, rising sea levels will threaten cities along the Ventura County coast and its rivers, decreasing air quality and extreme heat days will degrade public health, wildfire risk will increase (particularly in the grassland hills and mountainous areas of the County), and the County's over \$2 billion agricultural industry could decline significantly.

**History:** The history of the scientific discovery of climate change began in the early nineteenth century, when ice ages and other natural changes in paleoclimate were first suspected and the natural greenhouse effect was first identified. In the late nineteenth century, scientists first argued that human emissions of greenhouse gases could change the climate. Many other theories of climate change were advanced, involving forces from volcanism to solar variation. In the 1960s, the warming effect of CO<sub>2</sub> gas became increasingly convincing, although some scientists also pointed out that human activities, in the form of atmospheric aerosols (e.g., "pollution"), could have cooling effects as well. During the 1970s, scientific opinion increasingly favored the warming viewpoint. By the 1990s, as a result of improving fidelity of computer models and observational work confirming the Milankovitch theory of ice ages, a consensus position formed: greenhouse gases were deeply involved in most climate changes, and human emissions were bringing serious global warming.

Since the 1990s, scientific research on climate change has included multiple disciplines and has expanded, significantly increasing our understanding of causal relations, links with historical data, and our ability to numerically model climate change. The most recent work has been summarized in the Assessment Reports by the Intergovernmental Panel on Climate Change (IPCC). Climate change is a significant and lasting change in the statistical distribution of weather patterns over periods ranging from decades to millions of years. It may be a change in average weather conditions or in the distribution of weather around the average conditions (i.e.,

more or fewer extreme weather events). Climate change is caused by factors that include oceanic processes (such as oceanic circulation), biotic processes, variations in solar radiation received by Earth, plate tectonics and volcanic eruptions, and human-induced alterations of the natural world. This last type of effect is currently causing global warming, and "climate change" is often used to describe human-specific impacts.

**Location:** The location of climate change effects in Ventura County is, in general, countywide, with specific effects and their severity focused in particular parts of the County (e.g., coastal inundation from rising tides and storm surge.) **Figures F-2 and F-3** show projected coastal inundation areas in 2030 from rising tides and combined storm floods, which can result in coastal erosion, fluvial storm flooding, wave impacts, and coastal storm floods. The County will also experience increases in wildfire risk in hillside and mountainous areas and an increase in riverine flooding along rivers and creeks.

**Extent:** The extent of climate risk includes Combined Coastal Storm Hazard Zones of 28.43 square miles and a Rise Tide Inundation Area of 6.49 square miles. Under a low emissions scenario, wildfire risk could increase roughly two- to fourfold from its current extent in mountainous and hillside areas of the County, and average temperatures could rise four to six degrees Fahrenheit by 2080, resulting in a 17 percent decrease in mountain snowpack.

Countywide, the Mediterranean seasonal precipitation pattern is expected to continue, with most precipitation falling during winter from North Pacific storms. One of the four climate models projects slightly wetter winters, and another projects slightly drier winters with a 10 to 20 percent decrease in total annual precipitation. However, even modest changes would have a significant impact because California ecosystems are conditioned to historical precipitation levels and water resources are nearly fully utilized.

**Probability of Future Events:** The specific probability of the extent and frequency of climate change-induced impacts is uncertain and depends on various climate-modeling assumptions. Although there is some uncertainty about the rate of climate change and the severity and frequency of extreme weather events, the IPCC, in its Fifth Assessment of climate change (2014), concluded that:

...warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. The atmosphere and ocean have warmed, the amounts of snow and ice have diminished, sea level has risen, and the concentrations of greenhouse gases have increased.... It is extremely likely that human influence has been the dominant cause of the observed warming since the mid-20th century.

California Governor Jerry Brown, in his Executive Order B-30-15, reiterated the 2014 IPCC finding and further stated that:

...climate change poses an ever-growing threat to the well-being, public health, natural resources, economy, and the environment of California, including loss of snowpack, drought, sea level rise, more frequent and intense wildfires, heat waves, more severe smog, and harm to natural and working lands, and these effects are already being felt in the state...

The consensus of the scientific community—and the position of the State of California—is that climate change is occurring and will continue to occur, perhaps at an increasing rate.

### 4.3.3 Dam Failure Inundation

**Nature:** Dam failure involves unintended releases or surges of impounded water, resulting in downstream flooding. The high-velocity, debris-laden wall of water released from dam failure results in the potential for human casualties, economic loss, lifeline disruption, and environmental damage. Although dam failure may involve the total collapse of a dam, this is not always the case, because damaged spillways, overtopping from prolonged rainfall, or other problems—including the unintended consequences from normal operations—can result in the creation of a hazardous situation. Because they occur without advance warning, failures from natural events such as earthquakes or landslides may be particularly severe.

Dam failure may be caused by a variety of natural events, human-caused events, or a combination thereof. Dam failure usually occurs when the spillway capacity is inadequate and water overtops the dam, or when internal erosion through the dam foundation occurs (also known as piping). Factors contributing to dam failure events may include structural deficiencies from poor initial design or construction, lack of maintenance or repair, and the gradual weakening of the dam through the normal aging process.

**History:** Although it was located elsewhere, the failure of one dam had catastrophic effects in Ventura County. The St. Francis Dam in the San Francisquitos Canyon in Los Angeles County (within the Santa Clara River watershed) was constructed to provide 38,000 acre-feet of storage for water from the Los Angeles–Owens River Aqueduct. The midnight collapse of the dam in March 1928 occurred after the newly constructed concrete-arch dam was completely filled for the first time. The resulting flood swept through the Santa Clara Valley in Ventura County toward the Pacific Ocean, about 54 miles away. At its peak, the wall of water was reported to be 78 feet high; by the time it hit Santa Paula, 42 miles south of the dam, the water was estimated to be 25 feet deep. Almost everything in its path was destroyed, including structures, railways, bridges, livestock, and orchards. By the time the flood subsided, parts of Ventura County lay under 70 feet of mud and debris. Nearly 500 people were killed, and damage estimates exceeded \$20 million. The communities of Piru, Fillmore, Santa Paula, Bardsdale, Saticoy, Montalvo, and El Rio sustained extensive life and property loss from the flood.

There is no record of a failure of any dam located in Ventura County.

**Location:** Table 4-1 includes the name, year built, capacity, and type for the dams that constitute failure hazards for Ventura County.

**Figure F-4A** shows the name, location, and extent of the dam failure inundation areas for every dam failure that would affect Ventura County. It is not anticipated that every dam would fail at the same time; this map is designed to simply provide an approximate assessment of total risk for the County. **Figure F-4B** illustrates dam failure inundation areas for particular dams. In some instances, if one dam fails there is potential that another dam downstream will also fail (for example if the Pyramid Dam fails, the Santa Felicia Dam will likely fail too). **Figure F-4B** does not illustrate cumulative effects. Additional information on specific dam inundation areas may be obtained from the agency that owns the dam. The map shows that dam failures may occur outside Ventura County but still pose a threat of inundation within the County. In particular, if dams in the Santa Clara River watershed in Los Angeles County fail, the resulting flood would affect the Santa Clara River corridor, which includes the cities of Santa Paula and Oxnard, as demonstrated by the 1928 event (mentioned above).

**Table 4-1. Dams Under State Jurisdiction with Inundation Areas within Ventura County\***

Dam	Year Built	Capacity	Type
Bouquet Canyon	1934	36,505	earth
Casitas	1958	254,000	earth
Castaic	1973	323,700	earth
Ferro Debris	1986	24	earth
Lake Eleanor 1763	N/A	128	earth
Lake Sherwood	1904	2,694	constant radius arch
Lang Ranch Detention Basin	2004	263	earth
Las Lajas	1981	1250	earth
Matilija	1949	1800	variable radius arch
Pyramid	1973	178,700	earth and rock
Runkle	1949	100	earth
Santa Felicia Dam	1955	100,000	earth
Sinaloa Lake	1925	205	earth
Stewart Canyon	1963	67	earth
Westlake Reservoir	1972	9200	earth
Wood Ranch	1965	11,000	earth

Source: DSOD 2015.

\* This table includes federal dams and reservoirs that are in the State of California but are not under state jurisdiction.

**Extent:** FEMA characterizes a dam as a high hazard if it stores more than 1,000 acre-feet of water, is taller than 150 feet, and has the potential to cause downstream property damage. The hazard ratings for dams are set by FEMA and confirmed with site visits by engineers. Most dams in the county are characterized by increased hazard potential because of downstream development and increased risk as a result of structural deterioration or inadequate spillway capacity.

The Division of Safety of Dams (DSOD) regulates state-size dams and inspects them annually to ensure that they are in good operating condition. Also, as required by DSOD regulations, the flood inundation limits resulting from a dam breach during the design storm are established for each state-size dam. The resultant maps contain flood-wave arrival time estimates and flood inundation areas. These maps are developed by Cal OES and provided to DSOD and local communities. Inundation areas are shown in **Table 4-2**.

**Table 4-2. Dam Inundation Areas**

<b>Dam</b>	<b>Inundation Area (Square Miles)</b>
Bouquet Canyon	109.67
Casitas	5.09
Castaic	163.41
Ferro Debris	0.06
Lake Eleanor	0.32
Lake Sherwood	2.01
Lang Ranch Detention Basin	0.48
Las Lajas	8.13
Matilija	3.85
Pyramid	13.94
Runkle	0.65
Santa Felica	121.19
Sinaloa Lake	2.32
Stewart Canyon	0.06
Westlake Reservoir	2.65
Wood Ranch	33.61

Source: DSOD, 2015.

**Probability of Future Events:** The probability of dam failure inundation is unknown, but such an event would likely be the result of an extreme storm.

#### 4.3.4 Drought

**Nature:** Drought is a normal, recurrent feature of virtually all climatic zones, including areas of both high and low rainfall, although the characteristics of a drought will vary significantly from one region to another. There is no universally accepted quantitative definition of drought from a scientific or engineering point of view. However, in common terms drought is defined as natural deficit of water supply in a region due to below-average precipitation over a seasonal period or several years, causing a serious hydrological imbalance that results in biological losses and/or economic losses. Drought differs from normal aridity, which is a permanent feature of the climate in areas of low rainfall. Drought is the result of a natural decline in the expected precipitation over an extended period, typically one or more seasons in length. Other climatic characteristics (e.g., high temperature, high wind, low relative humidity) impact the severity of drought conditions.

Four scientific/engineering definitions of drought are listed below:

- Meteorological drought is defined solely by the degree of dryness, expressed as a departure of actual precipitation from an expected average or normal amount based on monthly, seasonal, or annual time scales.
- Hydrological drought relates to the effects of precipitation shortfalls on stream flows and reservoir, lake, and groundwater levels.
- Agricultural drought is defined principally in terms of soil moisture deficiencies relative to the water demands of plant life, usually crops.
- Socioeconomic drought associates the supply and demand of economic goods or services with elements of meteorological, hydrologic, and agricultural drought. Socioeconomic drought occurs when the demand for water exceeds the supply as a result of weather-related supply shortfall.

A drought's severity depends on numerous factors, including duration, intensity, and geographic extent as well as regional water supply demands by humans and vegetation. Due to its multi-dimensional nature, drought is difficult to define in exact terms and thus poses difficulties in terms of comprehensive risk assessments.

Drought differs from other natural hazards in three ways. First, both the onset and the end of a drought are difficult to determine due to the slow accumulation and lingering effects of an event after its apparent end. Second, the lack of an exact and universally accepted definition of drought adds to confusion about its existence and severity. Third, in contrast with other natural hazards, the impact of drought is less obvious and may be spread over a large geographic area. These characteristics have hindered the preparation of drought contingency or mitigation plans by many governments.

The effects of drought increase with duration as more moisture-related activities are impacted. Non-irrigated croplands are most susceptible to precipitation shortages. Rangeland and irrigated agricultural crops may not respond to moisture shortage as rapidly, but yields during periods of drought can be substantially affected. During periods of severe drought, lower moisture in plant and forest fuels create an increased potential for devastating wildfires. In addition, lakes, reservoirs, and rivers can be subject to water shortages that impact recreational opportunities, irrigated crops, availability of water supplies for activities such as fire suppression and human



consumption, and natural habitats of animals. Insect infestation can also be a particularly damaging impact from severe drought conditions.

**History:** Drought is a cyclic part of the climate of California, occurring in both summer and winter, with an average recurrence interval between 3 and 10 years. Recent droughts in California history are listed in **Table 4-3**.

**Table 4-3. Recent Droughts in California**

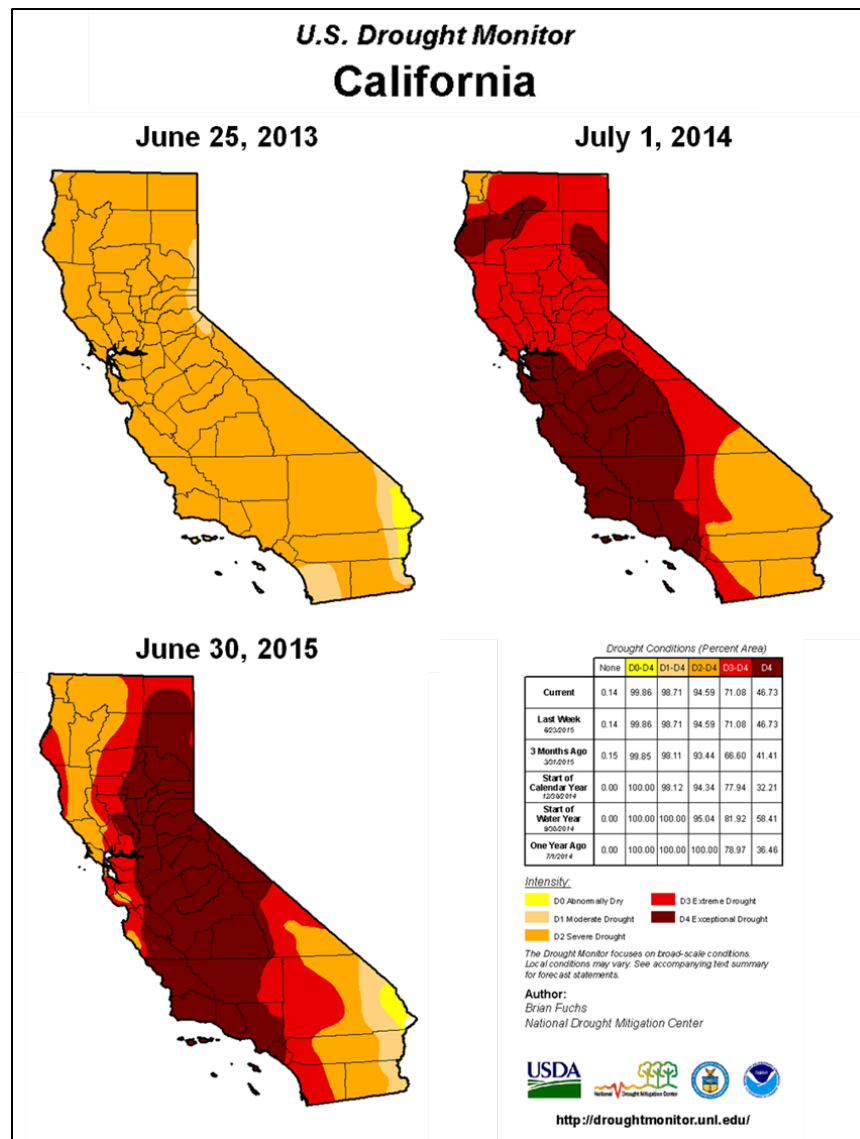
Year(s)	Areas Affected	Disaster Proclamation
1917-1921	Statewide except central Sierra Nevada and north coast	No
1922-1926	Statewide except central Sierra Nevada	No
1928-1937	Statewide	No
1943-1951	Statewide	No
1959-1962	Statewide	No
1976-1977	Statewide, except for southwestern deserts	Statewide disaster proclamation
1987-1992	Statewide	No
2007-2009	Statewide, particularly the central coast	Statewide disaster proclamation
2012-2015	Statewide	Statewide disaster proclamation (2014)

Source: Paulson et al 1991; Cal OES, 2015.

The State of California is in the midst of the fourth year of a drought at the time of the writing of this MHMP. According to University of California, Berkeley, Professor B. Lynn Ingram, California is “on track for having the worst drought in 500 years.”

**Location:** The occurrence of drought is regional in nature and scope, which holds true for Ventura County. As illustrated on **Figure 4-1**, when drought occurs it typically affects the entire county.





**Figure 4-1. California Drought Conditions**

**Extent:** The National Drought Mitigation Center produces drought monitor maps for the United States. It classifies droughts into five categories: D0 is the least severe, with abnormally dry conditions; and D4 is the most severe, with exceptional drought conditions. As of June 30, 2015, Ventura County and roughly half of the State of California remained classified in the highest ranking of D4, exceptional drought conditions.

**Probability of Future Events:** The ability to reliably predict drought conditions at seasonal or annual timescales is very limited. According to the California Department of Water Resources, the status of El niño-Southern oscillation (EnSo) conditions is currently the only factor that can offer some predictability to the onset of drought. Strong la niña (warm) conditions of EnSo tend to favor a drier outlook for California. Therefore, based on previous la niña conditions, drought conditions may exist in Ventura County every 3 to 10 years.

### 4.3.5 Earthquake

**Nature:** An earthquake is a sudden motion or trembling caused by a release of strain accumulated within or along the edge of the earth's tectonic plates. The effects of an earthquake can be felt far beyond the site of its occurrence. Earthquakes usually occur without warning and can cause massive damage and extensive casualties in a few seconds. Common effects of earthquakes are ground motion and shaking, surface fault ruptures, and ground failure. Ground motion is the vibration or shaking of the ground during an earthquake. When a fault ruptures, seismic waves radiate, causing the ground to vibrate. The severity of the vibration increases with the amount of energy released and decreases with distance from the causative fault or epicenter. Soft soils can amplify ground motions.

In addition to ground motion, several secondary natural hazards can occur from earthquakes, such as the following:

- **Surface Faulting** is the differential movement of two sides of a fault at the earth's surface. Displacement along faults—both in terms of length and width—varies but can be significant (e.g., up to 20 feet), as can the length of the surface rupture (e.g., up to 200 miles). Surface faulting can cause severe damage to linear structures, including railways, highways, pipelines, tunnels, and dams.
- **Liquefaction** occurs when seismic waves pass through saturated granular soil, distorting its granular structure, and causing some of the empty spaces between granules to collapse. Pore water pressure may also increase sufficiently to cause the soil to behave like a fluid for a brief period and cause deformations. Liquefaction causes lateral spreads (horizontal movements of commonly 10 to 15 feet, but up to 100 feet), flow failures (massive flows of soil, typically hundreds of feet, but up to 12 miles), and loss of bearing strength (soil deformations causing structures to settle or tip). Liquefaction can cause severe damage to property. The California Geological Survey (CGS) Seismic Hazard Zone Maps illustrate areas prone to liquefaction; as shown in **Figure F-5**, 211.39 square miles of liquefaction areas of the saturated sandy soils of the Oxnard Plain and along the Santa Clara River Valley are prone to liquefaction.
- **Landslides/Debris Flows** occur as a result of horizontal seismic inertia forces induced in the slopes by the ground shaking. The most common earthquake-induced landslides include shallow, disrupted landslides such as rock falls, rockslides, and soil slides. Debris flows are created when surface soil on steep slopes becomes totally saturated with water. Once the soil liquefies, it loses the ability to hold together and can flow downhill at very high speeds, taking vegetation and/or structures with it. Slide risks increase after an earthquake during a wet winter.

The severity of an earthquake can be expressed in terms of intensity and magnitude. Intensity measures the strength of shaking produced by the earthquake at a certain location. Intensity is determined from effects on people, structures and facilities (roads, bridges, pipelines, etc.), and the natural environment. Magnitude is the measure of the earthquake “strength,” the energy released at the source of the earthquake.

The two most common measures of earthquake intensity used in the United States are the Modified Mercalli Intensity Scale, which measures felt intensity, and peak ground acceleration (PGA), which measures instrumental intensity by quantifying how hard the earth shakes in a

given location. Magnitude is measured by the amplitude of the earthquake waves recorded on a seismograph using a logarithmic scale. The following table presents intensities that are typically observed at locations near the epicenter of earthquakes of different magnitudes, with interpretations of perceived shaking and potential damage to the built environment (**Table 4-4**).

**Table 4-4. Magnitude/Intensity/Ground-Shaking Comparisons**

Magnitude	Instrumental Intensity	PGA (% g)	Perceived Shaking	Potential Damage
0 – 4.3	I	<0.17	Not Felt	None
	II-III	0.17 – 1.4	Weak	
4.3 – 4.8	IV	1.4 – 3.9	Light	
	V	3.9 – 9.2	Moderate	Very light
4.8 – 6.2	VI	9.2 – 18	Strong	Light
	VII	18 – 34	Very Strong	Moderate
6.2 – 7.3	VIII	34 – 65	Violent	Moderate to Heavy
	IX	65 – 124	Very Violent	Heavy
	X	124 +	Extreme	Very Heavy
7.3 – 8.9	XI			
	XII			

Source: Wikipedia – Peak Ground Acceleration: [http://en.wikipedia.org/wiki/Peak\\_ground\\_acceleration](http://en.wikipedia.org/wiki/Peak_ground_acceleration).

**History:** Although no large (M 5.0+) earthquakes have occurred recently within Ventura County's boundaries, a number of relatively large earthquakes in other areas have caused damage within the county. These earthquakes occurred in 1925 (Santa Barbara), 1927 (Point Arguello), 1933 (Long Beach), 1941 (Santa Barbara), 1952 (Tehachapi), 1971 (San Fernando), and 1994 (Northridge). Additionally, damaging earthquakes occurred in the County in 1950 (north of Ojai), 1957 (Hueneme), 1963 (Camarillo), and 1973 (Point Mugu). The three most recent events (San Fernando, Point Mugu, and Northridge) are discussed below. **Figure F-6** illustrates historic earthquakes in the Ventura County region.

- **San Fernando, M 6.5, February 9, 1971:** This event was caused by oblique-slip reverse faulting in the San Fernando fault zone. The earthquake caused the destruction of freeway interchanges, houses, and buildings and severe damage to three hospitals in the San Fernando Valley. The earthquake claimed 65 lives. Although the epicenter was within 25 miles of Ventura County, damage sustained within the County was minor.
- **Point Mugu, M 5.3, February 21, 1973:** The Point Mugu earthquake was responsible for at least five injuries and more than \$1 million damage in the Point Mugu–Oxnard area, though damage was confined mainly to the vicinity of the epicenter. Large boulders fell down onto State Route 1 at Point Mugu, partially blocking the road. More than 7,000 customers lost electricity for several hours. Most reported damage was to windows, ceilings, plaster, chimneys, and shelved goods, though structural damage and broken pipes were also reported. Although much less powerful than the San Fernando earthquake of 1971, the Point Mugu earthquake was similar in focal mechanism.

- **Northridge, M 6.7, January 17, 1994:** This blind thrust earthquake occurred along the Northridge thrust fault. It was the strongest earthquake instrumentally recorded in an urban setting in North America and caused parking structures, apartments, office buildings, and sections of freeways to collapse. Approximately 25,000 dwellings were rendered uninhabitable. Total damage exceeded \$44 billion. The incident resulted in 51 deaths.

**Location:** As in most of southern and coastal California, the potential for earthquake damage exists throughout Ventura County because of the number of active faults within and near the county. These faults are shown on the CGS Fault Activity Map of California. Descriptions of the active faults are provided below. The locations of the active and potentially active faults are shown on **Figure F-7** and **Figure F-8**. Some of the more significant faults are described below:

- **Malibu Coast fault system:** The Malibu Coast fault system includes the Malibu Coast, Santa Monica, and Hollywood faults. The system begins in the Hollywood area, extends along the southern base of the Santa Monica Mountains, and passes offshore a few miles west of Point Dume. The 1973 Point Mugu earthquake, described in the previous section, is believed to have originated on this fault system.
- **Oak Ridge fault system:** The Oak Ridge fault system is a steep (65 degrees) southerly dipping reverse fault that extends from the Santa Susana Mountains westward along the southerly side of the Santa Clara River Valley and into the Oxnard Plain. The system is more than 50 miles long on the mainland and may extend an equal or greater distance offshore. Several recorded earthquake epicenters on land and offshore may have been associated with the Oak Ridge fault system. Portions of the system are zoned by the state as active.
- **Pine Mountain thrust fault and Big Pine fault:** These two large faults occur in the mountainous portion of Ventura County north of the Santa Ynez fault; the faults are located 9 and 16 miles north of the City of Ojai, respectively. The Pine Mountain thrust fault is reported to have ruptured the ground surface for a distance of 30 miles along its length during the northern Ventura County earthquakes of November 1852.
- **San Andreas fault:** San Andreas is the longest and most significant fault in California. Because of clearly established historical earthquake activity, this fault has been designated as active by the State of California. The last major earthquake on this fault near Ventura County was the Fort Tejon earthquake of 1857, which was estimated at M 8.0 and would have caused considerable damage if there had been structures in the southern part of the county. There is a 59 percent chance that an M 6.7 quake or larger will occur on this fault within the next 30 years.
- **San Cayetano–Red Mountain–Santa Susana fault system:** This fault system consists of a major series of north-dipping reverse faults that extend over 150 miles from Santa Barbara County into Los Angeles County. Within this system, the San Cayetano fault is the greatest hazard to Ventura County; it is a major, north-dipping reverse fault that extends for 25 miles along the northern portion of the Ventura Basin. The San Fernando earthquake of 1971, described in the previous section, was caused by activity along this fault.

- **Simi–Santa Rosa fault system:** This fault system extends from the Santa Susana Mountains westward along the northern margin of the Simi and Tierra Rejada valleys and along the southern slope and crest of the Las Posas Hills to their westerly termination.
- **Ventura-Pitas Point fault:** The western half of this fault is known as the Pitas Point fault, and the eastern half is known as the Ventura fault. The Pitas Point fault extends offshore into the Pacific Ocean and is roughly 14 miles long. The Ventura fault extends into the communities of Ventura and Sea Cliff and runs roughly parallel to portions of U.S. 101 and State Route 126. The fault is roughly 12 miles long. The Ventura-Pitas Point fault is a left-reverse fault.

**Extent:** The strength of an earthquake’s ground movement can be measured by PGA. PGA measures the rate in change of motion relative to the established rate of acceleration due to gravity ( $g = 980$  centimeters per second, per second). PGA is used to project the risk of damage from future earthquakes by showing earthquake ground motions that have a specified probability (e.g., 10 percent, 5 percent, or 2 percent) of being exceeded in 50 years. The ground motion values are used for reference in construction design for earthquake resistance and can also be used to assess relative hazard between sites when making economic and safety decisions.

In 2008, CGS developed an updated map of earthquake shaking potential for California. The map shows the relative intensity of ground shaking and damage in California from anticipated future earthquakes. Regions near major, active faults are shown in red and pink and experience stronger earthquake shaking more frequently. Regions that are distant from known, active faults are shown in orange and yellow and experience lower levels of shaking less frequently.

**Figure F-7** and **Figure F-8** indicate the level of low-frequency shaking potential in Ventura County (in which local soil conditions have greater effect on low frequency), which includes 15.16 square miles of severe low frequency ground shaking potential; 659.67 square miles of extreme low frequency shaking potential; and 1,157.57 square miles of a violent low frequency shaking potential.

**Probability of Future Events:** Ongoing field and laboratory studies suggest the likely maximum magnitudes and recurrence intervals for the major local faults shown in **Table 4-5**.

**Table 4-5. Likely Maximum Magnitudes and Recurrence Intervals**

Fault	Likely Maximum Magnitudes and Recurrent Intervals
Malibu Coast fault system	M 6.7, recurrence interval 2,908 years
Oak Ridge fault system	M 6.9, recurrence interval 299 years
Red Mountain fault system	M 6.8, recurrence interval 507 years
San Andreas fault	M 8.0, recurrence interval of 300 years
San Cayetano fault system	M 6.8, recurrence interval 150 years
Santa Susana fault system	M 6.6, recurrence interval 138 years
Simi–Santa Rosa fault system	M 6.7, recurrence interval 933 years
Ventura-Pitas Point fault system	M 6.9, recurrence interval not available

#### 4.3.6 Flood

**Nature:** A flood occurs when the existing channel of a stream, river, canyon, or other watercourse cannot contain excess runoff from rainfall or snowmelt, resulting in overflow onto adjacent lands. In coastal areas, flooding may occur when high winds or tides result in a surge of seawater into areas that are above the normal high tide line.

A floodplain is the area adjacent to a watercourse or other body of water that is subject to recurring floods. Floodplains may change over time as a result of natural processes, changes in the characteristics of a watershed, or human activity such as construction of bridges or channels. In areas where flow contains a high sediment load, such as along the Santa Clara River in Ventura County, the course of a river or stream may shift dramatically during a single flood event. Coastal floodplains may also change over time as waves and currents alter the coastline.

Secondary hazards from floods can include:

- Erosion or scouring of stream banks, roadway embankments, foundations, footings for bridge piers, and other features.
- Impact damage to structures, roads, bridges, culverts, and other features from high-velocity flow and from debris carried by floodwaters. Such debris may also accumulate on bridge piers and in culverts, increasing loads on these features or causing overtopping or backwater effects.
- Destruction of crops, erosion of topsoil, and deposition of debris and sediment on croplands.
- Release of sewage and hazardous or toxic materials when wastewater treatment plants are inundated, storage tanks are damaged, and pipelines are severed.

In areas such as Ventura County that do not have extended periods of below-freezing temperatures or significant snowfall, floods usually occur during the season of highest precipitation or during heavy rainfalls after prolonged dry periods. Ventura County is dry during the late spring, summer, and early fall and receives most of its rain during the winter months. The rainfall season extends from November through April, with approximately 95 percent of the annual rainfall occurring during this period. The average annual rainfall in Ventura County ranges from less than 8 inches in the Cuyama Valley in northwestern Ventura County to 38 inches in the Ventura River watershed west of the City of Ojai. Along the coast near Oxnard, San Buenaventura, Simi Valley, and Thousand Oaks, the average rainfall is approximately 14 inches.

The prevailing weather patterns during the winter and the orientation of the mountain ranges in the northern half of the county combine to produce extremely high-intensity rainfall. The peak historic rainfall intensity recorded by a Ventura County rain gage occurred on February 12, 1992. A rainfall intensity of approximately 4 inches per hour was measured during a 15-minute period at the Wheeler Gorge gage, approximately 3 miles northeast of Matilija Dam. Such intensities can produce severe flooding conditions, particularly in small watersheds where flash floods are likely.

Flash floods are particularly dangerous. NWS defines a flash flood as one in which the peak flow travels the length of a watershed within a 6-hour period. These floods arise when storms produce a high volume of rainfall in a short period over a watershed where runoff collects quickly. They



are likely to occur in areas with steep slopes and sparse vegetation. They often strike with little warning and are accompanied by high-velocity flow.

**History:** Damaging floods in Ventura County were reported as early as 1862. A 1945 report by the Ventura County Flood Control District reported that floods of sufficient magnitude to cause extensive damage occurred in 1862, 1867, 1884, 1911, 1914, 1938, 1941, 1943, and 1944.

The largest and most damaging natural floods recorded in the Santa Clara and Ventura watersheds occurred in January and February of 1969. The January flood was a result of the highest monthly precipitation total ever recorded in Ventura County at that time. The February flood was a result of intense rainfall similar in magnitude to the rainfall that caused the record-breaking flood in January. The combined effects of the 1969 floods were disastrous: 13 people lost their lives, and property damage was estimated at \$60 million (1969 dollars). Homes in Casitas Springs, Live Oak Acres, and Fillmore were flooded, and 3,000 residents in Santa Paula and several families in Fillmore were evacuated twice. A break in the Santa Clara River levee threatened the City of Oxnard. Agricultural land, primarily citrus groves, was seriously damaged or destroyed. All over the county, transportation facilities, including roads, bridges, and railroad tracks, were damaged. The Fillmore, Oak View, and Ventura sewage treatment plants were severely damaged and dumped raw sewage into the Santa Clara and Ventura rivers. The untreated sewage polluted the rivers and the beaches at their outlets into the ocean. In addition, sewer trunk lines were broken along the Ventura River and its tributary, San Antonio Creek. Suspended sediment concentrations and discharge in many streams greatly exceeded any previously measured levels in the flood-affected areas. Suspended sediment concentrations reached a maximum of about 160,000 milligrams per liter in the Santa Clara River at Satcoy, and the maximum daily sediment discharge was 20 million tons during the storm peak (FEMA 2010a).

In 1980, Calleguas Creek breached its levee in the Oxnard Plain and caused approximately \$9 million (in 1980 dollars) in damage to the Point Mugu Naval Base from flooding and sediment deposition. In addition, approximately 1,500 acres of farmland were covered by floodwaters. The peak discharge was 9,310 cubic feet per second at the Madera Road Bridge in Simi Valley.

In 1983, a federal disaster was declared because of storm damage. Repairs to flood-control facilities have been estimated to cost \$15 million (in 1983 dollars). Improved channels in Moorpark and Simi Valley suffered severe damage from erosion during this event, and Calleguas Creek experienced record flooding. Damage to other public and private facilities has been estimated at approximately \$39 million, with little more than half of that total due to damage to agricultural lands.

**Table 4-6** details the major flood events to affect Ventura County over the past 20 years.

**Table 4-6. Major Disaster Declarations for Floods, 1995-2015**

Date	Description
January 1995	On January 9 and 10, the region was subjected to an intense winter storm that produced more than 6 inches of rain in some areas. A major Disaster Declaration was declared for all but one county throughout California on January 10, 1995.
January through March 1995	A second powerful winter storm brought heavy rain, heavy snow, and strong winds throughout much of California from mid-January to mid-March. On January 13, a Major Disaster Declaration was declared for nearly half the counties in California.
December 1996 through January 1997	A series of subtropical storms hit California from late December through early January, resulting in one of the wettest Decembers on record. On January 4, 1997, a Major Disaster Declaration was declared for half of the counties in California, including Ventura County.
February 1998	El niño conditions led to extensive flooding throughout California. A Major Disaster Declaration was declared for more than 30 counties, including Ventura County. Countywide damages exceeded \$50 million.
December 2004 through January 2005	A powerful Pacific storm brought heavy rain, snow, flash flooding, high winds, and landslides to Central and Southern California. During the multi-day event, rainfall totals ranged from 3 to 10 inches over coastal areas, with up to 32 inches in the mountains. A Major Disaster Declaration was declared on February 4, 2005, for multiple counties, including Ventura County.

**Location:** Figure F-9 shows the locations of areas likely to flood and types of flooding in Ventura County, including:

- Upland flooding:** The mountainous terrain of northern Ventura County and the hills in the central and eastern parts of the county give rise to numerous annual streams, many draining into steep canyons. These streams are subject to floods of relatively short duration, often following high-intensity rainfall. Such floods may occur with little warning and carry large quantities of sediment and debris. Communities adjacent to the upland areas, such as Fillmore, Ojai, Piru, and Santa Paula, are subject to this hazard. Many of the watersheds in question contain dams or basins designed to attenuate flow and trap debris, reducing the effects on downstream communities.
- Broad floodplains:** The watersheds of the Santa Clara River (watershed area of 1,650 square miles), Ventura River (watershed area of 226 square miles), and Calleguas Creek (watershed area of 325 square miles) drain to the broad coastal plain in the southern part of Ventura County. This plain is subject to inundation during longer intervals of rain, typically as the result of a series of winter storms. These floods typically have longer duration and may be forecast with more warning time. The Santa Clara River Valley, which crosses central Ventura County, is also subject to flooding. Numerous levees have been built to protect the agricultural lands along the river; because of its sediment load, the river has historically migrated across the valley floor during flooding intervals. The levees are typically not sufficient to withstand severe flood events.
- Coastal flooding:** The County's 43 mile coastline is subject to tidal flooding, storm surge, and wave action, all of which usually occur during winter storms. Areas that are susceptible to severe wave action are generally confined to a narrow area immediately adjacent to the tidal zone, including Sea Cliff Colony, Oxnard Shores, Silver Strand



Beach, and several sections of U.S. 101 from Rincon Point to Emma Wood State Park. However, the effects of coastal flooding can be severe—in addition to wave action, beach and bluff erosion can cause significant damage to coast-side homes and infrastructure. Coastal flooding may also occur as the result of tsunamis, which are extreme tidal surges caused by distant earthquakes or massive undersea landslides. In addition to flooding, winter coastal storms can cause minor coastal erosion along the shores of Ventura County. Coastal erosion is a natural process that occurs particularly in the winter, when coastal storms wear away land by wave action, tidal currents, or wave currents. Material deposited on beaches during the mild summer and fall months gets redistributed by the waves. According to City of Ventura engineers, the majority of the sand is pulled just off coast and then comes back to shore over time. Although most receding sand stays fairly close to shore, some sand is driven south by currents until it reaches Hueneme Canyon, a large deep-water depression near the Port of Hueneme.

Unmapped flood hazard areas include numerous small channels. Agricultural drainage ditches and urban drains cover much of the flatter parts and urban areas of Ventura County. Flooding in these areas is due to high-intensity rainfall occurring over a very short period. The flooding is usually shallow and mainly affects roadways and other low-lying areas. In particular, the Hollywood Beach and Silver Strand residential coastal communities have historically experienced localized flooding conditions primarily due to inadequate storm drainage infrastructure and topography (hence, the “Zone B”/“Zone X-Shaded” FEMA designations on the Flood Insurance Rate Maps [FIRMs] / Digital Flood Insurance Rate Map [DFIRMs]). These residential coastal communities (largely built out) are not currently mapped by FEMA in the “Zone VE” coastal high hazard Special Flood Hazard Area (SFHA). These communities have historically been mapped by FEMA as a Zone B and most recently under the DFRIRMs as a Zone X-Shaded (500-year floodplain).

Repetitive flood hazard areas are discussed in **Section 5.5**.

**Natural and Beneficial Floodplain Functions:** The county’s floodplains drain into five wetlands, described below. A wetland is an area of land whose soil is saturated with moisture either permanently or seasonally. Such areas may also be covered partially or completely by shallow pools of water. Wetlands include swamps, marshes, and bogs; the water found in wetlands can be saltwater, freshwater, or a mixture of both.

- **McGrath Lake Wetlands:** Located on the western city limits of Oxnard, the McGrath Lake wetlands extend south from the Santa Clara River. A small lake within the wetlands helps to attract more than two hundred species of birds, including black-shouldered kites, northern harriers, owls, and herons; and special-status birds, including ospreys, white wagtails, black skimmers, and peregrine falcons. The Santa Clara Estuary Natural Preserve on the northern boundary of McGrath Lake Park offers a refuge for birds, and habitat for various burrowing animals. In April 2010, the Nature Conservancy, the State of California, and the U.S. Fish and Wildlife Service purchased 141 acres of prime riparian habitat, agriculture fields, and floodplains within the McGrath Lake Wetlands to become part of the Santa Clara River Parkway. The parkway was established to protect and restore the river’s floodplain and functions, and to provide recreational opportunities such as hiking and bird watching.

- **Mugu Lagoon:** The Mugu Lagoon is located within Point Mugu Naval Base, 8 miles southeast of the City of Oxnard. The lagoon consists of 1,474 acres of wetlands. Calleguas Creek flows into the lagoon. In addition, there is a tidal connection through an inlet in the barrier beach. There are high concentrations of banned pesticides found in lagoon's sediment. Consequently, the Navy has undertaken several wetland restoration projects since the mid-1990s, resulting in the restoration of several acres of tidal mudflats, sandflats, channels, ponds, salt marsh, and sand islands. There are a number of special-status species that inhabit the lagoon, including Pacific loon, ashly and black storm petrels, American white and California brown pelicans, double-crested cormorant, least bittern, white-faced ibis, fulvous whistling duck, harlequin duck, Barrow's goldeneye, osprey, bald eagle, Swainson's hawk, peregrine falcon, sandhill crane, long-billed curlew, laughing gull, California gull, elegant tern, black tern, black skimmer, rhinoceros auklet, long-billed savannah sparrow, and tricolored blackbird.
- **Ormond Beach Wetlands:** The Ormond Beach wetlands, located in the City of Oxnard between the Port of Hueneme and the Point Mugu Naval Base, support many rare plants and hundreds of species of migratory birds, including the endangered California least tern and Western snowy plover. However, a secondary metal smelter, operating at Ormond Beach over the past 40 years, created such a large amount toxic pollution that the site is now a U.S. Environmental Protection Agency Superfund Site. The California State Coastal Conservancy is spearheading efforts to permanently protect habitat and expand and restore the wetlands and, as of June 2010, had acquired 265 acres of the wetlands.
- **Santa Clara River Estuary:** The 49-acre Santa Clara River Estuary is located at the mouth of the Santa Clara River and the Pacific Ocean near the City of Ventura. The river drains a watershed of approximately 1,600 square miles. The City of Ventura's sewage treatment plant currently discharges up to 9 million gallons per day of tertiary treated wastewater into the Santa Clara River Estuary. This is one of the last remaining estuary discharges in California. The discharge is in conflict with the State Water Resources Control Board's Water Quality Control Policy for the Enclosed Bays and Estuaries of California (Resolution No. 74-43, 1974), which mandates that the discharge of municipal and industrial wastewaters to enclosed bays and estuaries be phased out. Exceptions to this policy are limited to circumstances in which the regional water quality control board finds that the treated wastewater enhances the quality of receiving waters above that which would occur in the absence of the discharge. The City of Ventura has been granted an exception since 1977 on the basis that the treatment plant's discharge enhanced fish and wildlife habitat and non-contact water recreation. However, more recent information regarding the relationship of the discharge to the ecological function of the estuary is considered to be lacking, and the issues associated with the treatment plant's discharge include impacts of nutrient-rich water in the estuary and the artificial hydrology created by this volume of water. In addition, with this discharge, the lagoon fills up and breaches on a more frequent basis than it would under natural conditions. In 2008, the Los Angeles Regional Water Quality Control Board required the City of Ventura, as a condition to continue the current discharge practice, to perform three special studies to evaluate a variety of environmental solutions and estimate the needed financial investment for each solution. The studies have been completed and submitted to the Board for review.

- **Ventura River Estuary:** The 110-acre Ventura River Estuary lies directly west of the City of Ventura. It drains a watershed of approximately 226 square miles. The estuary is home to several special-status species, including California brown pelican, western snowy plover, California least tern, Belding's Savannah sparrow, yellow warbler, yellow-breasted chat, tidewater goby, arroyo chub, steelhead trout, and pallid bat. In 1996, the Ventura River Estuary Enhancement Plan was implemented to restore and enhance the estuary. Measures within the plan included riparian restoration along the river, its floodplain, and the surrounding dunes; recreation of habitat types; habitat protective fencing; and trail soil stabilization.

**Extent:** The magnitude of flooding that is used as the standard for floodplain management in the United States is a flood with a probability of occurrence of 1 percent in any given year. This flood is also known as the 100-year flood or the base flood. The most readily available source of information regarding the 100-year flood, as well as the 500-year flood, is on the FIRMs prepared by FEMA. These maps are used to support the NFIP.

FEMA has prepared a countywide DFIRM for the unincorporated areas of Ventura County and for each incorporated city in the county, effective January 20, 2010. **Figure F-9** shows the SFHAs identified in the Ventura County DFIRM. The Ventura County DFIRM identifies the following SFHAs: 7.79 miles in the 100-year "coastal high hazard" flood zone; 78.37 square miles in the 100-year flood zone; and 51.65 square miles in the 500-year flood zone.

**Probability of Future Events:** On average, floods causing major damage within Ventura County occur every 5 years.

#### 4.3.7 Landslide

**Nature:** Landslide is a general term for the dislodging and fall of a mass of soil or rocks along a sloped surface, or for the dislodged mass itself. The term is used for varying phenomena, including mudflows, mudslides, debris flows, rock falls, rock slides, debris avalanches, debris slides, and slump-earth flows. Landslides may result from a wide range of combinations of natural rock, soil, or artificial fill. The susceptibility of hillside and mountainous areas to landslides depends on variations in geology, topography, vegetation, and weather. Landslides may also occur because of indiscriminate development of sloping ground or the creation of cut-and-fill slopes in areas of unstable or inadequately stable geologic conditions.

Additionally, landslides often occur together with other natural hazards, thereby exacerbating conditions, as described below:

- Shaking due to earthquakes can trigger events ranging from rock falls and topples to massive slides.
- Intense or prolonged precipitation that causes flooding can also saturate slopes and cause failures leading to landslides.
- Wildfires can remove vegetation from hillsides, significantly increasing runoff and landslide potential.
- Landslides into a reservoir can indirectly compromise dam safety; a landslide can even affect the dam itself.

Another type of landslide occurs in areas cut by perennial streams. As floodwaters erode channel banks, rivers have undercut clay-rich sedimentary rocks along their south bank, thereby destabilizing the ground and causing the ground above it to slide.

**History:** Landslides have occurred in areas along the Rincon Fault, hillsides south of the Santa Clara River, and the east side of the Ventura River. In recent years, the most damaging landslides in Ventura County have occurred in the coastal community of La Conchita, just southeast of the Santa Barbara county line. La Conchita has been the site of multiple non-earthquake-induced landslides.

La Conchita was built on ground that had been graded by the Southern Pacific Railroad after a 1909 landslide slid into the railroad tracks. The land was intended to be a buffer zone between the retreating and eroding cliff and the Pacific Ocean. However, it was subdivided into smaller residential lots in 1924. Along the bluff face above La Conchita, the upper portion of the bluff is underlain by two rock formations separated by the Red Mountain fault.

The bluff above La Conchita has been associated with a variety of landslide activity, with historical accounts dating back to 1865. More recently, two small slides occurred in 1988 and 1991, followed by large movements of the same landslide mass in 1995 and 2005. The 1995 landslide, which occurred one month after the heaviest rainfall of an extraordinarily wet year, was considered to be a deep, slow-moving landslide. This landslide destroyed nine houses. The January 2005 event was a shallow and highly fluid remobilization of the same material that carried a thick layer of dry, viscous material. This landslide, which occurred at the peak of an extremely wet 2-week period, killed 10 people and destroyed 13 homes. Approximately 400,000 tons of debris cascaded down the slope behind the La Conchita housing development.

**Location:** In 2011, CGS created the Susceptibility to Deep-Seated Landslides grip map, covering the entire state of California. The map shows the relative likelihood of deep landsliding based on a methodology developed by Wilson and Keefer (1985), and uses detailed information on:

- Landslide inventory, including all previously mapped deep-seated landslides in California (approximately 57,000) that were assigned the lowest value of rock strength.
- Geology from a general geologic statewide map and a detailed geologic map over the most populated areas.
- Rock strength to measure the resistance to landsliding, developed from geologic and landslide inventory maps. Geologic units were classified into three rock strength units: (1) highest rock strength unit, which includes crystalline rocks and well-cemented sandstones; (2) intermediate rock strength unit, including weakly cemented sandstones; and (3) weakest rock strength unit, including shale, claystone, pre-existing landslides, and unconsolidated surficial units.
- Slope, including eight slope classes ranging from nearly flat (less than 3 degrees) to very steep (greater than 40 degrees).
- Average annual rainfall in inches.
- Earthquake shaking potential.

As shown on **Figure F-10**, the factors listed above were combined to create classes of landslide susceptibility. These classes express the generalization that on very low slopes, landslide susceptibility is low even in weak materials, and that landslide susceptibility increases with slope and in weaker rocks. Very high landslide susceptibility—classes VIII, IX, and X—includes very steep slopes in hard rocks and moderate to very steep slopes in weak rocks. In Ventura County, areas most susceptible to landslide are generally located on the edge of cities, outside of the cities, and in the northern portion of the county. Each city in the county, with the exception of Port Hueneme, has some land mass in the class VII, IX, and X landslide susceptibility zones.

**Extent:** According to the 2011 Susceptibility to Deep-Seated Landslides grip map, there are 1,111.52 square miles of Ventura County located in the Very High Landslide Susceptibility area, including 174.51 square miles in class VIII, 668.71 square miles in class IX, and 268.30 square miles in class X.

**Probability of Future Events:** Based on the history of landslide occurrences and the potential for landslides as a result of the conditions in the county, future events are likely to occur about once every 10 years. The extent of future events is unknown, but could be similar to historic events: up to 400,000 tons or more of debris could be involved in one event.

#### 4.3.8 Levee Failure Inundation

**Nature:** Levees are typically earthen embankments designed to contain, control, or divert the flow of water to provide some level of protection from flooding. Some levee systems are built for agricultural purposes and provide flood protection and flood loss reduction for farm fields and other land used for agricultural purposes. Urban levee systems are built to provide flood protection and flood loss reduction for population centers and the industrial, commercial, and residential facilities within them.

Levees are designed to provide a specific level of flood protection. Agricultural levee systems provide a level of protection that is appropriate based on the value of the assets being protected. Because urban levee systems are designated to protect urban areas, they are generally built to higher standards. Urban levee systems that are shown to provide protection from a 1% annual chance flood occurrence event on a FEMA FIRM must document ongoing compliance with the Federal Levee Certification requirements found in Section 65.10 of the NFIP regulations (i.e., 44 CFR 65.10).

No levee system provides full protection from all flooding events to the people and structures located behind it. Some level of flood risk exists in the levee-affected areas.

Levee failure is the overtopping, breach, or collapse of a levee wall. Levees can fail because of an earthquake, internal erosion, poor engineering/construction or maintenance, or landslides, but levees most commonly fail as a result of significant flows. During heavy precipitation periods or sudden melting of accumulated snow, excessively large flows may overtop levee sections and cause failure. The overflow of water washes away the top portion of the levee, creating deep grooves. Eventually, the levee weakens, resulting in a breach or collapse of the levee wall and the release of uncontrollable amounts of water.

**History:** The floods of January and February 1969 were the most damaging floods along the Santa Clara River in Ventura County. The estimated peak discharge of the 1969 flood was 165,000 cubic feet per second (cfs), before the gage data adjustment referenced in the Ventura County hydrology report titled *Santa Clara River 2006 Hydrology Update: Phase I, From Ocean to County Line* (VCWPD 2006) was performed.

The following excerpts taken from the United States Army Corps of Engineers (USACE) report entitled *Floods in Southern California during January and February, 1969* (USACE 1969) document the significant damage that occurred to the SCR-1 Levee protecting Oxnard, specifically within the reach from Highway 118 to Highway 101.

*“The only significant damage that occurred during this reach during the January (1969) flood was damage to the revetment of an existing levee constructed by the Corps of Engineers. February flood flows washed out about 500 feet of State Route 118 Bridge, damaged agricultural properties constructed by the Corps of Engineers. ... The flood eroded the south bank (of the Santa Clara River) near the existing Corps levee, damaging some groins; then deflected, ricocheted from the State Route 118 bridge, and returned to the south bank – where the flood flows cut in close to the Corps levee, bounced off the north bank, and carved a long arch.... The flood flows then deflected to south bank where they undercut the toe protection on the Corps levee, causing the failure of about 2,000 feet of levee and eroding the ground behind the levee for a distance of about 100 feet.”*



After the 1969 flood damage, USACE repaired 7 of the original 40 groins (station 330+00 to station 344+50), restored 2,100 linear feet of levee embankment with deeper rock revetment (station 311+00 to station 332+00), and added 35 additional groins (station 246+00 to station 330+00 and station 421+80 to station 436+80), which were completed in 1971. A total of 75 groins are now in place along the reach of the SCR-1 Levee from station 246+00 to station 470+00. In December 1985, the VCWPD restored five groins (between as-built station 316+45 and station 356+45) in the vicinity of the 1969 levee failure location. The damages may have been due to the 1983 flood, with a peak discharge of 100,000 cfs. The damage to the groins was likely due to the low-flow channel encroaching and washing out the top portion of the groin tips. After the 1983 floods, the riverward tips of five groins extending between 40 to 100 feet along the groins were damaged. VCWPD repaired these five groins, which included one of the original 1961 groins constructed by the USACE, and four of those added by VCWPD in 1971 (station 321+00 to station 333+07). The repair included removal of approximately 2 feet of existing rock and placement of 2 tons of rock riprap back to the original design dimensions and backfilling the uncompacted fill. This is the only known non-Corps stone that has been added to the SCR-1 Levee.

**Location:** In November 2009, the VCWPD completed federally mandated engineering evaluations of nine provisionally accredited levees (PALs) within the Calleguas Creek, Santa Clara River, and Ventura River watersheds. At that time, VCWPD submitted Levee Certification Report (LCR) compliance documentation packages to FEMA for three of the nine PAL-designated levees. As shown on **Figure F-11**, these levees include the ASR-2 Levee Floodwall along Arroyo Santa Rosa in the unincorporated community of Santa Rosa Valley, the AS-6 Levee along Arroyo Simi in Simi Valley, and the SC-1 Levee along Sespe Creek in Fillmore.

At that same time, PAL-Response Reports (PRRs) were also submitted to FEMA for the remaining six PAL-designated levees also shown on **Figure F-11**. These are AS-7 along Arroyo Simi in Simi Valley, CC-2 and CC-3 along Calleguas Creek in Camarillo, SCR-1 along the Santa Clara River in Oxnard, VR-1 along the Ventura River in Ventura, and VR-3 in the unincorporated areas of the Ventura River Valley. The PRRs indicated that in their current condition, those six levees could not be certified by the VCWPD before FEMA's November 30, 2009, compliance submittal deadline date.

Subsequently, two additional levee systems, SC-2 (the south half of the Sespe Creek levee in Fillmore) and SCR-3 (along the Santa Clara River in Oxnard) were added to the above list of six VCWPD levees requiring rehabilitation work to be fully compliant with Federal levee certification regulations (i.e., 44 CFR 65.10). Also, the VR-2 levee system, along the west bank of the Ventura River, which was originally constructed by the Natural Resources Conservation Service (NRCS) in 1979 to provide flood protection for the unincorporated community of Casitas Springs, was added to the list of VCWPD levees requiring rehabilitation and/or improvement work.

**Extent:** There are 5.17 square miles in Ventura County protected by VCWPD PALs from the 100-year flood.

**Probability of Future Events:** The probability of future levee failures in Ventura County is unknown, but may result from a large winter storm or seismic event.

#### 4.3.9 Post-Fire Debris Flow

**Nature:** Wildfires are a common occurrence in the hills and mountainous regions of Ventura County. By reducing or destroying vegetative cover and altering soil characteristics, fires often result in conditions that can significantly increase runoff and erosion when winter rains begin to fall. These conditions may result in a debris flow (also referred to as mud flow), which is a slurry of water, sediment, and rock that converges in a stream channel.

The threats of erosion, flooding, and debris flows are significantly increased by the following processes:

- **Reduced infiltration and increased runoff:** A fire's consumption of vegetative cover increases exposure of the soil surface to raindrop impact. Soil heating destroys organic matter that binds the soil together. Extreme heating may also cause the development of water-repellant, or "hydrophobic," soil conditions that further reduce infiltration.
- **Changes in hill slope conditions:** Fires remove obstructions to overland flow, such as trees, downed timber, and plants, increasing flow velocity and therefore erosive power. Increased sediment movement also fills depressions, reducing storage capacity and further contributing to increased velocity and volume of flow. These factors combine to allow more of the watershed to contribute flow to the flood at the same time, increasing the volume of the flood.
- **Changes in channel conditions:** Increased overland flow and sediment transport result in increased velocity and volume of flow in defined channels. Channel erosion increases, as do peak discharges.

The occurrence of erosion, floods, and debris flows in burned areas is also dependent on precipitation intensity—storms with high intensity are more likely to initiate the processes described above and result in flood events. Additionally, easily eroded soils facilitate changes in hill slope conditions and increase the volume of runoff. Both of these conditions are likely to occur in Ventura County.

In extreme situations, the conditions described above combine to form a debris flow. These flows are often the most destructive events resulting from heavy rainfall in fire-affected areas. They occur with little warning, carry vast quantities of rock and other material, and strike objects with extreme force. Because of their viscosity and density, debris flows can move or carry away objects as large as vehicles and bridges, and they may travel great distances down canyons and stream valleys. Debris flow fronts may also travel at high speeds, exceeding 50 miles per hour.

**History:** Evidence of debris-flow movement was widespread following the 1969 storms throughout the mountain ranges in Ventura County. Debris flows occurred in numerous watersheds, including Cozy Dell Canyon, Stewart Canyon, Senior Canyon, Orcutt Canyon, Jepson Wash, and others. Mudflows also occurred in 1969 and 1971 in watersheds that were underlain by fine-grained sedimentary rocks and had been more recently burned by wildfires near Ojai. Witnesses to the mudflows described surges of what appeared to be mud covered with water behind a moving boulder.

In 2014, two post-fire debris flows occurred in the Camarillo Springs. Around midnight on November 1, 2014, a heavy rain totaling 0.5 inch—the first in Ventura County in many months—unlodged debris and created thick mud from the hills recently burned by the Springs



Fire in May 2013. Twenty homes were evacuated, including two homes that were severely damaged. According to the Ventura County Fire Department, a storm drain system that should have prevented the mud and debris from flooding the area apparently filled to capacity, in part because of additional amounts of debris left on the hillside due to Springs Fire.

On December 12, 2014, a second debris flow affected Camarillo Springs when a storm dumped 1.8 inches of rainfall over the region. According to the Ventura County Fire Department, 16 homes were damaged, including 10 homes that were red-tagged. Hours before the storm was expected, mandatory evacuations were ordered for 124 homes. County crews had also worked to clear drainage areas before the storm hit and had put up K-rails to direct water and mud away from homes in the projected debris flow area.

**Location:** Areas of Ventura County that have been subject to recent wildfires are susceptible to potentially hazardous debris flows. Areas susceptible to debris flow include localities that are adjacent to and downslope of these burn areas, especially in locations that are in ravines and canyons, and at the mouths of canyons. **Figure F-12** shows wildfire perimeters of concern; this includes wildfires within the last 3 years (Grand and Springs fires), and burnt areas that are recovering slowly (Day fire).

**Extent and Probability of Future Events:** Ventura County has a long history of flooding and wildfires, which are two major factors in the occurrence of post-fire debris flow. However, because a number of complex factors lead to debris flow (basin morphometry, burn severity, soil properties, and rainfall characteristics), the probability and estimate of the volume of post-fire debris flow in Ventura County is unknown. The USGS has developed model predictions that can be calculated at specific basin outlets, and along the draining network within and immediately downstream of a burn area. These models can be applied post- fires to predict the probabilities of debris flows and estimate debris-flow volumes throughout a burn area in response to a specific rainstorm event.

### 4.3.10 Tsunami

**Nature:** A tsunami is a series of traveling ocean waves of extremely long length, generated by disturbances associated primarily with earthquakes occurring below or near the ocean floor. Subduction zone earthquakes at plate boundaries often cause tsunamis. However, tsunamis can also be generated by submarine landslides, submarine volcanic eruptions, the collapse of volcanic edifices, and—in very rare instances—large meteorite impacts in the ocean.

In the deep ocean, a tsunami may have a length from wave crest to wave crest of 100 miles or more but a wave height of only a few feet or less. Thus, the wave period can be up to several hours, and wavelengths can exceed several hundred miles. Therefore, tsunamis are unlike typical wind-generated swells on the ocean, which might have a period of about 10 seconds and a wavelength of up to 300 feet. Tsunamis cannot be felt aboard ships and they cannot be seen from the air in the open ocean. In deep water, the waves may reach speeds exceeding 700 miles per hour.

Tsunamis can originate hundreds or even thousands of miles away from coastal areas. Local geography may intensify the effect of a tsunami. Areas at greatest risk are less than 50 feet above sea level and within 1 mile of the shoreline. Tsunamis arrive as a series of successive crests (high water levels) and troughs (low water levels). These successive crests and troughs can occur anywhere from 5 to 90 minutes apart. They usually occur 10 to 45 minutes apart.

Tsunamis not only affect beaches that are open to the ocean, but also bay mouths, tidal flats, and the shores of large coastal rivers. Tsunami waves can also diffract around land masses. Because tsunamis are not symmetrical, the waves may be much stronger in one direction than another, depending on the nature of the source and the surrounding geography. However, tsunamis do propagate outward from their source, so coasts in the shadow of affected land masses are usually fairly safe.

**History:** According to the California Tsunami Evacuation Playbook, City of Ventura – Ventura County (No. 2014-Vent-01), and as shown in **Table 4-7**, there have been eight notable tsunami events run-ups recorded in Ventura County.

**Table 4-7. Historical Tsunami Run-Ups in Ventura County**

Year	Source/Source Location	Tsunami Location	Remarks
12/21/1812	Earthquake and Landslide	City of Ventura	6.5-foot run-up
4/01/1946	Earthquake – Aleutian Islands, Alaska	Port Hueneme	3-foot run-up
		Ormond Beach	5-foot run-up
11/4/1952	Earthquake – Kamchatka Peninsula	Port Hueneme	2-foot run-up
3/09/1957	Earthquake – Aleutian Islands, Alaska	Port Hueneme	2-foot run-up
3/28/1964	Earthquake and Landslide – Alaska	City of Ventura	Tide dropped 8.0 feet
		Oxnard	Large swells
9/29/2009	Earthquake – Samoa	Ventura	Buoys moved near mouth of harbor
2/27/2010	Earthquake – Chile	Ventura, Oxnard, Port Hueneme	3-foot run-up

**Table 4-7. Historical Tsunami Run-Ups in Ventura County**

Year	Source/Source Location	Tsunami Location	Remarks
3/11/2011	Earthquake – Japan	Ventura, Oxnard	4-foot run-up
		Port Hueneme	5-foot run-up

Source: CGS 2014.

Run-up = the large amount of water that a tsunami pushes onto the shore above the regular sea level, that is the maximum vertical height onshore above sea level reached by a tsunami

**Location:** **Figure F-13** shows tsunami evacuation areas based on two scenarios—Phase 3 and Maximum Phase—as described in the California Tsunami Evacuation Playbook, City of Ventura – Ventura County. This map illustrates coastal land areas, including areas in the cities of Oxnard, Port Hueneme, and Ventura, that can become submerged due to tsunami run-up. The area of land subject to inundation is a factor of:

- Distance of shoreline from the tsunami-generating event
- Magnitude of the earthquake causing the event; duration and period of waves
- Run-up elevations
- Tidal level at time of occurrence
- Location along shore and direction of shore in respect to propagated waves
- Topography of the seabed

**Extent:** **Figure F-13** shows the Phase 3 Evacuation and Maximum Evacuation Phase, based on models of maximum local and distance tsunamis and for tsunamis coming from the Cascadia Subduction Zone. The Phase 3 Evacuation estimates a tsunami flood level of 1.7 to 5.0 feet above the high tide line, and a tsunami flood level of 7.7 to 11.0 feet above low tide conditions. The Maximum Evacuation Phase estimates a tsunami flood level of more than 5.0 feet above the high tide line, and a tsunami flood level of more than 11.0 feet above low tide conditions.

**Probability of Future Events:** Based on the history of tsunami run-ups in the region and the history of earthquakes in the Pacific Rim, another tsunami event is likely to occur, although the extent and probability is unknown.

#### 4.3.11 Wildfire

**Nature:** A wildfire is an uncontrolled fire that spreads through vegetative fuels, exploding and possibly consuming structures. Wildfires often begin unnoticed, spread quickly, and are usually signaled by dense smoke that may be visible from miles around. Wildfires can be human-caused by arson or campfires, or can be caused by natural events such as lightning. Wildfires can be categorized into four types:

- **Wildland fires** occur mainly in areas under federal control, such as national forests and parks, and are fueled primarily by natural vegetation.
- **Interface or intermix fires** occur in areas where both vegetation and structures provide fuel. These are also referred to as urban-wildland interface fires.
- **Firestorms** occur during extreme weather (typically high temperatures, low humidity, and high winds) with such intensity that fire suppression is virtually impossible. These events typically burn until the conditions change or the fuel is exhausted.
- **Prescribed fires and prescribed natural fires** are intentionally set or natural fires that are allowed to burn for beneficial purposes.

The following three factors contribute significantly to wildfire behavior; as described more fully below, these factors can be used to identify wildfire hazard areas:

- **Topography:** As slope increases, the rate of wildfire spread increases. South-facing slopes are also subject to greater solar radiation, making them drier and thereby intensifying wildfire behavior. However, ridgetops may mark the end of wildfire spread because fire spreads more slowly or may even be unable to spread downhill.
- **Fuel:** The type and condition of vegetation plays a significant role in the occurrence and spread of wildfires. Certain types of plants are more susceptible to burning or burn with greater intensity. Dense or overgrown vegetation increases the amount of combustible material available to fuel the fire (referred to as the “fuel load”); the ratio of living to dead plant matter is also important. The risk of fire is increased significantly during periods of prolonged drought as the moisture content of both living and dead plant matter decreases. The fuel’s continuity is also an important factor, both horizontally and vertically.
- **Weather:** The most variable factor affecting wildfire behavior is weather. Variables such as temperature, humidity, wind, and lightning can affect chances for ignition and spread of fire. Extreme weather, such as high temperatures and low humidity, can lead to extreme wildfire activity. By contrast, cooling and higher humidity often signals reduced wildfire occurrence and easier containment. Years of precipitation followed by warmer years tend to encourage more widespread fires and longer burn periods. Also, since the mid-1980s, earlier snowmelt and associated warming due to global climate change has been associated with longer and more severe wildfire seasons in the western United States.

If not promptly controlled, wildfire may grow into an emergency or disaster. Even small fires can threaten lives and resources and destroy improved properties. It is also important to note that in addition to affecting people, wildfire may severely affect livestock and pets. Such events may require the emergency watering/feeding, shelter, evacuation, and even burying of animals.

Wildfires can have serious effects on the local environment. In addition to stripping the land of vegetation and destroying forest resources, large, intense fires can harm the soil, waterways, and the land itself. Soil exposed to intense heat may lose its capacity to absorb moisture and support life. Exposed soils erode quickly and enhance siltation of rivers and streams, thereby enhancing flood potential, harming aquatic life, and degrading water quality. Lands stripped of vegetation are also subject to increased debris flow hazards, as described above. Wildfires can also greatly affect the air quality of the surrounding area.

**History:** Wildfires are a common occurrence in Ventura County. In the last 50 years (1965 through 2015), 23 wildfires, with an extent greater than 10,000 acres, have occurred. **Table 4-8** illustrates the 10 largest fires over the last 50 years. Most recently, in May 2013, the Springs fire burned 24,251 acres; 10 structures were destroyed and 12 were damaged, and 10 injuries were recorded.

Table 4-8. Ten Largest Ventura County Fires in the Last 50 years, 1965 through 2015

Name	Date	Acres Affected*
Day	September 2006	162,702
Simi Valley	October 2003	108,204
Piru	October 2003	63,991
Ranch**	October 2007	58,401
Ferndale	October 1985	47,064
Green Meadow	October 1993	38,477
Creek Road	September 1979	32,000
Steckel	October 1993	27,088
Parker Ranch	October 1967	25,000
Hopper	August 1997	24,793

Source: Cal FIRE 2015

\*Acres affected = total acreage.

\*\* Fire occurred in both Ventura and Los Angeles counties.

**Location:** Public Resources Code 4201-4204 and Government Code 51175-89 directed the California Department of Forestry and Fire Protection (Cal FIRE) to map areas of significant fire hazards based on fuels, terrain, weather, and other relevant factors. These zones, referred to as Fire Hazard Severity Zones (FHSZs), are represented as very high, high, or moderate. Specifically, the maps were created using data and models describing development patterns, potential fuels over a 30- to 50-year time horizon, expected fire behavior, and expected burn probabilities. The maps are divided into local responsibility areas and state responsibility areas. Local responsibility areas generally include cities, cultivated agriculture lands, and portions of the desert. Local responsibility area fire protection is typically provided by city fire departments, fire protection districts, counties, and by Cal FIRE under contract to the local government. State responsibility area is a legal term defining the area where the state has financial responsibility for wildfire protection. Incorporated cities and federal ownership are not included. The prevention

and suppression of fires in all areas that are not state responsibility areas are primarily the responsibility of federal or local agencies.

**Figure F-14** displays the areas of Ventura County most susceptible to wildfires. Within the County, very high FHSZs are located in mountainous or hillside areas (west of Lake Casitas, northeast of Ojai, north of Fillmore, and surrounding Thousand Oaks and Simi Valley), where the greatest fuel density exists; as well as throughout much of the county's large agricultural and cattle-grazing areas. Although these areas are not heavily populated, they are near populated communities.

**Extent** As shown on **Figure F-15**, in Ventura County there are 81.87 square miles in the high FHSZ and 504.42 square miles in the very high FHSZ.

**Probability of Future Events:** The climate in Ventura County is characterized as Mediterranean dry-summer featuring cool, wet winters and warm, dry summers. High moisture levels during the winter rainy season significantly increase the growth of plants. However, the vegetation is dried during the long, hot summers, decreasing plant moisture content and increasing the ratio of dead fuel to living fuel. As a result, fire susceptibility increases dramatically, particularly in late summer and early autumn. In addition, the presence of chaparral, a drought-resistant variety of vegetation that is dependent on occasional wildfires, is expected in Mediterranean dry-summer climates. Also, the history of plant succession in Ventura County is important in predicting fire susceptibility. For several years after a fire has occurred, easily flammable herbaceous species predominate and increase the likelihood of new fires. When woody species become re-established, they contribute to a lower overall level of fire susceptibility for approximately 10 years. However, after this period, the slow aging plant community becomes ever more likely to burn because of increased levels of dead plant material and lowered plant moisture levels.

In addition, the local meteorological phenomenon known as the Santa Ana winds contributes to the high incidence of wildfires in Ventura County. These winds originate during the autumn months in the hot, dry interior deserts to the north and east of Ventura County. They often sweep west into the county, bringing extremely dry air and high wind speeds that further desiccate plant communities during the period of the year when the constituent species have very low moisture content. The effect of these winds on existing fires is particularly dangerous; the winds can greatly increase the rate at which fires spread.

Based on the conditions described above and the history of occurrence in the past, future events are very likely to occur. In the past, fires burning more than 1,000 acres have occurred about every 1 to 3 years. The extent of future events will depend on specific conditions at the time of the fire.

#### 4.3.12 Winter Storm

**Nature:** The climate on California's southern coast is hot Mediterranean, in which summers are hot and dry and winters are cool and damp. A dominating factor in the weather of California is the semi-permanent high pressure area of the North Pacific Ocean, sometimes called the Pacific High. This pressure center moves northward in summer, holding storm tracks well to the north; as a result, California receives little or no precipitation during that period. The Pacific High decreases in intensity in winter and moves farther south, permitting storms to move into and across the state and producing high winds, widespread rain at low elevations, and snow at high elevations. Occasionally the state's circulation pattern permits a series of storm centers to move into California from the southwest. This type of storm pattern is responsible for occasional heavy rains that can cause serious winter flooding. The rainy season is from mid-autumn to mid-spring. During these months, winter storms may occur.

In addition to high winds and flooding, winter storms may bring hail, lightning, and extended periods of freezing temperatures to all areas of the county.

**History:** Ventura County was included in the Presidential Disaster Declarations for freezing/severe winter storms that occurred in December 1998 and January 2007. The 1998 freeze was particularly damaging to citrus crops.

According to NOAA's National Climatic Data Center (NCDC) database, 105 storms causing high winds occurred in Ventura County over the last 10 years. These storms included wind speeds of up to 76 miles per hour; in one case, the storm caused a death. Storms with high winds also knocked down trees and power lines.

Also according to the NCDC database, 31 winter storms causing snow and ice have occurred in Ventura County over the last 10 years. Some of the storms also caused hail; in addition, two hailstorms have been recorded in Ventura County since 2005, with reported hail of up to 1.5 inches in diameter.

**Location:** Many events described above affected all of Ventura County. The entire county is susceptible to winter storms and damage from wind. However, only the higher elevation areas (typically at or above 4,000 to 5,000 feet) experience snowfall, while lower elevation areas experience heavy rains. Hail has occurred throughout the county.

**Extent:** A winter storm can cause high rains, flooding, up to 18 inches of snow at the highest elevations in the county (e.g., Mount Pinos), and wind speeds of up to 70 miles per hour. Hail of up to 1.5 inches in diameter has been recorded.

**Probability of Future Events:** Based on recent history, a winter storm can occur every year, but those causing injury or damage occur about once every 10 years.



*This page intentionally left blank*

## 5.1 OVERVIEW

A vulnerability analysis predicts the extent of exposure that may result from a hazard event of a given intensity in a given area. The analysis provides quantitative data that may be used to identify and prioritize potential mitigation measures by allowing communities to focus attention on areas with the greatest risk of damage.

This vulnerability analysis consists of the following steps:

- Asset inventory
- Methodology
- Exposure analysis and summary of impacts
- RL properties

## 5.2 ASSET INVENTORY

Land, population, and residential buildings are listed in **Table 5-1** for all of Ventura County, including its 10 cities. The critical facilities and infrastructure of local participants (Unincorporated Ventura County, eight cities and nine special districts) are listed in **Table 5-1**, including the total number of each category of facility or infrastructure. In addition, local participant-specific assets are listed in each local participant-specific appendix.

**Table 5-1. Summary of Total Assets**

Category		Number
Land (square miles)		1,832.43
Population		823,262
Residential Buildings		232,414
Critical Facilities and Infrastructure	Commercial fuel distribution facilities	1
	Community facilities, including libraries, community centers, and parks	332
	Educational facilities, including school buildings and district offices	359
	Emergency response facilities, including fire and police stations	89
	Government facilities	50
	Medical and residential care facilities	77
	Public utilities, including pump stations, electric substations, potable water facilities, wastewater facilities, wells, dams, reservoirs, debris basins hydrostations, meter stations, and stream and river gages	515
	Transportation infrastructure, including bridges maintained by the County of Ventura, airports, and transit stations	158
	TOTAL	1,581

### 5.3 METHODOLOGY

A conservative exposure-level analysis was conducted to assess the risks associated with the identified hazards. This analysis is a simplified assessment of the potential effects of the hazards on values at risk, without consideration of the probability or level of damage. Due to a combination of a lack of adequate information, the lack of a standard methodology for a quantitative exposure analysis, and limited GIS capabilities, a quantitative exposure analysis has been prepared for the hazards listed in **Table 5-2**.

**Table 5-2. Hazards Included in Exposure Analysis**

Hazards	
Climate Change (Sea-Level Rise and Combined Storm Flood Hazard Zones)	Landslide
Dam Failure Inundation	Levee Failure Inundation
Earthquake (Ground Shaking and Liquefaction)	Tsunami
Flood	Wildfire

Population was derived from 2010 Census information, then a combination of spatial overlay and proportional analysis was used to determine the number of people in areas where hazards are likely to occur.

Using block-level residential building information from the 2010 Census, a combination of spatial overlay and proportional analysis was used to determine the number of residential buildings located where hazards are likely to occur.

Point locations for each critical facility and infrastructure were compared to locations where hazards are likely to occur. For each critical facility/infrastructure in a hazard area, exposure was calculated by assuming the worst-case scenario (that is, the asset would be completely destroyed and would have to be replaced). A similar analysis was used to evaluate the proportion of the population at risk. However, the analysis simply represents the number of people at risk; no estimate of the number of potential injuries or deaths was prepared.

Additionally, replacement values and/or insured values are not included for residential buildings due to incomplete data, and are only included for critical facilities/facilities if available.

## 5.4 EXPOSURE ANALYSIS AND SUMMARY OF IMPACTS

The local hazard mitigation planning and floodplain management requirements for an MHMP's exposure analysis and corresponding summary of impacts are as follows:

<b>Regulation Checklist – 44 CFR 201.6 Local Mitigation Plans</b>
<b>Element B: Hazard Identification and Risk Assessment</b>
<b>B3.</b> Is there a description of each identified hazard's impact on the community as well as an overall summary of the community's vulnerability for each jurisdiction? (Requirement §201.6(c)(2)(ii))

<b>Regulation Checklist – CRS 510 Floodplain Management Planning</b>
<b>CRS Step 5: Assess the Problem.</b>
<b>A.</b> Summary of each hazard identified in the hazard assessment and their community impact. <b>B.</b> Description of the impacts of hazards on: <ul style="list-style-type: none"> <li>(1) Life, safety, health, procedures for warning and evacuations</li> <li>(3) Critical facilities and infrastructure</li> <li>(5) The number and type of affected buildings</li> </ul>

**Tables 5-3 through 5-19** include the total exposure analysis by hazard. The exposure analysis details the number and percent of land, population, residential buildings, and critical facilities and infrastructure at risk to a hazard. This information is summarized in the summary of impact statement, which follows each exposure analysis table. In addition, local participant-specific exposure analyses are listed in each local participant-specific appendix. Finally, flood insurance information is provided for Unincorporated Ventura County buildings located in the 1% annual chance (100-year) flood. The impacts of flood hazards on life/safety procedures for warnings and evacuations are also discussed for flood and tsunamis.

### 5.4.1 Summary of Impacts to Climate Change (Rising Tides Inundation Areas – 2030)

While the entire County, including all cities, is vulnerable to climate change, only the areas on the coast are susceptible to effects of rising tides due to climate change. The cities of Oxnard and Ventura as well as Unincorporated Ventura County - are all vulnerable to inundation due to rising tides. As predicted for the year 2030, the following percentages of the population live in a rising tides inundation area: Oxnard, 0.2 percent; Ventura, 0.09 percent; and Unincorporated Ventura County, 0.22 percent.

**Table 5-3** below illustrates the summary of impacts from rising tides due to climate change on the entire County. This includes the level of impact to the County's landmass, population, residential structures, and the critical facilities and infrastructure.

**Table 5-3. Total: Climate Change Exposure Analysis  
(Rising Tides Inundation Areas – 2030)**

Category		Number	% of Total
Land (square miles)		6.49	0.35%
Population		724	0.09%
Residential Buildings		449	0.19%
Critical Facilities and Infrastructure	Commercial fuel distribution facilities	0	0.00%
	Community facilities, including libraries, community centers, and parks	7	2.11%
	Educational facilities, including school buildings and district offices	0	0.00%
	Emergency response facilities, including fire and police stations	0	0.00%
	Government facilities	0	0.00%
	Medical and residential care facilities	0	0.00%
	Public utilities, including pump stations, electric substations, potable water facilities, wastewater facilities, wells, dams, reservoirs, debris basins hydrostations, meter stations, and stream and river gages	0	0.00%
	Transportation infrastructure, including bridges maintained by the County of Ventura, airports, and transit stations	10	6.33%
	TOTAL	17	1.08%

### 5.4.2 Summary of Impacts to Climate Change (Combined Storm Flood Hazard Zones – 2030)

While the entire County, including all cities, is vulnerable to climate change, only the areas on the coast are susceptible to effects of storm flood hazard zones due to climate change. Combined storm flood zones take into account future coastal erosion, fluvial 100-year storm floodplains, coastal storm wave impact areas, and future sea-level rise. The cities of Oxnard, Port Hueneme, Ventura and Unincorporated Ventura County are all vulnerable to combined storm flooding. As predicted for the year 2030, the following percentages of the population will be located in combined storm flood zone: Oxnard, 5.03 percent; Port Hueneme, 0.16 percent; Ventura, 2.54 percent; and Unincorporated Ventura County, 2.37 percent.

**Table 5-4** below illustrates the summary of impacts from a combined storm flood event on the entire County. This includes the level of impact to the County's landmass, population, residential structures, and the critical facilities and infrastructure.

**Table 5-4. Total: Climate Change Exposure Analysis  
(Combined Storm Flood Hazard Zones – 2030)**

Category		Number	% of Total
Land (square miles)		28.43	1.55%
Population		14,927	181%
Residential Buildings		5,633	2.42%
Critical Facilities and Infrastructure	Commercial fuel distribution facilities	0	0.00%
	Community facilities, including libraries, community centers, and parks	22	6.63%
	Educational facilities, including school buildings and district offices	5	1.39%
	Emergency response facilities, including fire and police stations	0	0.00%
	Government facilities	0	0.00%
	Medical and residential care facilities	0	0.00%
	Public utilities, including pump stations, electric substations, potable water facilities, wastewater facilities, wells, dams, reservoirs, debris basins hydrostations, meter stations, and stream and river gages	26	5.05%
	Transportation infrastructure, including bridges maintained by the County of Ventura, airports, and transit stations	15	9.49%
	TOTAL	68	4.30%

### 5.4.3 Summary of Impacts to Dam Failure Inundation

There are 16 state regulated dams within Ventura County as well as 5 state regulated dams outside of the County that can lead to inundation of Ventura County. The entire County is vulnerable to inundation from dam failure(s), but the area's most susceptible to dam failure inundation include those locations along the Santa Clara River, including Fillmore and Santa Paula, and the cities of Oxnard, and Port Hueneme. Accordingly, the following percentages of the population are located within dam failure inundation zones: Camarillo, 37.02 percent; Fillmore, 85.65 percent; Moorpark, 39.94 percent; Ojai, 2.86 percent; Oxnard, 100 percent; Port Hueneme, 100 percent; Santa Paula, 85.88 percent; Simi Valley, 30.77 percent; Thousand Oaks; 3.81 percent; Ventura, 27.77 percent; and Unincorporated Ventura County, 27.35 percent.

**Table 5-5** below illustrates the summary of impacts from dam failure inundation on the entire County. This includes the level of impact to the County's landmass, population, residential structures, and the critical facilities and infrastructure. It is important to note that this summary reflects the impacts due to failure of all dams with inundations areas in Ventura County, which is not ever anticipated to occur.

**Table 5-5. Total: Dam Failure Inundation Exposure Analysis**

Category		Number	% of Total
Land (square miles)		189.17	10.32%
Population		394,416	47.91%
Residential Buildings		94,511	40.66%
Critical Facilities and Infrastructure	Commercial fuel distribution facilities	1	100.00%
	Community facilities, including libraries, community centers, and parks	147	44.28%
	Educational facilities, including school buildings and district offices	174	48.47%
	Emergency response facilities, including fire and police stations	53	59.55%
	Government facilities	33	66.00%
	Medical and residential care facilities	31	40.26%
	Public utilities, including pump stations, electric substations, potable water facilities, wastewater facilities, wells, dams, reservoirs, debris basins hydrostations, meter stations, and stream and river gages	166	32.23%
	Transportation infrastructure, including bridges maintained by the County of Ventura, airports, and transit stations	98	62.03%
	TOTAL	703	44.47%



#### 5.4.4 Summary of Impacts to Earthquakes (Severe Ground Shaking)

All of Ventura County is vulnerable to ground shaking from an earthquake and the entire County is in the severe, violent or extreme ground shaking potential categories. Areas of severe ground shaking are found in the south eastern corner of the County and the northern portion of the County, which is sparsely populated. Severe ground shaking is anticipated for 0.02 percent of Simi Valley's population, 0.66 percent of Thousand Oak's population and 2.88 percent of Unincorporated Ventura County's population.

**Table 5-6** below illustrates the summary of impacts from earthquake shaking on the entire County, when looking at areas of severe ground shaking. This includes the level of impact to the County's landmass, population, residential structures, and the critical facilities and infrastructure.

**Table 5-6. Total: Earthquake Exposure Analysis (Severe Ground Shaking)**

Category		Number	% of Total
Land (square miles)		15.16	0.83%
Population		3,563	0.43%
Residential Buildings		1,099	0.47%
Critical Facilities and Infrastructure	Commercial fuel distribution facilities	0	0.00%
	Community facilities, including libraries, community centers, and parks	3	0.90%
	Educational facilities, including school buildings and district offices	0	0.00%
	Emergency response facilities, including fire and police stations	0	0.00%
	Government facilities	0	0.00%
	Medical and residential care facilities	0	0.00%
	Public utilities, including pump stations, electric substations, potable water facilities, wastewater facilities, wells, dams, reservoirs, debris basins hydrostations, meter stations, and stream and river gages	0	0.00%
	Transportation infrastructure, including bridges maintained by the County of Ventura, airports, and transit stations	0	0.00%
	TOTAL	3	0.19%

### 5.4.5 Summary of Impacts to Earthquakes (Violent Ground Shaking)

All of Ventura County is vulnerable to ground shaking from an earthquake and the entire County is in the severe, violent or extreme ground shaking potential categories. Areas of violent ground shaking are found throughout the County, but the cities of Camarillo, Moorpark, Ojai and Thousand Oaks are almost entirely or entirely in the violent ground shaking zone. Violent ground shaking is anticipated for 97.40 percent of Camarillo's population; 89.18 percent of Moorpark's population; 100 percent of Ojai's population; 20.40 percent of Oxnard's population; 0.12 percent of Santa Paula's population; 49.64 percent of Simi Valley's population; 99.34 percent of Thousand Oak's population; 25.34 percent of Ventura's population; and 70.92 percent of Unincorporated Ventura County's population.

**Table 5-7** below illustrates the summary of impacts from earthquake shaking on the entire County, when looking at areas of violent ground shaking. This includes the level of impact to the County's landmass, population, residential structures, and the critical facilities and infrastructure

**Table 5-7. Total: Earthquake Exposure Analysis (Violent Ground Shaking)**

Category		Number	% of Total
Land (square miles)		1,157.57	63.17%
Population		437,604	53.15%
Residential Buildings		133,671	57.51%
Critical Facilities and Infrastructure	Commercial fuel distribution facilities	0	0.00%
	Community facilities, including libraries, community centers, and parks	210	63.25%
	Educational facilities, including school buildings and district offices	191	53.20%
	Emergency response facilities, including fire and police stations	46	51.69%
	Government facilities	21	42.00%
	Medical and residential care facilities	41	53.25%
	Public utilities, including pump stations, electric substations, potable water facilities, wastewater facilities, wells, dams, reservoirs, debris basins hydrostations, meter stations, and stream and river gages	338	65.63%
	Transportation infrastructure, including bridges maintained by the County of Ventura, airports, and transit stations	87	55.06%
	TOTAL	934	59.08%

### 5.4.6 Summary of Impacts to Earthquakes (Extreme Ground Shaking)

All of Ventura County is vulnerable to ground shaking from an earthquake and the entire County is in the severe, violent or extreme ground shaking potential categories. Areas of extreme ground shaking are found throughout the County, but the cities of Fillmore, Oxnard, Santa Paula, and Ventura are almost entirely or entirely in the extreme ground shaking zone. Extreme ground shaking is anticipated for 2.60 percent of Camarillo's population; 100 percent of Fillmore's population; 10.82 percent of Moorpark's population; 79.60 percent of Oxnard's population; 65.87 percent of Port Hueneme's population; 99.88 percent of Santa Paula's population; 50.34 percent of Simi Valley's population; 74.35 percent of Ventura's population; and 26.01 percent of Unincorporated Ventura County's population.

**Table 5-8** below illustrates the summary of impacts from earthquake shaking on the entire County, when looking at areas of extreme ground shaking. This includes the level of impact to the County's landmass, population, residential structures, and the critical facilities and infrastructure.

**Table 5-8. Total: Earthquake Exposure Analysis (Extreme Ground Shaking)**

Category		Number	% of Total
Land (square miles)		659.67	36.00%
Population		381,564	46.35%
Residential Buildings		97,306	41.87%
Critical Facilities and Infrastructure	Commercial fuel distribution facilities	1	100.00%
	Community facilities, including libraries, community centers, and parks	115	34.64%
	Educational facilities, including school buildings and district offices	168	46.80%
	Emergency response facilities, including fire and police stations	43	48.31%
	Government facilities	29	58.00%
	Medical and residential care facilities	42	54.55%
	Public utilities, including pump stations, electric substations, potable water facilities, wastewater facilities, wells, dams, reservoirs, debris basins hydrostations, meter stations, and stream and river gages	167	32.43%
	Transportation infrastructure, including bridges maintained by the County of Ventura, airports, and transit stations	71	44.94%
	TOTAL	636	40.23%

### 5.4.7 Summary of Impacts to Earthquakes (Liquefaction)

The entire County of Ventura, including all cities, is susceptible to liquefaction, but those most vulnerable are those locations along the Santa Clara river and those in the valley area which extends from Camarillo to Port Hueneme. All or almost all residents of Fillmore, Oxnard and Port Hueneme are in the liquefaction susceptibility areas. The following percentages of the population live in liquefaction susceptible areas: Camarillo, 23.10 percent; Fillmore, 97.81 percent; Moorpark, 48.64 percent; Ojai, 11.48 percent; Oxnard, 99.99 percent; Port Hueneme, 100 percent; Santa Paula, 34.74 percent; Simi Valley, 42.10 percent; Thousand Oaks, 2.79 percent; Ventura, 40.26 percent; and Unincorporated Ventura County, 32.23 percent.

**Table 5-9** below illustrates the summary of impacts from liquefaction on the entire County. This includes the level of impact to the County's landmass, population, residential structures, and the critical facilities and infrastructure.

**Table 5-9. Total: Earthquake Exposure Analysis (Liquefaction)**

Category		Number	% of Total
Land (square miles)		211.39	11.54%
Population		406,454	49.37%
Residential Buildings		99,538	42.83%
Critical Facilities and Infrastructure	Commercial fuel distribution facilities	0	0.00%
	Community facilities, including libraries, community centers, and parks	145	43.67%
	Educational facilities, including school buildings and district offices	170	47.35%
	Emergency response facilities, including fire and police stations	49	55.06%
	Government facilities	37	74.00%
	Medical and residential care facilities	46	59.74%
	Public utilities, including pump stations, electric substations, potable water facilities, wastewater facilities, wells, dams, reservoirs, debris basins hydrostations, meter stations, and stream and river gages	187	36.31%
	Transportation infrastructure, including bridges maintained by the County of Ventura, airports, and transit stations	118	74.68%
	TOTAL	752	47.56%

### 5.4.8 Summary of Impacts to Flood (100-Year Flood Zone)

Flooding affects areas all throughout Ventura County. Areas of likely flooding are defined by a 100-year and a 500-year flood zone. While the entire County has population in the 100-year flood zone, the cities of Camarillo, Santa Paula and Simi Valley are most vulnerable. The following percentages of the population live in the 100-year flood zone: Camarillo, 8.33 percent; Fillmore, 2.73 percent; Moorpark, 5.95 percent; Ojai, 3.24 percent; Oxnard, 0.31 percent; Port Hueneme, 0.45 percent; Santa Paula, 37.53 percent; Simi Valley, 11.79 percent; Thousand Oaks, 1.45 percent; Ventura, 0.5 percent; and Unincorporated Ventura County, 6.76 percent.

**Table 5-10** below illustrates the summary of impacts of flooding on the entire County, when looking at the 100-year flood zones. This includes the level of impact to the County's landmass, population, residential structures, and the critical facilities and infrastructure.

**Table 5-10. Total: Flood Exposure Analysis (100-Year Flood Zone)**

Category		Number	% of Total
Land (square miles)		78.37	4.28%
Population		43,311	5.26%
Residential Buildings		12,801	5.51%
Critical Facilities and Infrastructure	Commercial fuel distribution facilities	0	0.00%
	Community facilities, including libraries, community centers, and parks	30	9.04%
	Educational facilities, including school buildings and district offices	19	5.29%
	Emergency response facilities, including fire and police stations	3	3.37%
	Government facilities	1	2.00%
	Medical and residential care facilities	3	3.90%
	Public utilities, including pump stations, electric substations, potable water facilities, wastewater facilities, wells, dams, reservoirs, debris basins hydrostations, meter stations, and stream and river gages	82	15.92%
	Transportation infrastructure, including bridges maintained by the County of Ventura, airports, and transit stations	107	67.72%
	TOTAL	245	15.50%

**Additional Flood Insurance Information:** Not including public utilities (basins, wells, gages and dams) and bridges, there are four facilities owned by Unincorporated Ventura County that are located within the 100-year floodplain, including: Todd Road Jail; Piru Family Medical Center, Santa Paula Medical Center and the Ventura County Airport. In addition, there are two Ventura County Fire District facilities (stations #22 and #25) located in this hazard area. All of the facilities mentioned above have flood insurance. Not including bridges, there is only one

facility (La Jenelle Park) owned by Oxnard that is located within the 100-year floodplain. Since the park is not an actual facility, it does not have flood insurance.

**Additional Life/Safety Information:** As described in CRS Activity 610, the VCWPD operates and maintains a Flood Threat Recognition System also known as the Flood Warning System (**Annex A**). The Flood Warning System is made of self-reporting rain and stream gages placed in strategic locations to provide real-time data for monitoring storms and flooding conditions. The gages provide warnings for each water course and basin across Ventura County, including each city. Each stream gage has an Advance Hydrologic Prediction System display to show the current stream level, predicted level(s), and warning levels. Alarm criteria are set by specific thresholds for each gage on rainfall intensity and stream/river flows. Once an alarm is triggered, the alarm message is sent via e-mail, pager text, SMS cell text, and Twitter message to emergency personnel in the Ventura County Storm Operation Centers and the Emergency Operation Center. The staff at the operation centers can provide hydrologic knowledge on how the channels are responding to the storm and can clarify any discrepancies between observed peaks and forecasted peaks for the Ventura County Sheriff's (OES) and other local agencies that execute warnings and evacuations. The Twitter message is sent to a public account and can be monitored by the public, emergency personnel, and NWS.

### 5.4.9 Summary of Impacts to Flood (500-Year Flood Zone)

While the entire County has people that reside in the 500-year flood zone, the people living in the cities of Camarillo, Moorpark, Ojai, Oxnard, Port Hueneme, and Santa Paula are most vulnerable. The following percentages of the population live in the 500-year flood zone: Camarillo, 28.62 percent; Fillmore, 0.02 percent; Moorpark, 24.39 percent; Ojai, 27.05 percent; Oxnard, 34.96 percent; Port Hueneme, 94.24 percent; Santa Paula, 24.52 percent; Simi Valley, 4.1 percent; Thousand Oaks, 0.77 percent; Ventura, 3.19 percent; and Unincorporated Ventura County, 12.11 percent.

**Table 5-11** below illustrates the summary of impacts of flooding on the entire County, when looking at the 500-year flood zones. This includes the level of impact to the County's landmass, population, residential structures, and the critical facilities and infrastructure.

**Table 5-11. Total: Flood Exposure Analysis (500-Year Flood Zone)**

Category		Number	% of Total
Land (square miles)		51.65	2.82%
Population		146,882	17.84%
Residential Buildings		34,996	15.06%
Critical Facilities and Infrastructure	Commercial fuel distribution facilities	0	0.00%
	Community facilities, including libraries, community centers, and parks	51	15.36%
	Educational facilities, including school buildings and district offices	64	17.83%
	Emergency response facilities, including fire and police stations	27	30.34%
	Government facilities	11	22.00%
	Medical and residential care facilities	17	22.08%
	Public utilities, including pump stations, electric substations, potable water facilities, wastewater facilities, wells, dams, reservoirs, debris basins hydrostations, meter stations, and stream and river gages	49	9.51%
	Transportation infrastructure, including bridges maintained by the County of Ventura, airports, and transit stations	23	14.56%
	TOTAL	242	15.31%



#### 5.4.10 Summary of Impacts to Landslides (Susceptibility Class VIII)

The entire County is susceptible to landslide, but most of the areas susceptible to landslide are not highly populated. High landslide susceptibility is broken up into three classes, VIII, IX and X. The following percentages of the population live in landslide susceptibility Class VIII areas: Camarillo, 0.5 percent; Fillmore, 0.23 percent; Moorpark, 4.55 percent; Ojai, 0.74 percent; Simi Valley, 3.29 percent; Thousand Oaks, 4.07 percent; Ventura, 0.04 percent; and Unincorporated Ventura County, 2.71 percent.

**Table 5-12** below illustrates the summary of impacts from landslides on the entire County, when looking at susceptibility Class VIII areas. This includes the level of impact to the County's landmass, population, residential structures, and the critical facilities and infrastructure.

**Table 5-12. Total: Landslide Exposure Analysis (Susceptibility Class VIII)**

Category		Number	% of Total
Land (square miles)		174.51	9.52%
Population		13,803	1.68%
Residential Buildings		4,534	1.95%
Critical Facilities and Infrastructure	Commercial fuel distribution facilities	0	0.00%
	Community facilities, including libraries, community centers, and parks	6	1.81%
	Educational facilities, including school buildings and district offices	2	0.56%
	Emergency response facilities, including fire and police stations	1	1.12%
	Government facilities	1	2.00%
	Medical and residential care facilities	0	0.00%
	Public utilities, including pump stations, electric substations, potable water facilities, wastewater facilities, wells, dams, reservoirs, debris basins hydrostations, meter stations, and stream and river gages	27	5.24%
	Transportation infrastructure, including bridges maintained by the County of Ventura, airports, and transit stations	0	0.00%
	TOTAL	37	2.34%

### 5.4.11 Summary of Impacts to Landslides (Susceptibility Class IX)

As noted in the section above, most of the areas in the County that are susceptible to landslide are not highly populated. High landslide susceptibility is broken up into three classes, VIII, IX and X. The following percentages of the population live in landslide susceptibility Class IX areas: Camarillo, 2.5 percent; Fillmore, 1.07 percent; Moorpark, 6.65 percent; Ojai, 1.34 percent; Oxnard, 0.01 percent; Santa Paula, 1.61 percent; Simi Valley, 3.79 percent; Thousand Oaks, 7.26 percent, Ventura, 2.47 percent; and Unincorporated Ventura County, 6.63 percent.

**Table 5-13** below illustrates the summary of impacts from landslides on the entire County, when looking at susceptibility Class IX areas. This includes the level of impact to the County's landmass, population, residential structures, and the critical facilities and infrastructure.

**Table 5-13. Total: Landslide Exposure Analysis (Susceptibility Class IX)**

Category		Number	% of Total
Land (square miles)		668.71	36.49%
Population		27,445	3.33%
Residential Buildings		9,428	4.06%
Critical Facilities and Infrastructure	Commercial fuel distribution facilities	0	0.00%
	Community facilities, including libraries, community centers, and parks	19	5.72%
	Educational facilities, including school buildings and district offices	1	0.28%
	Emergency response facilities, including fire and police stations	1	1.12%
	Government facilities	0	0.00%
	Medical and residential care facilities	0	0.00%
	Public utilities, including pump stations, electric substations, potable water facilities, wastewater facilities, wells, dams, reservoirs, debris basins hydrostations, meter stations, and stream and river gages	52	10.10%
	Transportation infrastructure, including bridges maintained by the County of Ventura, airports, and transit stations	4	2.53%
	TOTAL	77	4.87%

### 5.4.12 Summary of Impacts to Landslides (Susceptibility Class X)

The following percentages of the population live in landslide susceptibility Class X areas: Camarillo, 1.67 percent; Fillmore, 1.04 percent; Moorpark, 1.51 percent; Ojai, 0.13 percent; Santa Paula, 0.97 percent; Simi Valley, 0.55 percent; Thousand Oaks, 1.93 percent; Ventura, 3.13 percent; and Unincorporated Ventura County, 2.88 percent.

**Table 5-14** below illustrates the summary of impacts from landslides on the entire County, when looking at susceptibility Class X areas. This includes the level of impact to the County's landmass, population, residential structures, and the critical facilities and infrastructure.

**Table 5-14. Total: Landslide Exposure Analysis (Susceptibility Class X)**

Category		Number	% of Total
Land (square miles)		268.30	14.64%
Population		11,248	1.37%
Residential Buildings		3,951	1.70%
Critical Facilities and Infrastructure	Commercial fuel distribution facilities	0	0.00%
	Community facilities, including libraries, community centers, and parks	8	2.41%
	Educational facilities, including school buildings and district offices	3	0.84%
	Emergency response facilities, including fire and police stations	0	0.00%
	Government facilities	3	6.00%
	Medical and residential care facilities	1	1.30%
	Public utilities, including pump stations, electric substations, potable water facilities, wastewater facilities, wells, dams, reservoirs, debris basins hydrostations, meter stations, and stream and river gages	41	7.96%
	Transportation infrastructure, including bridges maintained by the County of Ventura, airports, and transit stations	4	2.53%
	TOTAL	60	3.80%

### 5.4.13 Summary of Impacts to Levee Failure Inundation (Reduced Flood Risks Due to Levees)

The hazard of levee failure inundation is discussed in **Section 4.3.8**. There are 5.31 square miles in Ventura County protected by VCWPD provisionally-accredited levees from the 100-year flood. Levees are located throughout the County, but the City of Fillmore receives the most benefit from levees. The following percentages of the population have a reduced flood risk due to levees: Fillmore, 47.39 percent; Oxnard, 3.61 percent; Simi Valley, 1.76 percent; Ventura, 4.25 percent; and Unincorporated Ventura County, 0.55 percent.

**Table 5-15** below illustrates the summary of impacts of a reduced flood risk due to VCWPD provisionally-accredited levees. This includes the level of impact to the County's landmass, population, residential structures, and the critical facilities and infrastructure.

**Table 5-15. Total: Levee Failure Inundation Exposure Analysis  
(Reduced Flood Risks Due to Levees)**

Category		Number	% of Total
Land (square miles)		5.17	0.29%
Population		21,514	2.61%
Residential Buildings		5,217	2.24%
Critical Facilities and Infrastructure	Commercial fuel distribution facilities	0	0.00%
	Community facilities, including libraries, community centers, and parks	8	2.41%
	Educational facilities, including school buildings and district offices	8	2.23%
	Emergency response facilities, including fire and police stations	5	5.62%
	Government facilities	0	0.00%
	Medical and residential care facilities	5	6.49%
	Public utilities, including pump stations, electric substations, potable water facilities, wastewater facilities, wells, dams, reservoirs, debris basins hydrostations, meter stations, and stream and river gages	7	1.36%
	Transportation infrastructure, including bridges maintained by the County of Ventura, airports, and transit stations	0	0.00%
	TOTAL	33	2.09%

#### 5.4.14 Summary of Impacts to Tsunami Inundation (Phase 3)

In general the entire coastal area of Ventura County is vulnerable to run-up from a tsunami. In particular, the areas along the coast of the cities of Ventura, Oxnard, and Port Hueneme and select areas of Unincorporated Ventura County are of most concern. The County has established two tsunami evacuation zones, one for a Phase 3 Evacuation and one for a Maximum Evacuation Phase. The following percentages of the population live in the evacuation zone for a Phase 3 Evacuation: Oxnard, 1.21 percent; Port Hueneme, 4.46 percent; Ventura, 1.88 percent; and Unincorporated Ventura County, 3.0 percent.

**Table 5-16** below illustrates the summary of impacts of a tsunami on the entire County, when looking at a Phase 3 Evacuation. This includes the level of impact to the County's landmass, population, residential structures, and the critical facilities and infrastructure.

**Table 5-16. Total: Tsunami Inundation Exposure Analysis (Phase 3)**

Category		Number	% of Total
Land (square miles)		9.85	0.54%
Population		8,199	0.99%
Residential Buildings		3,852	1.66%
Critical Facilities and Infrastructure	Commercial fuel distribution facilities	0	0.00%
	Community facilities, including libraries, community centers, and parks	12	3.61%
	Educational facilities, including school buildings and district offices	0	0.00%
	Emergency response facilities, including fire and police stations	1	1.12%
	Government facilities	0	0.00%
	Medical and residential care facilities	0	0.00%
	Public utilities, including pump stations, electric substations, potable water facilities, wastewater facilities, wells, dams, reservoirs, debris basins hydrostations, meter stations, and stream and river gages	18	3.50%
	Transportation infrastructure, including bridges maintained by the County of Ventura, airports, and transit stations	9	5.70%
	TOTAL	40	2.53%

**Additional Life/Safety Information:** As outlined in the Draft 2014 California Tsunami Evacuation Playbook, City of Ventura – Ventura County, a tsunami warning will be issued for a Phase 3 Evacuation (5.0 feet to 8.2 feet). For a Phase 3 Evacuation, evacuations will generally include beaches, piers, and harbor docks and boats. Warning messages will be transmitted by Warning Centers over the NOAA Weather Wire system directly to other Warning Centers, and to the Coastal NWS Forecast Offices and their Area of Responsibility's State Warning Centers. The local NWS Office is in Oxnard and serves Ventura County. Cal OES operates California's

State Warning Center in Sacramento. Some messages will be transmitted automatically based on seismic event magnitude and location, and followed shortly by more detailed information (after review by scientists at the Tsunami Warning Centers). Generally, a message will be generated within 5 minutes of the seismic event. Messages will be recorded for transmission of the Emergency Alert System and local National Weather Radio sites. There is no fixed, audible warning system that covers the entire 42 miles of the county's coastline. Emergency vehicle (and helicopter) public address systems and sirens may be used to alert residents of the need to evacuate. Warnings may not be possible in the event of a tsunami generated by a local seismic event, and will not be available if a tsunami is generated by a local nonseismic event (subaerial or subsea landslide).

#### 5.4.15 Summary of Impacts to Tsunami Inundation (Maximum Phase)

In general the entire coastal area of Ventura County is vulnerable to run-up from a tsunami. In particular, the areas along the coast of the cities of Ventura, Oxnard, and Port Hueneme and select areas of Unincorporated Ventura County are of most concern. The County has established two tsunami evacuation zones, one for a Phase 3 event and one for a Maximum Evacuation Phase. The following percentages of the population live in the evacuation zone for a Maximum Evacuation Phase: Oxnard, 3.66 percent; Port Hueneme, 6.99 percent; Ventura, 4.59 percent; and Unincorporated Ventura County, 3.83 percent.

**Table 5-17** below illustrates the summary of impacts of a tsunami on the entire County, when looking at a Maximum Evacuation Phase. This includes the level of impact to the County's landmass, population, residential structures, and the critical facilities and infrastructure.

**Table 5-17. Total: Tsunami Inundation Exposure Analysis (Maximum Phase)**

Category		Number	% of Total
Land (square miles)		13.84	0.76%
Population		17,266	2.10%
Residential Buildings		8,225	3.54%
Critical Facilities and Infrastructure	Commercial fuel distribution facilities	0	0.00%
	Community facilities, including libraries, community centers, and parks	25	7.53%
	Educational facilities, including school buildings and district offices	2	0.56%
	Emergency response facilities, including fire and police stations	1	1.12%
	Government facilities	0	0.00%
	Medical and residential care facilities	0	0.00%
	Public utilities, including pump stations, electric substations, potable water facilities, wastewater facilities, wells, dams, reservoirs, debris basins hydrostations, meter stations, and stream and river gages	27	5.24%
	Transportation infrastructure, including bridges maintained by the County of Ventura, airports, and transit stations	11	6.96%
	TOTAL	66	4.17%

Similar to a Phase 3 Event, a tsunami warning will be issued for a Maximum Evacuation Phase (8.2 ft. or greater). For a Maximum Evacuation Phase, evacuations will also generally include beaches, piers, and harbor docks and boats. Warning messages will follow the same protocol outlined in **Section 5.4.14**. Limitations of the system, including impacts of local-sourced tsunamis, are also described in **Section 5.4.14**.



#### 5.4.16 Summary of Impacts to Wildfires (High Fire Severity Zone)

The entire County is vulnerable to wildfire, however the area of most concern are along the wildland-urban interface (the zone of transition between unoccupied land and human development). Cal FIRE has developed three FHSZ, including moderate, high and very high. Very little of the County's population falls within the high FHSZ. Accordingly, 0.04 percent of Ojai's population; 0.03 percent of Santa Paula's population; and 3.89 percent of Unincorporated Ventura County's population reside in the high fire severity zone.

**Table 5-18** below illustrates the summary of impacts that wildfire has on the entire County, within the high FHSZ. This includes the level of impact to the County's landmass, population, residential structures, and the critical facilities and infrastructure.

**Table 5-18. Total: Wildfire Exposure Analysis (High FHSZ)**

Category		Number	% of Total
Land (square miles)		81.87	4.47%
Population		3,682	0.45%
Residential Buildings		1,410	0.61%
Critical Facilities and Infrastructure	Commercial fuel distribution facilities	0	0.00%
	Community facilities, including libraries, community centers, and parks	3	0.90%
	Educational facilities, including school buildings and district offices	4	1.11%
	Emergency response facilities, including fire and police stations	0	0.00%
	Government facilities	0	0.00%
	Medical and residential care facilities	0	0.00%
	Public utilities, including pump stations, electric substations, potable water facilities, wastewater facilities, wells, dams, reservoirs, debris basins hydrostations, meter stations, and stream and river gages	16	3.11%
	Transportation infrastructure, including bridges maintained by the County of Ventura, airports, and transit stations	7	4.43%
	TOTAL	30	1.90%

#### 5.4.17 Summary of Impacts to Wildfires (Very High Fire Severity Zone)

The populations that live in the very high FHSZ are mainly located in the cities of Moorpark, Simi Valley, Thousand Oaks, as well as Unincorporated Ventura County. The following percentages of the population live in the very high FHSZ: Camarillo, 4.99 percent; Fillmore, 9.74 percent; Moorpark, 44.0 percent; Ojai, 11.26 percent; Santa Paula, 4.49 percent; Simi Valley, 27.67 percent; Thousand Oaks, 43.06 percent; Ventura, 11.38 percent; and Unincorporated Ventura County, 37.08 percent.

**Table 5-19** below illustrates the summary of impacts that wildfire has on the entire County within the very high FHSZ. This includes the level of impact to the County's landmass, population, residential structures, and the critical facilities and infrastructure.

**Table 5-19. Total: Wildfire Exposure Analysis (Very High FHSZ \*)**

Category		Number	% of Total
Land (square miles)		504.42	27.53%
Population		157,918	19.18%
Residential Buildings		51,867	22.32%
Critical Facilities and Infrastructure	Commercial fuel distribution facilities	0	0.00%
	Community facilities, including libraries, community centers, and parks	81	24.40%
	Educational facilities, including school buildings and district offices	42	11.70%
	Emergency response facilities, including fire and police stations	16	17.98%
	Government facilities	8	16.00%
	Medical and residential care facilities	7	9.09%
	Public utilities, including pump stations, electric substations, potable water facilities, wastewater facilities, wells, dams, reservoirs, debris basins hydrostations, meter stations, and stream and river gages	211	40.97%
	Transportation infrastructure, including bridges maintained by the County of Ventura, airports, and transit stations	23	14.56%
	TOTAL	388	24.54%

\* Very high FHSZ include both Local Responsibility Areas and State Responsibility Areas.

## 5.5 REPETITIVE LOSS PROPERTIES

The local hazard mitigation planning requirements for RL properties are as follows:

Regulation Checklist – 44 CFR 201.6 Local Mitigation Plans	
Element B: Hazard Identification and Risk Assessment	
<b>B4.</b> Does the Plan address NFIP insured structures within the jurisdiction that have been repetitively damaged by floods? (Requirement §201.6(c)(2)(ii))	

A RL property is a NFIP-insured structure that has had at least two paid flood losses of more than \$1,000 each in any 10-year period since 1978. A Severe RL (SRL) property consists of any NFIP-insured property that has met at least one of the following paid flood loss criteria since 1978, regardless of ownership: (1) four or more separate claim payments of more than \$5,000 each (including building and contents payments); or (2) two or more separate claim payments (building payments only) where the total of the payments exceeds the current market value of the property. In either case, two of the claim payments must have occurred within 10 years of each other. **Table 5-20** shows the number of RL and SRL properties by jurisdiction and **Figure F-19** shows the approximate location of RL and SRL properties as of June 20, 2015.

The VCWPD has identified 12 repetitive flood areas throughout the Unincorporated Ventura County. These areas correspond with the RL and SRL properties identified in **Figure F-19**. The repetitive flood areas are as follows: areas 1-4 are along the Ventura River; areas 5-6 are located along the coast (Rincon Beach/Solimar Beach) near Santa Barbara County; area 7 is located along the Santa Clara River/City of Santa Paula; area 8 is located outside of the City of Oxnard in the Nyeland Acres community; area 9 is located along the coast bordering Los Angeles County; area 10 by Lake Sherwood; area 11 is located outside of Simi Valley next to Los Angeles County; and area 12 is located outside of the City of Camarillo along the Arroyo Las Posas.

Table 5-20. Repetitive Loss Properties

Community Name	RL Properties	National Count/Severe RL Properties	Total
Ventura County	59	4	63
City of Camarillo	0	0	0
City of Fillmore	0	0	0
City of Moorpark	0	0	0
City of Ojai	0	1	1
City of Oxnard	0	0	0
City of Port Hueneme	0	0	0
City of Santa Paula	3	0	3
City of Simi Valley	N/A	N/A	N/A
City of Thousand Oaks	5	0	5

Table 5-20. Repetitive Loss Properties

Community Name	RL Properties	National Count/Severe RL Properties	Total
City of Ventura	7	1	8
TOTAL	74	6	80

Source: FEMA Region IX: May 2015.

N/A = Not Available

## 6.1 OVERVIEW

A capability assessment identifies and evaluates the human and technical, financial, and legal and regulatory resources available for hazard mitigation; and describes the current, ongoing, and recently completed mitigation projects.

## 6.2 CAPABILITY ASSESSMENT

The local hazard mitigation planning and floodplain management requirements for a capability assessment are as follows:

<b>Regulation Checklist – 44 CFR 201.6 Local Mitigation Plans</b>	
<b>Element C: Mitigation Strategy</b>	
<b>C1.</b>	Does the Plan document each jurisdiction’s existing authorities, policies, programs and resources and its ability to expand on and improve these existing policies and programs? (Requirement § 201.6(c)(3))
<b>C2.</b>	Does the Plan address each jurisdiction’s participation in the NFIP and continued compliance with NFIP requirements, as appropriate? (Requirement § 201.6(c)(3)(i))

<b>Regulation Checklist – CRS 510 Floodplain Management Planning</b>	
<b>CRS Step 5: Assess the Problem</b>	
<b>C.</b>	Review of all damaged buildings/flood insurance claims

Capability assessment tables for each local participant, including human and technical, financial, and legal and regulatory resources, are provided in the participant-specific appendix of this plan (**Appendices G–W**). Additional information about the expansion and improvement of an existing policy or program is also included in the legal and regulatory resource tables. Finally, each appendix lists current and recently completed mitigation projects and programs.

As noted in Section 1, Unincorporated Ventura County and its cities participate in the NFIP. The NFIP makes federally backed flood insurance available to homeowners, renters, and business owners in communities that adopt and enforce floodplain management ordinances to reduce future flood damage. As participants of the NFIP, Unincorporated Ventura County and each of its cities enforce a floodplain management ordinance and participate in FEMA’s Community Assisted Visits, which occur on a 3-to 5-year cycle. Specifics regarding the floodplain manager and floodplain management ordinance for Unincorporated Ventura County and each city are contained in the capability assessment tables provided in each participant-specific appendix of this plan.

**Table 6-1** lists the date of the initially mapped FIRM, the emergency/regular program entrance date into the NFIP, and the number of policies in force as of March 31, 2015. A review of all flood insurance claims for Unincorporated Ventura County and the City of Oxnard is listed below as well.

**Table 6-1. Date of Initially Mapped FIRM and Emergency/Regular Program Entrance Date into NFIP for Unincorporated Ventura County and Cities**

Community Name	Date of Initially Mapped FIRM	Emergency/Regular Program Entrance Date into NFIP	# of Policies in Force
Unincorporated Ventura County	October 31, 1985	October 31, 1985	1,405
City of Camarillo	September 29, 1986	September 29, 1986	1,192
City of Fillmore	October 17, 1978	October 17, 1986	104
City of Moorpark	September 29, 1986	September 29, 1986	220
City of Ojai	October 17, 1978	October 17, 1978	63
City of Oxnard	March /1, 1979	March 1, 1979	432
City of Port Hueneme	September 24, 1984	September 24, 1984	46
City of Santa Paula	April 15, 1980	April 15, 1980	1070
City of Simi Valley	September 27, 1991	September 27, 1991	1,756
City of Thousand Oaks	September 29, 1978	September 29, 1978	295
City of Ventura	September 29, 1986	September 29, 1986	294

Source: FEMA n.d. (Frank Mansell)

There are 1,405 policies and \$374,637,100 of insurance in force in Unincorporated Ventura County as of March 31, 2015. The 1,405 insurance policies are broken out as follows: 1,234 single-family units; 33 2- to 4-family units; 25 all other residential units, and 113 nonresidential units. Since Unincorporated Ventura County joined the NFIP in 1985, 476 paid losses have been made for a total of \$9,345,209. The 476 losses are broken out as follows: 404 single-family units; 22 2- to 4-family units; 3 all other residential units; and 47 nonresidential units.

In the City of Oxnard, there are 432 policies and \$139,506,600 of insurance in force as of March 31, 2014. The 432 insurance policies are broken out as follows: 386 single-family units; 14 2- to 4-family units; 18 all other residential units, and 14 nonresidential units. Since the City of Oxnard joined the NFIP in 1979, 44 paid losses have been made for a total of \$235,777. The 44 losses are broken out as follows: 35 single-family units; 2 2- to 4-family units; 0 all other residential units; and 7 nonresidential units.

## 7.1 OVERVIEW

A mitigation strategy includes the identification of mitigation goals and actions that will reduce the risks of each hazard and vulnerability to the local population and built environment for each local participant.

In accordance with local mitigation planning requirements, this mitigation strategy consists of the following steps:

- Update of local hazard mitigation goals
- Review of the 2010 MHMP's local participants' mitigation action plans
- Identification of new and updated mitigation actions
- Prioritization of the 2015 MHMP's local participants' mitigation actions
- Implementation of the 2015 MHMP's local participants' mitigation action plans

In addition, this section addresses the following floodplain management planning activities for the VCWPD:

- Set Goals
- Review possible activities
- Draft an action plan

## 7.2 UPDATE OF LOCAL HAZARD MITIGATION GOALS

The local hazard mitigation planning requirements and floodplain management planning activities for updating local hazard mitigation goals are as follows:

<b>Regulation Checklist – 44 CFR 201.6 Local Mitigation Plans</b>
<b>Element C: Mitigation Strategy</b>
<b>C3.</b> Does the Plan include goals to reduce/avoid long-term vulnerabilities to the identified hazards? (Requirement § 201.6(c)(3)(i))

<b>Regulation Checklist – CRS 510 Floodplain Management Planning</b>
<b>CRS Step 6: Set Goals</b>
Goals Should address all the major hazards that face the community as well as all flood-related problems identified in Step 5 (Assess the Problem).

Mitigation goals are defined as general guidelines that explain what a community wants to achieve in terms of hazard and loss prevention. Goal statements are typically long-range, policy-oriented statements representing community-wide vision. **Table 7-1** shows the updated mitigation goals that were developed to reduce or avoid long-term vulnerability to hazards.



**Table 7-1. Mitigation Goals**

Goal Number	Goal Description
1	Minimize loss of life, injury, and damage to property, the economy, and the environment from the hazards identified in the 2015 MHMP through emergency preparedness, response, and recovery actions.
2	Build and enhance local mitigation capabilities to reduce the hazards identified in the 2015 MHMP. This will help ensure individual safety, reduce damage to public buildings, increase awareness/participation in the NFIP, and guarantee continuity of emergency services.

### 7.3 REVIEW OF THE 2010 MHMP MITIGATION ACTION PLAN

The local hazard mitigation planning requirements for reviewing the 2010 MHMP's mitigation action plans are as follows:

Regulation Checklist – 44 CFR 201.6 Local Mitigation Plans
Element D: Plan Review, Evaluation, and Implementation
<b>D2.</b> Was the Plan revised to reflect progress in local mitigation efforts? (Requirement § 201.6(d)(3))

During the 2015 MHMP update process, each local participant reviewed its 2010 mitigation action plan to determine which mitigation actions had been completed, deleted, deferred, or are ongoing. Mitigation actions are activities, measures, and/or projects that help achieve the goals of a mitigation plan. The results of this review, shown in each participant-specific capability assessment, illustrate the progress of participants in their local mitigation efforts over the 5 years. For the VCWPD, an annual review of its mitigation action plan and that of Unincorporated Ventura County since the 2010 MHMP was adopted by the Ventura County Board of Supervisors; the review is provided in **Appendix X**.

### 7.4 IDENTIFICATION OF NEW AND UPDATED POTENTIAL MITIGATION ACTIONS

The local hazard mitigation planning requirements and floodplain management planning activities for identifying and updating the 2010 MHMP's potential mitigation actions are as follows:

Regulation Checklist – 44 CFR 201.6 Local Mitigation Plans
Element C: Mitigation Strategy
<b>C4.</b> Does the Plan identify and analyze a comprehensive range of specific mitigation actions and projects for each jurisdiction being considered to reduce the effects of hazards, with emphasis on new and existing buildings and infrastructure? (Requirement § 201.6(c)(3)(ii))

<b>Regulation Checklist – CRS 510 Floodplain Management Planning</b>	
<b>CRS Step 7: Review Possible Activities</b>	
<b>A.</b>	Preventative activities.
<b>B.</b>	Floodplain management regulatory/current and future conditions.
<b>C.</b>	Property protection activities.
<b>D.</b>	Natural resource protection activities.
<b>E.</b>	Emergency services activities.
<b>F.</b>	Structural projects.
<b>G.</b>	Public information activities.

Similar to the 2005 and 2010 MHMP planning process, the MHMP Planning Committee developed overarching potential mitigation actions for all local participants. These potential mitigation actions are listed in **Table 7-2**. In addition, each local participant identified other participant-specific potential mitigation actions through the review of existing resources; identification of past success stories and best management practices; and solicitation of input from pertinent departments, including planning, public works, building and safety, code enforcement, watershed protection, and emergency management staff. Additional local participant-specific potential mitigation actions are provided in each local participant-specific appendix.

As shown in **Table 7-2**, for each potential mitigation action, the following information is listed: mitigation action description; mitigation action category (which includes local plans and regulations, structure and infrastructure projects, natural systems protection, and education and awareness programs); hazard(s) addressed; and type of development affected by mitigation action. For the VCWPD (on behalf of Unincorporated Ventura County) and the City of Oxnard, the following information is listed for each potential mitigation action: mitigation action description; floodplain management activity (which includes preventive, property protection, natural resource protection, emergency services, structural projects, and public information); hazards(s) addressed; and a review of each mitigation action (which includes: pros/cons, capability to fund and implement, and implementation status).

**Table 7-2. Potential Overarching Mitigation Actions**

No.	Description	Hazard	Mitigation Category	New or Existing Construction
OA 1	Integrate the hazard analysis and mitigation strategy into the General Plan's Safety Element.	All	Local Plans and Regulations	Not Applicable
OA 2	Ensure that existing monitoring capabilities at the state and County level are integrated to provide an early warning of increased or new infestations.*	Agricultural (Insect Pests/Invasive Species)	Natural Systems Protection	Not Applicable
OA 3	Implement an infestation public awareness and educational campaign.	Agricultural (Insect Pests/Invasive Species)	Education and Awareness	Not Applicable
OA 4*	Relocate or reinforce bike trails, parking lots and other beach access amenities away from the shoreline to restore the beach/shoreline in sea-level rise/coastal erosion areas.	Climate Change	Natural Systems Protection	Existing
OA 5*	Restore habitat and improve flood protection for low-lying areas by employing innovative techniques such as constructing levees coupled with gently sloping tidal marshes to help protect from storm wave action and tidal surge.	Climate Change	Natural Systems Protection	New/Existing
OA 6	Develop a public outreach program that informs property owners located in the dam and levee failure inundation areas about voluntary flood insurance.	Dam and Levee Failure Inundation	Education and Awareness	Existing
OA 7	Develop a water conservation public outreach program to increase awareness about the drought, fines and penalties for overuse and solutions for conserving water.	Drought	Education and Awareness	New/Existing
OA 8	Adopt emergency water conservation measures and/or water conservation ordinance to limit irrigation.	Drought	Local Plans and Regulations	New/Existing
OA 9	Identify potentially vulnerable public and private utility systems including electric, gas, oil, water, sewer and communication. Upgrade vulnerable systems to ensure the operation and timely restoration of essential systems to reasonable levels of service.	Earthquake	Structure and Infrastructure Projects	New/Existing
OA 10	Seismically retrofit or upgrade seismically deficient government facilities and pre-identified shelter facilities.	Earthquake	Structure and Infrastructure Projects	Existing

**Table 7-2. Potential Overarching Mitigation Actions**

No.	Description	Hazard	Mitigation Category	New or Existing Construction
OA 11	Develop and implement plans to increase the building owner's general knowledge of and appreciation for the value of seismic upgrading of the building's structural and nonstructural elements.	Earthquake	Local Plans and Regulations & Awareness and Education	Existing
OA 12	Increase participation in the NFIP by entering the Community Rating System program which through enhanced floodplain management activities would allow property owners to receive a discount on their flood insurance.	Flood	All	New/Existing (Residential structures and critical facilities which are located within the 100-year floodplain)
OA 13*	Reinforce roads/bridges from flooding through protection activities, including elevating the roads/bridges and installing/widening culverts beneath the roads/bridges or upgrading storm drains.	Flood	Structure and Infrastructure Projects	Existing
OA 14*	Acquire, relocate, or elevate residential structures, in particular those that have been identified as RL properties, within the 100-year floodplain.	Flood	Structure and Infrastructure Projects	Existing
OA 15	Work with FEMA Region 9 to address any floodplain management issues that may have arisen/arise from the countywide DFIRM, Community Assessment Visits, and/or DWR.	Flood	Local Plans and Regulations	Not Applicable
OA 16*	Implement landslide stabilization and/or protection measures. Stabilization measures include grading the unstable portion of the slope to a lower gradient, construction of rock buttresses and retaining walls, and drainage improvements. Protection measures include containment and/or diversion of the moving debris, such as walls, berms, ditches and catchment basins.	Landslide	Structure and Infrastructure Projects, Natural Systems Protection	New/Existing
OA 17	Implement post-fire debris flow hillslope and channel treatments, such as seeding, mulching, check dams, and debris racks, as needed.	Post-Fire Debris Flow	Natural Systems Protection	New/Existing

**Table 7-2. Potential Overarching Mitigation Actions**

No.	Description	Hazard	Mitigation Category	New or Existing Construction
OA 18*	Continue to participate in the NWS TsunamiReady Program through continued implementation of Guideline 4: Community Preparedness measures, including public outreach material and curriculum.	Tsunami	Awareness and Education	Not Applicable
OA 19	Create a new vegetation management program that provides vegetation management services to elderly, disabled, or low-income property owners who lack the resources to remove flammable vegetation from around their homes.	Wildfire	Awareness and Education, Natural Systems Protection	Existing (Residential buildings in high wildfire severity zones)
OA 20	Implement a fuel modification program for new construction by requiring builders and developers to submit their plans, complete with proposed fuel modification zones, to the local fire department for review and approval prior to beginning construction.	Wildfire	Local Plans and Regulations	New (Residential and non-residential buildings located within high wildfire severity zones)
OA 21*	Develop a hazards fuel treatment program for areas that have been identified with overgrown/dead brush/trees to reduce the potential for tree-to-tree ignition. Ensure that a “maintenance now” component to provide continued fire resistance is part of the program.	Wildfire	Natural Systems Protection	New/Existing
OA 22	Develop a vegetation management program in areas within and adjacent to rights-of-way and in close proximity to critical facilities to reduce the risk of tree failure and property damage and avoid creation of wind acceleration corridors within vegetated areas.	Winter Storm	Awareness and Education, Natural Systems Protection	New/Existing

\* Recent/current FEMA, NWS and California Coastal Conservancy grant projects (nationwide)

OA = Overarching

## 7.5 PRIORITIZATION OF THE 2015 MHMP MITIGATION ACTIONS

The requirements for the prioritization of mitigation actions, as stipulated in DMA 2000 and its implementing regulations, are described below.

Regulation Checklist – 44 CFR 201.6 Local Mitigation Plans
Element D: Plan Review, Evaluation, and Implementation
<b>D3.</b> Was the plan revised to reflect changes in priorities? (Requirement § 201.6(d)(3))

Regulation Checklist – 44 CFR 201.6 Local Mitigation Plans
Element C: Mitigation Strategy
<b>C5.</b> Does the Plan contain an action plan that describes how the actions identified will be prioritized (including cost benefit review), implemented, and administered by each jurisdiction? (Requirement § 201.6(c)(3)(iv)); (Requirement § 201.6(c)(3)(iii))

After the list of potential mitigation actions had been developed, the local participants determined which potential mitigation actions should be included in their local plan participant-specific mitigation action plans. For this process, each local participant selected projects that met the majority of the Hazard Mitigation Assistance (HMA) Program requirements (**Table 7-3**), as these projects have the greatest chance of leading to enhanced project scoping and the lowest probability of experiencing HMA funding delays. Therefore, these selected projects are considered high-priority projects. Projects not selected as high-priority projects may be considered at a later date for implementation if the priority projects have been completed or deferred or additional funding sources have become available.

**Table 7-3. Priority Project Criteria (HMA Program Requirements)**

Requirement	Description
Mitigation Planning	Links the existing mitigation plan, particularly the vulnerability analysis and capability assessment, to project scoping.
Technical Feasibility and Effectiveness	Conforms with accepted engineering practices, established codes, standards, modeling techniques, or best practices. Effective mitigation measures funded under HMA should provide a long-term or permanent solution.
Floodplain Management and Protection of Wetlands	Conforms to 44 CFR Part 9, which incorporates the requirements of Executive Order (EO) 11988 (Floodplain Management) and EO 11990 (Protection of Wetlands).
Environmental Planning and Historic Review and Compliance	Complies with all environmental and historic preservation laws and with 44 CFR Part 10.
Cost-Effectiveness	Is cost-effective or would be in the interest of the NFIP.
Cost Review	Is reasonable in costs compared to the probable benefits.

**Table 7-3. Priority Project Criteria (HMA Program Requirements)**

Requirement	Description
General Program Requirements	Is an eligible activity, including property acquisition and structure demolition, property demolition and structure relocation, structure elevation, mitigation reconstruction, dry floodproofing of historic residential structures, dry floodproofing of nonresidential structures, minor localized flood reduction projects, structural retrofitting of existing buildings, non-structural retrofitting of existing buildings and facilities, infrastructure retrofit, soil stabilization, wildfire mitigation, and post-disaster code enforcement.

### 7.5.1 2015 MHMP Local Participant-Specific Mitigation Action Plans

Each local participant selected priority projects to include in its mitigation action plan (provided in each local-participant-specific appendix, **Appendix G–W**). As noted above, priority projects are projects that meet the HMA guidance program requirements identified in **Table 7-3**.

Emphasis in this process was placed on cost-effectiveness and technical feasibility and effectiveness.

The following information has been included for local-participant-specific mitigation action plans: mitigation action number and description, facility to be mitigated (if known and/or applicable), department/agency to oversee the implementation of the mitigation action, potential funding source, and implementation timeframe. Also, for the VCWPD and City of Oxnard, the mitigation action plan identifies the mitigation goal associated with each priority project.



## 8.1 OVERVIEW

This section describes a formal plan maintenance process to ensure that the 2015 MHMP remains an active and applicable document. It includes an explanation of how the Ventura County Project Management Team intend to organize its efforts to ensure that improvements and revisions to the 2015 MHMP occur in a well-managed, efficient, and coordinated manner.

The following three process steps are addressed in detail below:

- Monitoring, evaluating, and updating the MHMP
- Implementation through existing planning mechanisms
- Continued public involvement

In addition, revisions made from the 2010 MHMP plan maintenance section to the 2015 MHMP plan maintenance section are discussed below.

## 8.2 MONITORING, EVALUATING, AND UPDATING THE PLAN

The local hazard mitigation planning and floodplain management planning requirements for monitoring, evaluating, and updating the MHMP are as follows.

Regulation Checklist – 44 CFR 201.6 Local Mitigation Plans
<b>Element A: Planning Process</b>
<b>A6.</b> Is there a description of the method and schedule for keeping the plan current (monitoring, evaluating, and updating the mitigation plan within a 5-year cycle? (Requirement § 201.6(c)(4)(1))

Regulation Checklist – CRS 510 Floodplain Management Planning
<b>CRS Step 10: Implement, Evaluate and Revise.</b>
<b>A.</b> Procedures to monitor and recommend revisions.
<b>B.</b> Same planning committee or successor committee that qualifies under Section 511.a.2 (a) does the evaluation.

The Ventura County Project Management Team will take the lead on monitoring, evaluating, and updating the 2015 MHMP through the following activities. (The Ventura County Sheriff's OES will lead these efforts for the MHMP Committee, and VCWPD will lead these efforts for the FMP Committee.)

- **Monitoring:** Every 12 months from plan adoption, the Ventura County Project Management Team will email each member of both planning committees an Annual Review Questionnaire to complete. As shown in **Appendix X**, the Annual Review Questionnaire evaluation of the following: planning process, hazard analysis, vulnerability analysis, capability assessment, and mitigation strategy.
- Additionally, mitigation actions will be monitored and updated through the use of the Mitigation Project Progress Report. During each annual review, each department or agency currently administering a mitigation project will submit a progress report to the

Ventura County Project Management Team to review and evaluate. For projects that are being funded by a FEMA mitigation grant, FEMA quarterly reports may be used as the preferred reporting tool. As shown in **Appendix X**, the progress report will discuss the current status of the mitigation project, including any changes made to the project, identify implementation problems, and describe appropriate strategies to overcome them.

- **Evaluating:** The Ventura County Project Management Team will collect all completed questionnaires and determine if the 2015 MHMP needs to be updated to address new or more threatening hazards, new technical reports or findings, and new or better-defined mitigation projects. The Ventura County Project Management Team will summarize these findings and email them out to both planning committees. As done with the 2010 MHMP, the Project Management Team will submit this annual report to the Ventura County Board of Supervisors as part of the CRS recertification process (See **Appendix X**, for the 2011, 2012, 2013 and 2014 annual reports). In addition, for the annual review of the 2015 MHMP, the report will be posted to the MHMP website for public review. If the Ventura County Project Management Team believes that the 2015 MHMP needs to be updated based on the findings, then a request will be made to the planning committees to attend a formal MHMP update meeting. A media release will be issued that the update process has begun.
- **Updating:** To ensure that this update occurs, on the fourth year following plan adoption, the Ventura County Project Management Team will apply for funding or secure local funding to assist in the next MHMP update. Six months prior to the five year adoption date, the Ventura County Project Management Team will organize both planning committees to kick-off the next MHMP update. The process for the update will follow the process identified in Section 3.

### 8.3 IMPLEMENTATION THROUGH EXISTING PLANNING MECHANISMS

The local hazard mitigation planning requirements for integrating the MHMP into other planning mechanisms are as follow.

Regulation Checklist – 44 CFR 201.6 Local Mitigation Plans	
Element C: Mitigation Strategy	
<b>C6.</b> Does the Plan describe a process by which local governments will integrate the requirements of the mitigation plan into other planning mechanisms, such as comprehensive or capital improvement plans, when appropriate? (Requirement § 201.6(c)(4)(iii))	

After the adoption of the 2015 MHMP, the Ventura County Project Management Team and planning committees will work to incorporate applicable elements of the 2015 MHMP into other existing planning mechanisms. The processes for incorporating the 2015 MHMP into various planning documents will occur as (1) other plans and policies are updated and (2) new plans and policies are developed.

Therefore, Unincorporated Ventura County and the other local participants will undertake and/or continue to undertake the following activities:

- Incorporate information from the hazard analysis and mitigation strategy sections in the 2015 MHMP into the update of the safety element in their respective general plans. As noted in **Section 3**, the 2015 MHMP is concurrently being updated with the Ventura County General Plan: Hazards Appendix.
- Use information from the hazard analysis and vulnerability analysis sections in 2015 MHMP for the update of their respective emergency operation or emergency response plans.
- Use information from the vulnerability analysis section in 2015 MHMP to develop and/or continue to develop emergency preparedness public information and related outreach efforts.
- Use information from the vulnerability analysis (specifically the RL properties analysis) in the 2015 MHMP to develop CRS-eligible activities and reduce the number of RL properties throughout the county.
- Refer to their respective mitigation action plans when updating their respective capital improvement plans/programs.

#### 8.4 CONTINUED PUBLIC INVOLVEMENT

The requirements for continued public involvement, as stipulated in the DMA 2000 and its implementing regulations, are described below.

Regulation Checklist – 44 CFR 201.6 Local Mitigation Plans	
Element A: Planning Process	
<b>A5.</b>	Is there discussion of how the community(ies) will continue public participation in the plan maintenance process? (Requirement § 201.6(c)(4))

The Ventura County Project Management Team and the planning committees are dedicated to involving the public directly in the continual reshaping and updating of the 2015 MHMP. A downloadable copy of the 2015 MHMP and any proposed changes or updates will be posted on the 2015 MHMP website (<http://www.venturacountymhmp.com>). The 2015 MHMP website will also contain an e-mail address and phone number to which people can direct their comments or concerns. Additionally, the County's CRS website (CRS Activity 330 – [www.vcfloodinfo.com](http://www.vcfloodinfo.com)) is linked to the 2015 MHMP website.

As noted above, the Ventura County Project Management Team will continue to oversee implementation, examine the annual review questionnaires and project progress reports, modify the implementation strategy and process as needed, and update the MHMP as required. The Ventura County Project Management Team will also identify opportunities to raise community awareness about the 2015 MHMP and the hazards that affect the county. This effort could include attendance and provision of materials at county and city-sponsored events, programs and public mailings. Any public comments received regarding the 2015 MHMP will be collected by the Ventura County Project Management Team included in the annual report, and considered during future MHMP updates.

*This page intentionally left blank*

- Association of Bay Area Governments. 2003. *Modified Mercalli Intensity Scale*.  
<http://www.abag.ca.gov/bayarea/eqmaps/doc/mmi.html> (accessed September 2010).
- Barnes, Lynn. 2003. *Geologists Identify Areas of Ventura at Risk Following Major Quakes*. Los Angeles Times. <http://articles.latimes.com/2003/jul/12/local/me-seismic12>
- Biasotti, Tony. 2010. *Storm damages Ventura Pier; county braces for more rain*. Ventura County Star. Available at: <http://www.vcstar.com/news/2010/jan/19/new-storm-arrives-this-morning/>
- Cal-Adapt. 2013. *What is Climate Change?* <http://cal-adapt.org/blog/2011/apr/13/what-is-climate-change/>
- Cal-Adapt. 2015. *Wildfire: Fire Risk Map*. <http://cal-adapt.org/fire/> (accessed July 2015).
- Cal-Adapt. 2015. *Temperature: Extreme Heat Tool*. <http://cal-adapt.org/temperature/heat/> (accessed July 2015).
- Cal-Adapt. 2015. *Precipitation: Decadal Averages Map*. <http://cal-adapt.org/precip/decadal/> (accessed July 2015).
- California Department of Conservation. 2008. *New Seismic Hazard Zone Map for Ventura County*. Department of Conservation NR 2003-18.  
[http://www.conservation.ca.gov/index/news/2003%20News%20Releases/Pages/NR2003-18\\_Ventura\\_Seismic\\_Hazard\\_Zone\\_Map.aspx](http://www.conservation.ca.gov/index/news/2003%20News%20Releases/Pages/NR2003-18_Ventura_Seismic_Hazard_Zone_Map.aspx)
- California Department of Food and Agriculture. 2007. *Program Highlights Report*.
- California Department of Forestry and Fire Protection (Cal FIRE), Fire and Resource Assessment Program (FRAP). *Ventura County Fire Hazard Severity Zone (FHSZ) Maps*.  
[http://www.fire.ca.gov/fire\\_prevention/fire\\_prevention\\_wildland\\_zones\\_maps.php](http://www.fire.ca.gov/fire_prevention/fire_prevention_wildland_zones_maps.php)
- California Division of Safety of Dams. 2010. *Listing of Dams*.  
<http://www.water.ca.gov/damsafety/index.cfm> (accessed September 2010).
- California Geological Survey (CGS). 2003. *Seismic Hazard Zones, Seismic Hazard Zonation Program*. July 2003.  
[http://www.conservation.ca.gov/cgs/shzp/Documents/SHZ\\_FactSheet.pdf](http://www.conservation.ca.gov/cgs/shzp/Documents/SHZ_FactSheet.pdf)
- CGS. 2008. *Earthquake Shaking Potential for California, Map Sheet 48*. Revised 2008.  
[http://www.consrv.ca.gov/cgs/information/publications/ms/Documents/MS48\\_revised.pdf](http://www.consrv.ca.gov/cgs/information/publications/ms/Documents/MS48_revised.pdf)
- CGS. 2010. *2010 Fault Activity Map of California*. Sacramento: California Geological Survey.  
<http://www.quake.ca.gov/gmaps/FAM/faultactivitymap.html>
- CGS. 2011. *Susceptibility to Deep-Seated Landslides in California, Map Sheet 58*. 2011.  
<http://www.conservation.ca.gov/cgs/information/publications/ms/documents/ms58.pdf>
- CGS. 2012. *Update for Ventura County, Release of Official Maps of New and Revised Earthquake Fault Zones*. September 21, 2012.
- CGS. *Magnitude 4 and greater Earthquakes (1769 – 2000)*.
- CGS. *Digital Database of Quaternary and Younger Faults, Version 2.0*

- California Governor's Office of Emergency Services (Cal OES). 2013. *California State Enhanced Multi-Hazard Mitigation Plan (SHMP)*. <http://www.caloes.ca.gov/cal-oes-divisions/hazard-mitigation/hazard-mitigation-planning/state-hazard-mitigation-plan>
- Cal OES. 2015. *Dam Inundation Distribution DVD, Version 11-3*. Obtained May 6, 2015.
- Carlson, Cheri, and Adam Foxman. 2010. *Small Tornado Hits East Ventura*. *Ventura County Star*. <http://www.vcstar.com/news/2010/jan/21/authorities-brace-for-another-day-of-storms/>
- Federal Emergency Management Agency. 2010(a). *Flood Insurance Study and Flood Insurance Rate Maps, Ventura County, California and Incorporated Areas*.
- Federal Emergency Management Agency. 2010(b). *Flood Insurance Study and Flood Insurance Rate Maps, Ventura County, California and Incorporated Areas Debris and Detention Basins, September 2005*. Ventura County Watershed Protection District.
- Federal Emergency Management Agency. 2010(c). *Levee System Information for Stakeholders*.
- Federal Emergency Management Agency (FEMA), Region IX. *Ventura County Digital Flood Insurance Rate Map (DFIRM), Version 20150319*.
- Federal Emergency Management Agency (FEMA). *Hazus-MH 2.2, January 12, 2015*.
- Federal Emergency Management Agency. No date. *Community Status Book Report: California, Communities Participating in the National Flood Program*. <http://www.fema.gov/cis/CA.html> (accessed June 2015).
- Foxman, Adam. 2010. *Heaviest Rainfall in Years Predicted*. *Ventura County Star*. <http://www.vcstar.com/news/2010/jan/15/big-rains-coming-sunday-night-forecasters-say/>
- Holland, Don. 1998. *Floods Nothing New to Ventura County; Storms Slug Area, But It's Been Worse*. *Los Angeles Daily News*. <http://www.thefreelibrary.com/FLOODS+NOTHING+NEW+TO+VENTURA+COUNTY%3B+STORMS+SLUG+AREA,+BUT+IT'S+BEEN...-a083812654>
- Jibson, Randall. 2005. *Landslide Hazards at La Conchita, California*. U.S. Geological Survey Open-File Report 2005-1067.
- Kelley, Daryl. 1998. *Storm Damage in County Tops \$50 Million*. *Los Angeles Times*. <http://articles.latimes.com/1998/feb/25/news/mn-22805>
- Lloyd, Jonathan. 2010. *City-by-City Storm Roundup*. *NBC Los Angeles*. <http://www.nbclosangeles.com/weather/stories/Storm-Roundup-82174627.html>
- National Climatic Data Center. 2015. *Storm Events Database*. <http://www.ncdc.noaa.gov/stormevents/> (accessed June 2015).
- National Oceanic and Atmospheric Administration (NOAA) National Geophysical Data Center (NGDC). 2010. *NOAA/WDC Historical Tsunami Database at NGDC*. [http://www.ngdc.noaa.gov/hazard/tsu\\_db.shtml](http://www.ngdc.noaa.gov/hazard/tsu_db.shtml) (accessed June 2010).
- National Oceanic and Atmospheric Administration (NOAA). No date(b). *Heavy Precipitation Event, Southern California, January 7–11, 2005*. NOAA National Weather Service. [http://www.cnrfc.noaa.gov/storm\\_summaries/jan2005storms.php](http://www.cnrfc.noaa.gov/storm_summaries/jan2005storms.php) (accessed June 2010).

- National Weather Service. 2010. Office of Climate, Weather, and Water Services. *Tsunami: The Great Waves*. Brochure. [http://itic.ioc-unesco.org/index.php?option=com\\_content&view=article&id=1169&Itemid=2017](http://itic.ioc-unesco.org/index.php?option=com_content&view=article&id=1169&Itemid=2017) (accessed June 2010).
- North, John. 2010. *Storm's Fierce, Rogue Waves Rock Ventura Pier*. ABC Local News – Los Angeles. <http://abclocal.go.com/kabc/story?section=weather&id=7229535>
- Ojai Valley Fire Safe Council. 2010. *Ventura County Community Wildfire Protection Plan* (accessed May 2010).
- Pachauri, R.K., and Reisinger, A. 2007. *Climate Change 2007: Synthesis Report*. Fourth Assessment Report on the Intergovernmental Panel on Climate Change. [http://www.ipcc.ch/publications\\_and\\_data/publications\\_ipcc\\_fourth\\_assessment\\_report\\_synthesis\\_report.htm](http://www.ipcc.ch/publications_and_data/publications_ipcc_fourth_assessment_report_synthesis_report.htm)
- Paulson, R.W., E.B. Chase, R.S. Roberts, and D.W. Moody, Compilers. 1991. *National Water Summary 1988-89 Hydrologic Events and Floods and Droughts: U.S. Geological Survey Water-Supply Paper 2375*.
- Seib, Al. 2010. *Latest Storm Brings Tornado-Like Winds, Floods Roads and Causes Small Mudslides in Foothill Communities*. Los Angeles Times. <http://latimesblogs.latimes.com/lanow/2010/01/new-storm-brings-twisters-floodings-modest-mudslides.html>
- Southern California Earthquake Data Center (SCEDC). *Historical Earthquakes & Significant Faults of Southern California*. <http://scedc.caltech.edu/significant/> (accessed June 2015).
- SCEDC. *Southern California Seismic Network (SCSN) Catalog Search (1932 – Present)*.
- Su, Vincent. 2008. *FEMA Flood Insurance Rate Map Updates in the Santa Clara River Watershed*. Santa Clara River Watershed Times. County of Ventura. [http://portal.countyofventura.org/portal/page/portal/ceo/divisions/ira/WC/Library/IRWM\\_Planning/SCRW\\_Docs](http://portal.countyofventura.org/portal/page/portal/ceo/divisions/ira/WC/Library/IRWM_Planning/SCRW_Docs) (accessed June 2010).
- The Nature Conservancy. 2014. *Coastal Resilience, Coastal Hazards Mapping*. July 2014. <http://maps.coastalresilience.org/california/#>
- Uniform California Earthquake Rupture Forecast. 2007.
- U.S. Census Bureau. 2010. *Ventura County Census Block, 2010 Census Population Count*.
- USACE (United States Army Corps of Engineers). 1969. *Floods in Ventura Southern California during January and February, 1969*.
- U.S. Department of Agriculture. 2006. *National Agricultural Statistics Service*.
- U.S. Geological Survey. 2002. *National Seismic Hazard Maps*.
- U.S. Geological Survey. 2008(a). *California Landslide Damage Sites*. [http://landslides.usgs.gov/recent/archives/el\\_nino/map.php](http://landslides.usgs.gov/recent/archives/el_nino/map.php) (accessed June 2010).
- U.S. Geological Survey. 2009. *The Modified Mercalli Intensity Scale*. <http://earthquake.usgs.gov/learn/topics/mercalli.php> (accessed September 2010).



U.S. Geological Survey. 2010. *Life of a Tsunami*. <http://walrus.wr.usgs.gov/tsunami/basics.html> (accessed June 2010).

Ventura County. 2005. *2005 Ventura County General Plan*.  
[http://www.ventura.org/rma/planning/General\\_Plan/general\\_plan.html](http://www.ventura.org/rma/planning/General_Plan/general_plan.html)

Ventura County. 2013. *Ventura County General Plan Hazard Appendix*.  
[http://www.ventura.org/rma/planning/pdf/plans/General\\_Plan\\_Hazards\\_Appendix\\_October\\_22\\_2013.pdf](http://www.ventura.org/rma/planning/pdf/plans/General_Plan_Hazards_Appendix_October_22_2013.pdf)

Ventura County Fire Protection District. 2015. *Fire History Geodatabase*. Obtained June 3, 2015

Ventura County, Office of Agricultural Commissioner. 2013. *Ventura County's Crop & Livestock Report 2013*. <http://vcportal.ventura.org/AgComm/docs/crop-reports/2013CropReport.pdf>

Ventura County Sheriff, Office of Emergency Services. 2010. *Ventura County Operational Area Tsunami Evacuation Plan*.

Ventura County Watershed Protection District. 2005. *Debris and Detention Basins*. September 2005.

VCWPD (Ventura County Watershed Protection District). 2006. *Santa Clara River 2006 Hydrology Update: Phase I, From Ocean to County Line*. VCWPD, December 2006.

Ventura County Watershed Protection District. 2010. *VCWPD Hydrologic Data Server*.  
[http://portal.countyofventura.org/portal/page/portal/PUBLIC\\_WORKS/Watershed\\_Protection\\_District](http://portal.countyofventura.org/portal/page/portal/PUBLIC_WORKS/Watershed_Protection_District)

Wilson, Jeff. 2005. *Huge Mudslide Fatal in Ventura County*. The San Diego Union Tribune.  
[http://www.signonsandiego.com/uniontrib/20050111/news\\_7n11storm.html](http://www.signonsandiego.com/uniontrib/20050111/news_7n11storm.html)



# 2015

## Ventura County Multi-Hazard Mitigation Plan APPENDICES

September 2015

Unincorporated Ventura County

City of Camarillo

City of Fillmore

City of Moorpark

City of Ojai

City of Oxnard

City of Port Hueneme

City of Santa Paula

City of Thousand Oaks

City of Ventura

Calleguas Municipal Water District

Casitas Municipal Water District

Channel Islands Beach Community Services District

Ojai Valley Sanitary District

United Water Conservation District

Ventura County Fire Protection District

Ventura County Watershed Protection District

**AECOM**

*This page intentionally left blank*

Appendix A FEMA Documentation .....	A-1
Appendix B Adoption Resolutions .....	B-1
Appendix C MHMP Committee .....	C-1
Appendix D FMP Committee .....	D-1
Appendix E Public Outreach and Stakeholder Involvement.....	E-1
Appendix F Figures .....	F-1
Appendix G Unincorporated Ventura County .....	G-1
Table G-1. Unincorporated Ventura County, Total Population and Residential Buildings .....	G-1
Table G-2. Unincorporated Ventura County, Total Critical Facilities and Infrastructure .....	G-1
Table G-3. Unincorporated Ventura County, Summary of Impacts for Population and Residential Buildings .....	G-10
Table G-4. Unincorporated Ventura County, Summary of Impacts for Critical Facilities and Infrastructure .....	G-11
Table G-5. Unincorporated Ventura County, Human and Technical Resources for Hazard Mitigation .....	G-12
Table G-6. Unincorporated Ventura County, Financial Resources for Hazard Mitigation.....	G-14
Table G-7. Unincorporated Ventura County, Legal and Regulatory Resources for Hazard Mitigation .....	G-16
Table G-8. Unincorporated Ventura County, Current and Completed Hazard Mitigation Projects and Programs.....	G-19
Table G-9. Unincorporated Ventura County, Potential Mitigation Actions .....	G-22
Table G-10. Unincorporated Ventura County, Mitigation Action Plan.....	G-26
Appendix H City of Camarillo .....	H-1
Table H-1. City of Camarillo, Total Population and Residential Buildings .....	H-1
Table H-2. City of Camarillo, Total Critical Facilities and Infrastructure .....	H-1
Table H-3. City of Camarillo, Summary of Impacts for Population and Residential Buildings .....	H-7
Table H-4. City of Camarillo, Summary of Impacts for Critical Facilities and Infrastructure .....	H-8

Table H-5. City of Camarillo, Human and Technical Resources for Hazard Mitigation .....	H-9
Table H-6. City of Camarillo, Financial Resources for Hazard Mitigation .....	H-11
Table H-7. City of Camarillo, Legal and Regulatory Resources for Hazard Mitigation ..	H-14
Table H-8. City of Camarillo, Current and Completed Hazard Mitigation Projects and Programs .....	H-16
Table H-9. City of Camarillo, Potential Mitigation Actions .....	H-17
Table H-10. City of Camarillo, Mitigation Action Plan.....	H-21
<b>Appendix I City of Fillmore .....</b>	<b>I-1</b>
Table I-1. City of Fillmore, Total Population and Residential Buildings .....	I-1
Table I-2. City of Fillmore, Total Critical Facilities and Infrastructure .....	I-1
Table I-3. City of Fillmore, Summary of Impacts for Population and Residential Buildings.....	I-2
Table I-4. City of Fillmore, Summary of Impacts for Critical Facilities and Infrastructure .....	I-3
Table I-5. City of Fillmore, Human and Technical Resources for Hazard Mitigation .....	I-4
Table I-6. City of Fillmore, Financial Resources for Hazard Mitigation .....	I-5
Table I-7. City of Fillmore, Legal and Regulatory Resources for Hazard Mitigation .....	I-9
Table I-8. City of Fillmore, Current and Completed Hazard Mitigation Projects and Programs .....	I-11
Table I-9. City of Fillmore, Potential Mitigation Actions.....	I-13
Table I-10. City of Fillmore, Mitigation Action Plan .....	I-17
<b>Appendix J City of Moorpark .....</b>	<b>J-1</b>
Table J-1. City of Moorpark, Total Population and Residential Buildings .....	J-1
Table J-2. City of Moorpark, Total Critical Facilities and Infrastructure .....	J-1
Table J-3. City of Moorpark, Summary of Impacts for Population and Residential Buildings.....	J-3
Table J-4. City of Moorpark, Summary of Impacts for Critical Facilities and Infrastructure .....	J-4
Table J-5. City of Moorpark, Human and Technical Resources for Hazard Mitigation .....	J-5
Table J-6. City of Moorpark, Financial Resources for Hazard Mitigation .....	J-7
Table J-7. City of Moorpark, Legal and Regulatory Resources for Hazard Mitigation.....	J-10

Table J-8. City of Moorpark, Current and Completed Hazard Mitigation Projects and Programs .....	J-13
Table J-9. City of Moorpark, Potential Mitigation Actions.....	J-15
Table J-10. City of Moorpark, Mitigation Action Plan .....	J-18
<b>Appendix K City of Ojai.....</b>	<b>K-1</b>
Table K-1. City of Ojai, Total Population and Residential Buildings .....	K-1
Table K-2. City of Ojai, Total Critical Facilities and Infrastructure .....	K-1
Table K-3. City of Ojai, Summary of Impacts for Population and Residential Buildings .....	K-2
Table K-4. City of Ojai, Summary of Impacts for Critical Facilities and Infrastructure .....	K-3
Table K-5. City of Ojai, Human and Technical Resources for Hazard Mitigation .....	K-4
Table K-6. City of Ojai, Financial Resources for Hazard Mitigation.....	K-6
Table K-7. City of Ojai, Legal and Regulatory Resources for Hazard Mitigation.....	K-9
Table K-8. City of Ojai, Current and Completed Hazard Mitigation Projects and Programs .....	K-11
Table K-9. City of Ojai, Potential Mitigation Actions.....	K-12
Table K-10. City of Ojai, Mitigation Action Plan .....	K-15
<b>Appendix L City of Oxnard .....</b>	<b>L-1</b>
Table L-1. City of Oxnard, Total Population and Residential Buildings .....	L-1
Table L-2. City of Oxnard, Total Critical Facilities and Infrastructure.....	L-1
Table L-3. City of Oxnard, Summary of Impacts for Population and Residential Buildings .....	L-7
Table L-4. City of Oxnard, Summary of Impacts for Critical Facilities and Infrastructure .....	L-8
Table L-5. City of Oxnard, Human and Technical Resources for Hazard Mitigation.....	L-9
Table L-6. City of Oxnard, Financial Resources for Hazard Mitigation .....	L-11
Table L-7. City of Oxnard, Legal and Regulatory Resources for Hazard Mitigation .....	L-14
Table L-8. City of Oxnard, Current and Completed Hazard Mitigation Projects and Programs .....	L-16
Table L-9. City of Oxnard, Potential Mitigation Actions.....	L-17
Table L-10. City of Oxnard, Review of Potential Mitigation Actions .....	L-19

Table L-11. City of Oxnard, Mitigation Action Plan .....	L-22
<b>Appendix M City of Port Hueneme .....</b>	<b>M-1</b>
Table M-1. City of Port Hueneme, Total Population and Residential Buildings .....	M-1
Table M-2. City of Port Hueneme, Total Critical Facilities and Infrastructure .....	M-1
Table M-3. City of Port Hueneme, Summary of Impacts for Population and Residential Buildings.....	M-3
Table M-4. City of Port Hueneme, Summary of Impacts for Critical Facilities and Infrastructure .....	M-4
Table M-5. City of Port Hueneme, Human and Technical Resources for Hazard Mitigation .....	M-5
Table M-6. City of Port Hueneme, Financial Resources for Hazard Mitigation .....	M-7
Table M-7. City of Port Hueneme, Legal and Regulatory Resources for Hazard Mitigation .....	M-10
Table M-8. City of Port Hueneme, Current and Completed Hazard Mitigation Projects and Programs .....	M-11
Table M-9. City of Port Hueneme, Potential Mitigation Actions .....	M-12
Table M-10. City of Port Hueneme, Mitigation Action Plan .....	M-15
<b>Appendix N City of Santa Paula.....</b>	<b>N-1</b>
Table N-1. City of Santa Paula, Total Population and Residential Buildings.....	N-1
Table N-2. City of Santa Paula, Total Critical Facilities and Infrastructure .....	N-2
Table N-3. City of Santa Paula, Summary of Impacts for Population and Residential Buildings.....	N-3
Table N-4. City of Santa Paula, Summary of Impacts for Critical Facilities and Infrastructure .....	N-4
Table N-5. City of Santa Paula, Human and Technical Resources for Hazard Mitigation .....	N-5
Table N-6. City of Santa Paula, Financial Resources for Hazard Mitigation .....	N-7
Table N-7. City of Santa Paula, Legal and Regulatory Resources for Hazard Mitigation .....	N-10
Table N-8. City of Santa Paula, Current and Completed Hazard Mitigation Projects and Programs .....	N-12
Table N-9. City of Santa Paula, Potential Mitigation Actions .....	N-13
Table N-10. City of Santa Paula, Mitigation Action Plan.....	N-16



<b>Appendix O City of Thousand Oaks .....</b>	<b>O-1</b>
Table O-1. City of Thousand Oaks, Total Population and Residential Buildings .....	O-1
Table O-2. City of Thousand Oaks, Total Critical Facilities and Infrastructure* .....	O-1
Table O-3. City of Thousand Oaks, Summary of Impacts for Population and Residential Buildings .....	O-8
Table O-4. City of Thousand Oaks, Summary of Impacts for Critical Facilities and Infrastructure .....	O-9
Table O-5. City of Thousand Oaks, Human and Technical Resources for Hazard Mitigation.....	O-10
Table O-6. City of Thousand Oaks, Financial Resources for Hazard Mitigation.....	O-12
Table O-7. City of Thousand Oaks, Legal and Regulatory Resources for Hazard Mitigation.....	O-16
Table O-8. City of Thousand Oaks, Current and Completed Hazard Mitigation Projects and Programs.....	O-18
Table O-9. City of Thousand Oaks, Potential Mitigation Actions .....	O-21
Table O-10. City of Thousand Oaks, Mitigation Action Plan .....	O-25
<b>Appendix P City of Ventura .....</b>	<b>P-1</b>
Table P-1. City of Ventura, Total Population and Residential Buildings.....	P-1
Table P-2. City of Ventura, Total Critical Facilities and Infrastructure .....	P-1
Table P-3. City of Ventura, Summary of Impacts for Population and Residential Buildings .....	P-7
Table P-4. City of Ventura, Summary of Impacts for Critical Facilities and Infrastructure.....	P-8
Table P-5. City of Ventura, Human and Technical Resources for Hazard Mitigation .....	P-9
Table P-6. City of Ventura, Financial Resources for Hazard Mitigation .....	P-11
Table P-7. City of Ventura, Legal and Regulatory Resources for Hazard Mitigation.....	P-14
Table P-8. City of Ventura, Current and Completed Hazard Mitigation Projects and Programs .....	P-16
Table P-9. City of Ventura, Potential Mitigation Actions .....	P-18
Table P-10. City of Ventura, Mitigation Action Plan.....	P-21
<b>Appendix Q Calleguas Municipal Water District.....</b>	<b>Q-1</b>
Table Q-1. Calleguas Municipal Water District, Total Critical Facilities and Infrastructure.....	Q-1



Table Q-2. Calleguas Municipal Water District, Summary of Impacts for Critical Facilities and Infrastructure .....	Q-4
Table Q-3. Calleguas Municipal Water District, Human and Technical Resources for Hazard Mitigation.....	Q-5
Table Q-4. Calleguas Municipal Water District, Financial Resources for Hazard Mitigation .....	Q-6
Table Q-5. Calleguas Municipal Water District, Legal and Regulatory Resources for Hazard Mitigation.....	Q-8
Table Q-6. Calleguas Municipal Water District, Current and Completed Hazard Mitigation Projects and Programs .....	Q-9
Table Q-7. Calleguas Municipal Water District, Potential Mitigation Actions .....	Q-11
Table Q-8. Calleguas Municipal Water District, Mitigation Action Plan .....	Q-14
<b>Appendix R Casitas Municipal Water District.....</b>	<b>R-1</b>
Table R-1. Casitas Municipal Water District, Total Critical Facilities and Infrastructure .....	R-1
Table R-2. Casitas Municipal Water District, Summary of Impacts for Critical Facilities and Infrastructure .....	R-3
Table R-3. Casitas Municipal Water District, Human and Technical Resources for Hazard Mitigation.....	R-4
Table R-4. Casitas Municipal Water District, Financial Resources for Hazard Mitigation .....	R-5
Table R-5. Casitas Municipal Water District, Legal and Regulatory Resources for Hazard Mitigation.....	R-7
Table R-6. Casitas Municipal Water District, Current and Completed Hazard Mitigation Projects and Programs .....	R-8
Table R-7. Casitas Municipal Water District, Potential Mitigation Actions.....	R-9
Table R-8. Casitas Municipal Water District, Mitigation Action Plan .....	R-12
<b>Appendix S Channel Islands Beach Community Services District .....</b>	<b>S-1</b>
Table S-1. Channel Islands Beach Community Services District, Total Critical Facilities and Infrastructure .....	S-1
Table S-2. Channel Islands Beach Community Services District, Summary of Impacts for Critical Facilities and Infrastructure.....	S-2
Table S-3. Channel Islands Beach Community Services District, Human and Technical Resources for Hazard Mitigation.....	S-3

Table S-4. Channel Islands Beach Community Services District, Financial Resources for Hazard Mitigation .....	S-4
Table S-5. Channel Islands Beach Community Services District, Legal and Regulatory Resources for Hazard Mitigation .....	S-6
Table S-6. Channel Islands Beach Community Services District, Current and Completed Hazard Mitigation Projects and Programs.....	S-7
Table S-7. Channel Islands Beach Community Services District, Potential Mitigation Actions .....	S-7
Table S-8. Channel Islands Beach Community Services District, Mitigation Action Plan .....	S-11
<b>Appendix T United Water Conservation District.....</b>	<b>T-1</b>
Table T-1. United Water Conservation District, Total Critical Facilities and Infrastructure.....	T-1
Table T-2. United Water Conservation District, Summary of Impacts for Critical Facilities and Infrastructure .....	T-2
Table T-3. United Water Conservation District, Human and Technical Resources for Hazard Mitigation .....	T-3
Table T-4. United Water Conservation District, Financial Resources for Hazard Mitigation.....	T-4
Table T-5. United Water Conservation District, Legal and Regulatory Resources for Hazard Mitigation .....	T-6
Table T-6. United Water Conservation District, Current and Completed Hazard Mitigation Projects and Programs.....	T-7
Table T-7. United Water Conservation District, Potential Mitigation Actions .....	T-8
Table T-8. United Water Conservation District, Mitigation Action Plan.....	T-12
<b>Appendix U Ventura County Fire Protection District .....</b>	<b>U-1</b>
Table U-1. Ventura County Fire Protection District, Total Critical Facilities and Infrastructure.....	U-1
Table U-2. Ventura County Fire Protection District, Summary of Impacts for Critical Facilities and Infrastructure .....	U-4
Table U-3. Ventura County Fire Protection District, Human and Technical Resources for Hazard Mitigation .....	U-5
Table U-4. Ventura County Fire Protection District, Financial Resources for Hazard Mitigation.....	U-6

Table U-5. Ventura County Fire Protection District, Legal and Regulatory Resources for Hazard Mitigation .....	U-8
Table U-6. Ventura County Fire Protection District, Current and Completed Hazard Mitigation Projects and Programs .....	U-8
Table U-7. Ventura County Fire Protection District, Potential Mitigation Actions .....	U-10
Table U-8. Ventura County Fire Protection District, Mitigation Action Plan .....	U-13
<b>Appendix V Ventura County Office of Education .....</b>	<b>V-1</b>
Table V-1. Ventura County Office of Education, Total Critical Facilities and Infrastructure .....	V-1
Table V-2. Ventura County Office of Education, Summary of Impacts for Critical Facilities and Infrastructure .....	V-12
Table V-3. Ventura County Office of Education, Human and Technical Resources for Hazard Mitigation .....	V-13
Table V-4. Ventura County Office of Education, Financial Resources for Hazard Mitigation .....	V-14
Table V-5. Ventura County Office of Education, Legal and Regulatory Resources for Hazard Mitigation.....	V-16
Table V-6. Ventura County Office of Education, Current and Completed Hazard Mitigation Projects and Programs .....	V-17
Table V-7. Ventura County Office of Education, Potential Mitigation Actions .....	V-18
Table V-8. Ventura County Office of Education, Mitigation Action Plan .....	V-21
<b>Appendix W Ventura County Watershed Protection District .....</b>	<b>W-1</b>
Table W-1. Ventura County Watershed Protection District, Total Critical Facilities and Infrastructure.....	W-1
Table W-2. Ventura County Watershed Protection District, Summary of Impacts for Critical Facilities and Infrastructure .....	W-8
Table W-3. Ventura County Watershed Protection District, Human and Technical Resources for Hazard Mitigation.....	W-9
Table W-4. Ventura County Watershed Protection District, Financial Resources for Hazard Mitigation.....	W-10
Table W-5. Ventura County Watershed Protection District, Legal and Regulatory Resources for Hazard Mitigation.....	W-11
Table W-6. Ventura County Watershed Protection District, Current and Completed Hazard Mitigation Projects and Programs.....	W-13

Table W-9. Ventura County Watershed Protection District, Potential Mitigation Actions .....	W-20
Table W-10. Ventura County Watershed Protection District, Review of Potential Mitigation Actions .....	W-23
Table W-11. Ventura County Watershed Protection District, Mitigation Action Plan ....	W-29
Appendix X Plan Maintenance .....	X-1
Annex A Activity 610 – Flood Warning Program .....	AA-1

*This page intentionally left blank*

## Appendix A

### FEMA Documentation

*This page intentionally left blank*

## APPENDIX A: LOCAL MITIGATION PLAN REVIEW TOOL

The *Local Mitigation Plan Review Tool* demonstrates how the Local Mitigation Plan meets the regulation in 44 CFR §201.6 and offers States and FEMA Mitigation Planners an opportunity to provide feedback to the community.

- The Regulation Checklist provides a summary of FEMA's evaluation of whether the Plan has addressed all requirements.
- The Plan Assessment identifies the plan's strengths as well as documents areas for future improvement.
- The Multi-jurisdiction Summary Sheet is an optional worksheet that can be used to document how each jurisdiction met the requirements of the each Element of the Plan (Planning Process; Hazard Identification and Risk Assessment; Mitigation Strategy; Plan Review, Evaluation, and Implementation; and Plan Adoption).

The FEMA Mitigation Planner must reference this *Local Mitigation Plan Review Guide* when completing the *Local Mitigation Plan Review Tool*.

<b>Jurisdiction:</b> Ventura County	<b>Title of Plan:</b> Ventura County Multi-Hazard Mitigation Plan	<b>Date of Plan:</b> September 2015
<b>Local Point of Contact:</b> Dale Carnathan	<b>Address:</b> Ventura County Sheriff's Office of Emergency Services 800 S. Victoria Ave #L3450 Ventura, CA 93009	
<b>Title:</b> Program Administrator III		
<b>Agency:</b> Ventura County Sheriff's Office of Emergency Services		
<b>Phone Number:</b> 805-654-5152	<b>E-Mail:</b> dale.carnathan@ventura.org	

<b>State Reviewer:</b>	<b>Title:</b>	<b>Date:</b>

<b>FEMA Reviewer:</b>	<b>Title:</b>	<b>Date:</b>
<b>Date Received in FEMA Region (insert #)</b>		
<b>Plan Not Approved</b>		
<b>Plan Approvable Pending Adoption</b>		
<b>Plan Approved</b>		



**SECTION 1:****REGULATION CHECKLIST**

**INSTRUCTIONS:** The Regulation Checklist must be completed by FEMA. The purpose of the Checklist is to identify the location of relevant or applicable content in the Plan by Element/sub-element and to determine if each requirement has been 'Met' or 'Not Met.' The 'Required Revisions' summary at the bottom of each Element must be completed by FEMA to provide a clear explanation of the revisions that are required for plan approval. Required revisions must be explained for each plan sub-element that is 'Not Met.' Sub-elements should be referenced in each summary by using the appropriate numbers (A1, B3, etc.), where applicable. Requirements for each Element and sub-element are described in detail in this *Plan Review Guide* in Section 4, Regulation Checklist.

<b>1. REGULATION CHECKLIST</b>		<b>Location in Plan</b> (section and/or page number)	<b>Met</b>	<b>Not Met</b>
<b>Regulation (44 CFR 201.6 Local Mitigation Plans)</b>				
<b>ELEMENT A. PLANNING PROCESS</b>				
A1. Does the Plan document the planning process, including how it was prepared and who was involved in the process for each jurisdiction? (Requirement §201.6(c)(1))	Section 3.3 and 3.4, Appendices C and D			
A2. Does the Plan document an opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, agencies that have the authority to regulate development as well as other interests to be involved in the planning process? (Requirement §201.6(b)(2))	Section 3.5, Appendix E			
A3. Does the Plan document how the public was involved in the planning process during the drafting stage? (Requirement §201.6(b)(1))	Section 3.5, Appendix E			
A4. Does the Plan describe the review and incorporation of existing plans, studies, reports, and technical information? (Requirement §201.6(b)(3))	Section 3.2			
A5. Is there discussion of how the community(ies) will continue public participation in the plan maintenance process? (Requirement §201.6(c)(4)(iii))	Section 8.4			
A6. Is there a description of the method and schedule for keeping the plan current (monitoring, evaluating and updating the mitigation plan within a 5-year cycle)? (Requirement §201.6(c)(4)(i))	Section 8.2, Appendix X			
<b>ELEMENT A: REQUIRED REVISIONS</b>				

1. REGULATION CHECKLIST		Location in Plan (section and/or page number)	Met	Not Met
Regulation (44 CFR 201.6 Local Mitigation Plans)				
ELEMENT B. HAZARD IDENTIFICATION AND RISK ASSESSMENT				
B1. Does the Plan include a description of the type, location, and extent of all natural hazards that can affect each jurisdiction(s)? (Requirement §201.6(c)(2)(i))	Subheaders "nature," "location" and "extent" for each of the following: 4.3.1 – Agricultural Biological 4.3.2 – Climate Change 4.3.3 – Dam Failure Inundation 4.3.4 – Drought 4.3.5 – Earthquake 4.3.6 – Flood 4.3.7 – Landslide 4.3.8 – Levee Failure Inundation 4.3.9 – Post-Fire Debris Flow 4.3.10 – Tsunami 4.3.11 – Wildland Fire 4.3.12 – Winter Storm			
B2. Does the Plan include information on previous occurrences of hazard events and on the probability of future hazard events for each jurisdiction? (Requirement §201.6(c)(2)(i))	Subheaders "history" and "probability of future events" for each of the following: 4.3.1 – Agricultural Biological 4.3.2 – Climate Change 4.3.3 – Dam Failure Inundation 4.3.4 – Drought 4.3.5 – Earthquake 4.3.6 – Flood 4.3.7 – Landslide 4.3.8 – Levee Failure Inundation 4.3.9 – Post-Fire Debris Flow 4.3.10 – Tsunami 4.3.11 – Wildland Fire 4.3.12 – Winter Storm			
B3. Is there a description of each identified hazard's impact on the community as well as an overall summary of the community's vulnerability for each jurisdiction? (Requirement §201.6(c)(2)(ii))	Section 5.4, Appendices G-W			
B4. Does the Plan address NFIP insured structures within the jurisdiction that have been repetitively damaged by floods? (Requirement §201.6(c)(2)(ii))	Section 5.5			
ELEMENT B: REQUIRED REVISIONS				

1. REGULATION CHECKLIST		Location in Plan (section and/or page number)	Met	Not Met
<b>Regulation</b> (44 CFR 201.6 Local Mitigation Plans)				
<b>ELEMENT C. MITIGATION STRATEGY</b>				
C1. Does the plan document each jurisdiction's existing authorities, policies, programs and resources and its ability to expand on and improve these existing policies and programs? (Requirement §201.6(c)(3))	Section 6.2, Appendices G-W			
C2. Does the Plan address each jurisdiction's participation in the NFIP and continued compliance with NFIP requirements, as appropriate? (Requirement §201.6(c)(3)(ii))	Section 6.2			
C3. Does the Plan include goals to reduce/avoid long-term vulnerabilities to the identified hazards? (Requirement §201.6(c)(3)(i))	Section 7.2, Table 7-1			
C4. Does the Plan identify and analyze a comprehensive range of specific mitigation actions and projects for each jurisdiction being considered to reduce the effects of hazards, with emphasis on new and existing buildings and infrastructure? (Requirement §201.6(c)(3)(ii))	Section 7.4, Table 7-2			
C5. Does the Plan contain an action plan that describes how the actions identified will be prioritized (including cost benefit review), implemented, and administered by each jurisdiction? (Requirement §201.6(c)(3)(iv)); (Requirement §201.6(c)(3)(iii))	Section 7.5, Table 7-3			
C6. Does the Plan describe a process by which local governments will integrate the requirements of the mitigation plan into other planning mechanisms, such as comprehensive or capital improvement plans, when appropriate? (Requirement §201.6(c)(4)(ii))	Section 8.3			
<b>ELEMENT C: REQUIRED REVISIONS</b>				
<b>ELEMENT D. PLAN REVIEW, EVALUATION, AND IMPLEMENTATION</b> (applicable to plan updates only)				
D1. Was the plan revised to reflect changes in development? (Requirement §201.6(d)(3))	Section 3.2			
D2. Was the plan revised to reflect progress in local mitigation efforts? (Requirement §201.6(d)(3))	Section 7.3, Appendices G-W			
D3. Was the plan revised to reflect changes in priorities? (Requirement §201.6(d)(3))	Section 7.5			
<b>ELEMENT D: REQUIRED REVISIONS</b>				
<b>ELEMENT E. PLAN ADOPTION</b>				
E1. Does the Plan include documentation that the plan has been formally adopted by the governing body of the jurisdiction requesting approval? (Requirement §201.6(c)(5))	Section 2.2, Appendix B			
E2. For multi-jurisdictional plans, has each jurisdiction requesting approval of the plan documented formal plan adoption? (Requirement §201.6(c)(5))	Section 2.2, Appendix B			
<b>ELEMENT E: REQUIRED REVISIONS</b>				
<b>ELEMENT F. ADDITIONAL STATE REQUIREMENTS (OPTIONAL FOR STATE REVIEWERS ONLY; NOT TO BE COMPLETED BY FEMA)</b>				
F1.				
F2.				

OMB No 1660-0022  
Expires June 30, 2007

Community: Ventura County, CA

Ventura County HMP 2015

## 510 FLOODPLAIN MANAGEMENT PLANNING

### 511.a Floodplain Management Planning (FMP)

**Credit Points:** Enter the section or page number in the plan where each credited item can be found.

CRS Step	Section/Page	Item Score	Step Total
<b>1. Organize to prepare the plan. (max: 15)</b>			
a. Involvement of Office Responsible for Community Planning (4)	Section 3.4.2		
b. Planning committee of department staff (9)	Section 3.4.2		
c. Process formally created by the community's governing board (2)			
<b>2. Involve the public. (max: 120)</b>			
a. Planning process conducted through a planning committee (60)	Section 3.4.2		
b. Public meetings held at the beginning of the planning process (15)	Section 3.5.5		
c. Public meeting held on draft plan (15)	Sections: 3.5.5, 3.5.6		
d. Other public information activities to encourage input (up to 30)	Sections: 3.5.1, 3.5.2, 3.5.3, 3.5.4, 3.5.7, 3.5.8 and Appendix E		
<b>3. Coordinate with other agencies. (max: 35)</b>			
a. Review of existing studies and plans (REQUIRED) (5)	Section 3.2.1		
b. Coordinating with communities and other agencies (up to 30)	Section 3.2.2, Appendix E		
<b>4. Assess the hazard. (max 35)</b>			



OMB No 1660-0022  
Expires June 30, 2007

Community: Ventura County, CA

a. Plan includes an assessment of the flood hazard (REQUIRED) with:

- (1) A map of known flood hazards (5)
- (2) A description of known flood hazard (5)
- (3) A discussion of past floods (5)

b. Plan includes assessment of less frequent floods (10)

c. Plan includes assessment of areas likely to flood (5)

b. The plan describes other natural hazards (REQUIRED FOR DMA) (5)

#### 5. Assess the problem. (max 52)

a. Summary of each hazard identified in the hazard assessment and their community impact (REQUIRED) (2)

b. Description of the impact of the hazards on:

- (1) Life, safety, health, procedures for warning and evacuation (5)
- (2) Public health including health hazards to floodwaters/mold (5)

(3) Critical facilities and infrastructure (5)

(4) The community's economic and tax base (5)

(5) Number of type of affected buildings (5)

c. Review of all damaged buildings/flood insurance claims (5)

d. Areas that provide natural floodplain functions (5)

e. Development/redevelopment/population trends (7)

Appendix F (F-9)		
Section 4.3.6 (Nature), Section 5.5 (Repetitive		
Section 4.3.6 (History)		
Section 4.3.6 (Coastal Flooding), Section 4.3.3 (Dam Failure Inundation), Section 4.3.8 (Levee Failure Inundation), Section 4.3.9 (Post Fire Debris Flow), Section 4.3.10 (Tsunami)		
Section 4.3.6 (Nature), Section 4.3.2 (Climate Change)		
Section 4.3		

Section 5.4		
Sections: 5.4.8 (Additional Life/Safety Information), Section 5.4.14 (Additional Life/Safety Information), Annex A		
Section 5.2, Section 5.4, Appendix G (Unincorporated Ventura County), Appendix V (VCWPD)		
Section 5.2, Section 5.4, Section 5.4.8 (Additional Flood Insurance Information), Appendix G (Unincorporated Ventura County), Appendix V (VCWPD)		
Section 6.2		
Section 4.3.6 (Natural and Beneficial Floodplain Functions)		

OMB No 1660-0022  
Expires June 30, 2007

f. Impact of future flooding conditions outline in Step 4, item c (5)

Community: Ventura County, CA

**6. Set goals. (REQUIRED) (2)**

Section 7.2

**7. Review possible activities. (max: 35)**

- a. Preventive activities (5)
- b. Floodplain Management Regulatory/current & future conditions (5)
- c. Property Protection Activities (5)
- d. Natural resource protection activities (5)
- e. Emergency services activities (5)
- f. Structural projects (5)
- g. Public information activities (5)

Section 7.4 and Appendix V

Appendix V, Tables V-9 and V-10

Appendix V, Tables V-9 and V-10

Appendix V, Tables V-9 and V-10

Appendix V, Tables V-9 and V-10

Appendix V, Tables V-9 and V-10

Appendix V, Tables V-9 and V-10

Appendix V, Tables V-9 and V-10

**8. Draft an action plan. (max: 60)**

a. Actions must be prioritized (REQUIRED)

- a. Recommendations for activities from two of the six categories (10)
- b. Recommendations for activities from three of the six categories (20)
- c. Recommendations for activities from four of the six categories (30)
- d. Recommendations for activities from five of the six categories (45)

b. Post-disaster mitigation policies and procedures (10)

c. Action items for mitigation of other hazards (5)

Section 7.5 (Prioritization) and Appendix V

Appendix V, Table V-11

Appendix V, Table V-11 (#16)

Appendix V, Table V-11 (#1, 2, 8)

**9. Adopt the plan. (2)**

Section 2.2, Appendix B

**10. Implement, evaluate and revise. (max: 26)**

- a. Procedures to monitor and recommend revisions (REQUIRED) (2)
- b. Same planning committee or successor committee that qualifies under Section 511.a.2 (a) does the evaluation (24)

Section 8.2, Appendix W

Section 8.2, Appendix W

Maximum Credit for 510 = 382

Plan Total: \_\_\_\_\_

OMB No 1660-0022  
Expires June 30, 2007

Community: City of Oxnard, CA

Ventura County HMP 2015

## 510 FLOODPLAIN MANAGEMENT PLANNING

### 511.a Floodplain Management Planning (FMP)

**Credit Points:** Enter the section or page number in the plan where each credited item can be found.

CRS Step	Section/Page	Item Score	Step Total
<b>1. Organize to prepare the plan. (max: 15)</b>			
a. Involvement of Office Responsible for Community Planning (4)	Section 3.4.2		
b. Planning committee of department staff (9)	Section 3.4.2		
c. Process formally created by the community's governing board (2)			
<b>2. Involve the public. (max: 120)</b>			
a. Planning process conducted through a planning committee (60)	Section 3.4.2		
b. Public meetings held at the beginning of the planning process (15)	Section 3.5.5		
c. Public meeting held on draft plan (15)	Sections: 3.5.5, 3.5.6		
d. Other public information activities to encourage input (up to 30)	Sections: 3.5.1, 3.5.2, 3.5.3, 3.5.4, 3.5.7, 3.5.8 and Appendix E		
<b>3. Coordinate with other agencies. (max: 35)</b>			
a. Review of existing studies and plans (REQUIRED) (5)	Section 3.2.1		
b. Coordinating with communities and other agencies (up to 30)	Section 3.2.2, Appendix E		
<b>4. Assess the hazard. (max 35)</b>			

OMB No 1660-0022  
Expires June 30, 2007

Community: City of Oxnard, CA

a. Plan includes an assessment of the flood hazard (REQUIRED) with:

- (1) A map of known flood hazards (5)
- (2) A description of known flood hazard (5)
- (3) A discussion of past floods (5)

b. Plan includes assessment of less frequent floods (10)

c. Plan includes assessment of areas likely to flood (5)

b. The plan describes other natural hazards (REQUIRED FOR DMA) (5)

#### 5. Assess the problem. (max 52)

a. Summary of each hazard identified in the hazard assessment and their community impact (REQUIRED) (2)

b. Description of the impact of the hazards on:

- (1) Life, safety, health, procedures for warning and evacuation (5)
- (2) Public health including health hazards to floodwaters/mold (5)
- (3) Critical facilities and infrastructure (5)
- (4) The community's economic and tax base (5)

(5) Number of type of affected buildings (5)

c. Review of all damaged buildings/flood insurance claims (5)

d. Areas that provide natural floodplain functions (5)

e. Development/redevelopment/population trends (7)

f. Impact of future flooding conditions outline in Step 4, item c (5)

#### 6. Set goals. (REQUIRED) (2)

Appendix F (F-9)		
Section 4.3.6 (Nature), Section 5.5 (Repetitive		
Section 4.3.6 (History)		
Section 4.3.6 (Coastal Flooding), Section 4.3.3 (Dam Failure Inundation), Section 4.3.8 (Levee Failure Inundation), Section 4.3.9 (Post Fire Debris Flow), Section 4.3.10 (Tsunami)		
Section 4.3.6 (Nature), Section 4.3.2 (Climate Change)		
Section 4.3		

Section 5.4		
Sections: 5.4.8 (Additional Life/Safety Information), Section 5.4.14 (Additional Life/Safety Information), Annex A		
Section 5.2, Section 5.4, Appendix K (Table K-4)		
Section 5.2, Section 5.4, Section 5.4.8 (Additional Flood Insurance Information), Appendix K (Table K-3)		
Section 6.2		
Section 4.3.6 (Natural and Beneficial Floodplain Functions)		
Section 7.2		



OMB No 1660-0022

Expires June 30, 2007

Community: City of Oxnard, CA**7. Review possible activities. (max: 35)**

- a. Preventive activities (5)
- b. Floodplain Management Regulatory/current & future conditions (5)
- c. Property Protection Activities (5)
- d. Natural resource protection activities (5)
- e. Emergency services activities (5)
- f. Structural projects (5)
- g. Public information activities (5)

Section 7.4 and Appendix V	
Appendix K, Tables K-9 and K-10	
Appendix K, Tables K-9 and K-10	
Appendix K, Tables K-9 and K-10	
Appendix K, Tables K-9 and K-10	
Appendix K, Tables K-9 and K-10	

**8. Draft an action plan. (max: 60)**

- a. Actions must be prioritized (REQUIRED)
  - a. Recommendations for activities from two of the six categories (10)
  - b. Recommendations for activities from three of the six categories (20)
  - c. Recommendations for activities from four of the six categories (30)
  - d. Recommendations for activities from five of the six categories (45)
- b. Post-disaster mitigation policies and procedures (10)
- c. Action items for mitigation of other hazards (5)

Section 7.5 (Prioritization) and Appendix K	
Appendix K, Table K-11	
Appendix K, Table K-11 (#4)	
Appendix K, Table K-11 (#5)	

**9. Adopt the plan. (2)**

Section 2.2, Appendix B	
-------------------------	--

**10. Implement, evaluate and revise. (max: 26)**

- a. Procedures to monitor and recommend revisions (REQUIRED) (2)
- b. Same planning committee or successor committee that qualifies under Section 511.a.2 (a) does the evaluation (24)

Section 8.2, Appendix W	
Section 8.2, Appendix W	

Maximum Credit for 510 = 382

Plan Total: \_\_\_\_\_

Appendix B  
Adoption Resolutions

*This page intentionally left blank*

Insert Adoption Resolutions when obtained

*This page intentionally left blank*

Appendix C  
MHMP Committee

*This page intentionally left blank*



Participation in the MHMP Committee will include:

- Attendance of 2 MHMP Committee meetings (between now and July)
- A review and update of your jurisdiction's: critical facilities and infrastructure list; mitigation capabilities tables; and mitigation action plan
- Periodic review of planning documents

Stakeholders interested in the development of the MHMP are welcome:

- Ventura County Staff
- The cities of Ventura County
- Neighboring counties
- Special districts
- Non-governmental organizations
- Regional and State agencies

## MHMP Committee

### 2015 Multi-Hazard Mitigation Plan Update

Ventura County has launched an effort to update their Multi-Hazard Mitigation Plan (MHMP) in accordance with FEMA regulations. The 2015 MHMP update includes the review of the natural and human-caused hazards the county is susceptible to and identifies ways to reduce the risks and vulnerability from these hazards.

Additionally, the updated 2015 MHMP will support the County's participation in the National Flood Insurance Program's Community Rating System (CRS) Program by addressing the Program's floodplain management planning activities.

For this project, we have two committees; a committee to focus on hazard mitigation planning requirements (MHMP Committee), and a committee to focus specifically on the floodplain management requirements (FMP Committee). We invite you to be a part of this effort and participate as a member of the MHMP Committee.

When:

Thursday, April 9, 2015  
9:30am – 11:30 am

Where:

800 South Victoria – Ventura, CA 93009  
Sheriff's Administration Building  
West County Training Room (follow signs)

RSVP:

Please RSVP by Monday, April 6th  
Dale Carnathan: [Dale.Carnathan@ventura.org](mailto:Dale.Carnathan@ventura.org)





VENTURA COUNTY  
2015 MHMP UPDATE  
MHMP COMMITTEE MEETING #1  
April 9, 2015



## **AGENDA**

---

### **Introductions**

- County of Ventura Project Management
- AECOM
- Multi-Hazard Mitigation Plan (MHMP) Committee Members

### **Hazard Mitigation Planning Overview**

- MHMP / Disaster Management Act of 2000\*
- Countywide MHMP 2005/2010
- Floodplain Management Planning / Community Rating System (CRS)

### **MHMP Update Overview**

- MHMP Outline\*
- MHMP Schedule\*
- MHMP Committee Role

### **Items to Discuss**

- Hazard Identification: Climate Change, Drought
- Critical Facilities and Infrastructure (previously emailed)\*
- Capability Assessment\*

### **Public Outreach**

- Website
- Online Survey
- Web Portal
- Ventura County Emergency Planning Council

### **Questions & Answers**

### **Next Meeting**

\* Handout

**VENTURA COUNTY  
2015 MHMP UPDATE  
MHMP COMMITTEE MEETING #1  
April 9, 2015**



## **MINUTES**

---

### **Attendees**

<b>Name</b>	<b>Agency</b>
Jeff Argend	Santa Paula High School District
Greg Beckley	Ventura County Community College District Police
Dale Carnathan	Ventura County Sheriff's Office of Emergency Services (OES)
Brian Clark	City of Ventura
Anna Davis	AECOM
Teri Davis	City of Moorpark
Steve Dickinson	Oxnard Union High School District
Dustin Gardner	Ventura County Fire Protection District
Kathy Gibson	Ventura County Sheriff's OES
Robert Hearne	City of Oxnard
Yvette Laduke	Cal OES
Kevin McGown	Ventura County Sheriff's OES
Russ Olsen	Ventura County School's Self-Funding Authority
Phil Raba	Ventura County Public Works Agency
Bruce Rindahl	VC Watershed Protection District
Kaili Taniguchi	United Water Conservation District
Jim Taylor	City of Thousand Oaks
Lindsey Trumpy	AECOM
Brian Trushinski	VC Watershed Protection District
Heidi Zahrt	City of Camarillo

### **Hazard Mitigation Planning Overview**

- The Ventura County Sheriff's OES has kicked off its' 2<sup>nd</sup> Multi-Hazard Mitigation Plan (MHMP) 5-Year Update.
- Some participating in the 2015 MHMP Committee were involved in the last previous two planning efforts (June 2005, December 2010); others are new to this process.
- A hazard mitigation forms the foundation for a community's long-term strategy to reduce disaster losses and break the cycle of disaster damage, reconstruction, and repeated damage.
- The planning process is as important as the plan itself. It creates a framework for risk-based decision making to reduce damages to lives, property, and the economy from future disasters.
- The Federal Disaster Mitigation Act of 2000 (DMA 2000) outlines a process which cities, counties, and special districts develop a hazard mitigation plan.
  - DMA 2000 is important because it marks the shift from a focus on disaster response and recovery to a focus on mitigation.
  - Local jurisdictions must have a FEMA-approved hazard mitigation plan to receive certain types of mitigation funding.

VENTURA COUNTY  
2015 MHMP UPDATE  
MHMP COMMITTEE MEETING #1  
April 9, 2015



## MINUTES

---

- Local hazard mitigation plans must be updated, adopted, and approved by FEMA every 5 years – the 2010 MHMP expires in February 2016.
- It is important to note that a hazard mitigation plan is one of multiple plans that support the emergency management cycle. Other plans include a jurisdiction's Emergency Operations Plan and General Plan (specifically the Safety Element).
- Similar to the 2010 MHMP, the 2015 MHMP will support Ventura County's (unincorporated area) participation in the Community Rating System (CRS) program by addressing the program's Floodplain Management Planning activities.
  - CRS is a voluntary incentive program, under the National Flood Insurance Program (NFIP), that recognizes and encourages communities to go beyond the minimum floodplain protection requirements. In October 2010, Ventura County (Unincorporated Areas) joined the CRS program at a class 6 (20% annual flood insurance premium discount to insureds).

### MHMP Update Overview

- The 2015 MHMP will include the following sections:
  - Section 1 – Introduction: Provides an overview of the DMA 2000 and hazard mitigation and it will also provide a brief description of all participants the County, participating cities, and participating special districts - such as demographics and statistics.
  - Section 2 – Prerequisites: Describes the FEMA requirements considered for plan approval as well as the adoption documentation by participating jurisdictions.
  - Section 3 – Planning Process: Summarizes the planning process, including MHMP/FMP committee meetings, stakeholder coordination, and public outreach activities.
  - Section 4 – Hazard Analysis: Describes the process through which the MHMP/FMP Committees will identify, screen, and select the hazards to be profiled or re-profiled in the 2015 MHMP. The hazard analysis will include the nature, history, location, extent, and probability of future events for each hazard. Location and historical hazard figures will be provided.
  - Section 5 – Vulnerability Analysis: Identifies the methodology for analyzing potentially vulnerable assets—population, residential building stock, RL and SRL properties, and critical facilities and infrastructure. This information will be compiled by assessing the potential impacts from each hazard using Geographic Information System (GIS) data. The resulting information will identify the full range of hazards that each participant could face and the potential social impacts, damages, and economic losses.
  - Section 6 – Capability Assessment: Evaluates the human and technical, financial, and legal and regulatory resources available for hazard mitigation for each participating jurisdiction. The results of the capability assessment will also list current, ongoing, and completed mitigation projects and programs for each participant.



**VENTURA COUNTY  
2015 MHMP UPDATE  
MHMP COMMITTEE MEETING #1  
April 9, 2015**



## **MINUTES**

- Section 7 - Mitigation Strategy: Provides a blueprint for reducing the potential losses identified in the vulnerability analysis. The MHMP/FMP Committees will review mitigation projects identified in the 2010 MHMP and revise the existing list to include only the most relevant and fundable mitigation projects.
- Section 8 – Plan Maintenance: Describes the formal plan maintenance process to ensure that the 2010 HMP remains an active and applicable document. The process will include monitoring, evaluating, and updating the plan.
- Appendices: The 2015 MHMP will include several appendices, such as: A: FEMA Compliance; B: Adoption Resolutions; C: Project Management; D: MHMP Committee; E: FMP Committee; F: Public Outreach and Stakeholder Involvement; G: Figures; H-Y: Participant-Specific Appendices (to include critical facilities and infrastructure list, vulnerability analysis, capability assessment, and mitigation action plan); and Appendix Z: Plan Maintenance Documents.
- The following are key milestones in the MHMP update schedule:

<b>Activity</b>	<b>Due Date</b>
GIS: Updated Hazard Figures	April 24 (presented to the Committees end of April)
Ventura County Emergency Planning County (EPC) Presentation - Public Meeting #1	April 30 (presentation to the EPC and general public introducing the project, and request for input)
GIS: Draft Exposure Analysis	May 16 (presented to the Committees mid-May)
Administrative MHMP	June 26
Public Review MHMP	July 16 – August 14
Ventura County EPC Presentation – Public Meeting #2	July 30 (presentation to the EPC and the general public discussing the Public Review MHMP, and request for input)
Final Draft MHMP	Mid – August
Final MHMP	TBD post-FEMA approval

- The following are key MHMP Committee activities:

<b>Discussed at Committee Meeting</b>	<b>Activity</b>	<b>Activity Completion Date (by Committee members)</b>
#1	Update 2010 Critical Facilities and Infrastructure List	Friday, April 24
	Update 2010 Capability Assessment	Friday, May 8
	Review 2010 Mitigation Action Plan	Friday, May 8
#2	Review 2015 Potential Mitigation Actions	Friday, May 29
	Create 2015 Mitigation Action Plan	Friday, June 5

VENTURA COUNTY  
2015 MHMP UPDATE  
MHMP COMMITTEE MEETING #1  
April 9, 2015



## MINUTES

---

### Items to Discuss

- Two new hazards will be added to the 2015 MHMP update, including climate change and drought.
  - Climate change was discussed throughout the 2010 MHMP, but it was not included as a separate hazard. The 2015 MHMP will address climate change as a stand-alone hazard. 2015 MHMP will include data/figures from the NOAA's Sea-Level Rise Viewer, which simulates various sea level rise scenarios (from one to six feet above the average highest tides) and the corresponding areas that would be impacted by flooding.
  - The second addition to the 2015 MHMP hazard list is that drought will be included as a hazard. The 2015 MHMP will include data/figures from the NOAA's Climate Prediction Center, the National Drought Mitigation Center, and the California Drought website.
- As part of the 2015 MHMP update process, each participant will need to review and update their participant-specific 2010 MHMP critical facilities list. A critical facility/infrastructure is broadly defined as - An asset that if severely damaged, would reduce the availability of essential community services necessary to cope with an emergency. The 2010 MHMP included: government facilities; community facilities; emergency response facilities; public utilities; educational facilities; and transportation infrastructure.
  - The 2010 MHMP critical facilities and infrastructure list was distributed to MHMP Committee members by email prior to the April 9 meeting and also each member in attendance was given a hard copy during the April 9 meeting. Each committee member is asked review their participant-specific list and provide updates to the list (remove facilities that no longer exist and add new facilities).
  - During the April 9 meeting, the MHMP Committee decided to add bulk commercial fuel distribution facilities and private facilities to the list of critical facilities.
- **IMPORTANT:** Updates made to the 2010 MHMP critical facilities and infrastructure list must be submitted; please provide an updated list to Ventura County OES and AECOM by Friday, April 24 ([Dale.Carnathan@ventura.org](mailto:Dale.Carnathan@ventura.org), [Lindsey.Trumpy@aecom.com](mailto:Lindsey.Trumpy@aecom.com), and [Anna.Davis@aecom.com](mailto:Anna.Davis@aecom.com)).
- As part of the 2015 MHMP update process, each participant will need to review and update their participant-specific 2010 MHMP capability assessment. A capability assessment includes the following tables: Human & Technical Resources; Financial Resources; Legal & Regulatory Resources; and Completed and Current Mitigation Projects and Programs.
  - The 2010 MHMP capability assessment was distributed to the MHMP Committee members during the April 9 meeting. Each committee member is asked to review their participant-specific list and provide update to the list.
  - In addition to the "completed and current mitigation projects and programs" from the 2010 MHMP, the forth table includes the mitigation actions each participant included in their

VENTURA COUNTY  
2015 MHMP UPDATE  
MHMP COMMITTEE MEETING #1  
April 9, 2015



## MINUTES

---

Mitigation Action Plan for 2010 (2010 – 2015 priority mitigation actions). Please review each of these mitigation actions and list the status of those (the status of these will help us develop the 2015 Mitigation Action Plan at the next MHMP Committee meeting).

- **IMPORTANT:** Updates made to the 2010 MHMP critical facilities and infrastructure list must be submitted; please provide an updated list to Ventura County OES and AECOM by Friday, May 8 ([Dale.Carnathan@ventura.org](mailto:Dale.Carnathan@ventura.org), [Lindsey.Trumpy@aecom.com](mailto:Lindsey.Trumpy@aecom.com), and [Anna.Davis@aecom.com](mailto:Anna.Davis@aecom.com)).

### Public Outreach

- Website: A project website has been developed that will contain information on planning process and announces each of the meetings being held for the project. The website will also be a reference for the committee members; we will post documents for review on the website and all meeting documentation (meeting announcements, as well as agendas and minutes).
- Online Survey: A public online survey will be placed on the MHMP website. The survey will be used to gauge a general understanding of hazard mitigation planning and hazard mitigation projects within Ventura County and participating Cities.
- Web Portal: A hazard map web portal will accessible toward the end of the project (and will be accessible after the project ends). Using Google Earth, the web portal will allow users to locate a chosen location (address or latitude/longitude coordinates) within the County and apply each hazard layer, allowing the user to see the susceptibility of a specific location to each hazard.
- Ventura County Emergency Planning Council: Two public presentations, on April 30 and July 30, about the 2015 MHMP will be made at the Emergency Planning Council (from 10:00am – 11:00am on both dates).

### Next Meeting

- At the next MHMP Committee meeting, committee members will review updated hazard maps, discuss the updated vulnerability analysis and begin developing the 2015 participant-specific mitigation action plans.
- **IMPORTANT:** The next MHMP Committee meeting will be the morning of May 19. An official invite with meeting details will be sent out in early May.



VENTURA COUNTY  
2015 MHMP UPDATE  
MHMP COMMITTEE MEETING #2  
May 19, 2015



## **AGENDA**

---

### **Introductions**

- County of Ventura Project Management
- AECOM
- Multi-Hazard Mitigation Plan (MHMP) Committee Members

### **Hazard Maps**

- Review hazard maps and data sources used in profiles

### **Vulnerability Analysis**

- Vulnerability Analysis process

### **Mitigation Strategy**

- Mitigation Goals
- Potential Mitigation Actions\*
- Eligible vs Ineligible Activities\*
- Selection Criteria\*
- Developing a Mitigation Action Plan\*

### **Next Steps**

- Complete Vulnerability Analysis
- Complete update of Capability Assessments
- Complete Mitigation Action Plan
- Complete Draft Plan for Review
- Review Draft Plan

### **Questions & Answers**

\* Handout

VENTURA COUNTY  
2015 MHMP UPDATE  
MHMP COMMITTEE MEETING #2  
May 19, 2015



## MINUTES

### Attendees

Name	Agency
Bill Boyd	Ventura County Sheriff's OES
Dale Carnathan	Ventura County Sheriff's OES
Ken Carter	Ventura County Sheriff's OES
Brian Clark	City of Ventura
Neil Cole	Casitas Municipal Water District
Teri Davis	City of Moorpark
Dustin Gardner	Ventura County Fire Protection District
Kathy Gibson	Ventura County Sheriff's OES
Joel Justice	Ventura County Community College District Police
Bill Keyes	Camrosa Water District
Kevin McGown	Ventura County Sheriff's OES
Russ Olsen	Ventura County School's Self-Funding Authority (Office of Education)
Bruce Rindahl	Ventura County Watershed Protection District
Ian Rodriguez	Ventura County Sheriff's OES
Ronald Sheets	Ojai Valley Sanitary District - confirm participation
Darryl Smith	Ventura County Sheriff's OES
Kaili Taniguchi	United Water Conservation District
Maggie Tougas	California State University Channel Islands
Brian Trushinski	Ventura County Watershed Protection District
Grahame Watts	City of Thousand Oaks
Gil Zavlodaver	Ventura County Sheriff's OES

### Hazard Maps

- For each hazard to be addressed in the Hazard Mitigation Plan (HMP) we will develop a hazard profile, this includes discussing the nature, history, location, extent and probably of future events for each hazard.
- Hazard maps have been developed; these help us understand both the location and the extent. For each map, we'd like you to let us know if anything looks unexpected and if you're happy with the data sources we're using (we're still working on the maps for landslide, earthquake history and wildfire history).



VENTURA COUNTY  
2015 MHMP UPDATE  
MHMP COMMITTEE MEETING #2  
May 19, 2015



## MINUTES

### Hazard Map Review

Map	Data Source	Comments
<b>Climate Change - Sea Level Rise Map</b> (3ft and 6 ft)	NOAA Office for Coastal Management, Digital Coast	At a later date it was decided to use data from the Nature Conservancy rather than the NOAA data.
<b>Dam Failure Inundation</b>	Cal OES inundation maps	Group would like to see each dam inundation map separately – individual thumbnails will be developed for each dam inundation.
<b>Regional Faults and Earthquake Groundshaking Potential</b>	California Geological Survey (2008)	No comment
<b>Local Faults and Earthquake Groundshaking Potential</b>	California Geological Survey (2008)	Switch the order of the shaking categories so it matches the previous map – most extreme at the top, least extreme at the bottom.
<b>Special Flood Hazard Areas</b> (100 year and 500 year floods)	FEMA Flood Maps (3/19/15)	Add in Coastal flood zone with velocity – Zone VE.
<b>Areas with Reduced Flood Risk Due to Levee</b>	FEMA digital flood insurance rate maps (DFIRMs – 3/19/15)	No comment
<b>Liquefaction Areas</b>	California Geological Survey (2003)	No comment
<b>Tsunami Inundation Areas</b>	Cal OES, Earthquake and Tsunami program (2009)	County noted that there's some 2014 data that should be used. At a later date it was decided to use data from the Tsunami Emergency Response Playbooks, July 2014.
<b>Wildfire Hazard Severity Zones</b>	CalFIRE data, Fire and Resource Assessment Program (FRAP – 2007 and 2010)	To distinguish the difference between the very high zone in the local vs. state responsibility areas, very high is both gold and orange. It was decided that all areas of very high should be the same color.
<b>Recent Wildfire Perimeters</b> (Past Three Years – ties into post-fire debris flow)	Cal FIRE FRAP data	Group wanted to add the Day Fire to this map even though it occurred more than 3 years ago, it will contribute to post-fire debris flow.

VENTURA COUNTY  
2015 MHMP UPDATE  
MHMP COMMITTEE MEETING #2  
May 19, 2015



## MINUTES

### Hazard Map Review

Map	Data Source	Comments
<b>Extreme Winter Storm Scenario</b> (CoSMoS – ARkStorm)	USGS Coastal Storm modeling system, ARkStorm scenario)	Group did not like this map. A number of changes to the map were discussed, but ultimately it was decided to not use this data set and use data from the Nature Conservancy instead.
<b>Wildfire History</b>	Map not yet developed	Fire noted that they have a fire history map and would like us to format ours based off of theirs.

### Vulnerability Analysis Process

- Critical facility/asset data as well as population and residential structure data is combined with hazard maps to produce the Vulnerability Analysis
  - In essence, the critical facilities are mapped then the map of each hazard is overlaid to determine which hazards fall into which hazard zones.
  - The analysis does not try to determine to what level a facility is vulnerable, i.e. 20% of the facility is within the flood zone or the facility will receive 1 foot of water. Rather a facility is simply in or out, if the hazard boundary touches a facility the facility is counted as being susceptible.
  - A similar approach is taken for population and residential structures.
- Examples of what the information obtained from the vulnerability analysis will look like were shown and discussed - for each critical facility identified it notes which of the chosen hazards the facility is susceptible to.
- For population and residential buildings, census data is used and we get the number of people and residential buildings susceptible to each hazard.

### Mitigation Strategy

- Begin the mitigation strategy process by reviewing the 2010 Mitigation Strategy: review the previous mitigation goals/objectives and analyze the previous mitigation actions - which were completed and which were not. If not completed discuss why and should they be included in the 2015 strategy?

### Mitigation Goals

- In the 2010 plan one goal per hazard was identified. Reducing the number of goals and making them more general - to apply to multiple hazards - was suggested and agreed upon by the group.

VENTURA COUNTY  
2015 MHMP UPDATE  
MHMP COMMITTEE MEETING #2  
May 19, 2015



## MINUTES

---

### Potential Mitigation Actions

- A list of potential mitigation actions has been developed (**Table 1** in the Mitigation Strategy handout).
  - It is suggested that additional mitigation actions, specific to your jurisdiction/special district, are added to the list of potential mitigation actions (**Table 2**). The list of potential mitigation actions is your laundry list that you enter all possible ideas onto, and then you can go through the list and choose 3-10 mitigation actions based upon established priorities.

### Eligible vs. Ineligible Mitigation Activities

- Developing an HMP gains a jurisdiction eligibility to specific federal grant funds. A list was provided that illustrates eligible mitigation activities for three different funding sources and a list of example ineligible mitigation activities (attached).
- Examples of **Eligible** Activities:
  - Relocation and elevation of structures
  - Structural and non-structural retrofitting
  - Dry floodproofing (non-residential structures)
  - Protective measures for utilities (e.g. electric and gas), water & sanitary sewer systems and/or other infrastructure (e.g. roads, bridges)
  - Vegetation management
  - Storm water management
  - Localized flood control projects
- Examples of **Ineligible** Activities
  - Flood studies or flood mapping and major flood control projects
  - Studies that do not yield a project
  - Projects that solely address operations or maintenance (e.g. dredging, debris removal)
  - Any phase or part of a project that is dependent on another project
  - Preparedness measures and response equipment (e.g., response training, electronic evacuation road signs, interoperable communications equipment)
  - Projects for preparedness activities or temporary measures (e.g., sandbags, bladders, geotubes)

### Priority Mitigation Action Criteria

- It is strongly suggested that mitigation actions are chosen utilizing the following criteria.
  - Mitigation Planning
  - Technical Feasibility and Effectiveness



VENTURA COUNTY  
2015 MHMP UPDATE  
MHMP COMMITTEE MEETING #2  
May 19, 2015



## MINUTES

---

- Floodplain Management and Protection of Wetlands
- Environmental Planning and Historic Review and Compliance
- Cost Effectiveness
- Cost Review
- General Program Requirements
- These are the Hazard Mitigation Assistance (HMA) Program requirements. Incorporating these requirements into the prioritization process helps to identify high priority mitigation actions would lead to enhanced project scoping as well as development and prevent delays later for HMA funding.

### Local Participant-Specific Mitigation Action Plan

- A Mitigation Strategy handout was provided to the group to help guide each member through the development of their own Mitigation Action Plan:
  1. Review Table 1 (list of potential mitigation actions)
  2. Utilize Table 2, to write down any additional mitigation actions you would like to consider
  3. Evaluate the items in both Tables 1 and 2 and establish priority actions for your jurisdiction
    - Use the requirements in Table 3 to choose your priority actions
    - Emphasis in this process should be placed on cost-effectiveness and technical feasibility and effectiveness.
  4. Enter your chosen mitigation actions into Table 4 and complete the remaining columns
- It is suggested that each participant choose between 3 and 10 mitigation actions based upon their priorities and their resources.

*Please provide the completed Mitigation Strategy handout to AECOM by Tuesday, June 16<sup>th</sup>*  
([Lindsey.Trumpv@aecom.com](mailto:Lindsey.Trumpv@aecom.com))

### **Next Steps**

- Complete Vulnerability Analysis (*AECOM*)
- Complete update of Capability Assessments (*MHMP Committee*)
- Complete Participant-Specific Mitigation Action Plan (*MHMP Committee*)
- Complete Draft Plan for Review (*AECOM*)
- Review Draft Plan (*MHMP Committee*)

Hazard Mitigation Assistance Mitigation Activity Chart:  
<https://www.fema.gov/hazard-mitigation-assistance-mitigation-activity-chart>

**Table 3: Eligible Activities by Program  
 (Hazard Mitigation Assistance (HMA) Programs)**

Eligible Activities	HMGP	PDM	FMA
<b>1. Mitigation Projects</b>	√	√	√
Property Acquisition and Structure Demolition	√	√	√
Property Acquisition and Structure Relocation	√	√	√
Structure Elevation	√	√	√
Mitigation Reconstruction			√
Dry Floodproofing of Historic Residential Structures	√	√	√
Dry Floodproofing of Non-residential Structures	√	√	√
Minor Localized Flood Reduction Projects	√	√	√
Structural Retrofitting of Existing Buildings	√	√	
Non-structural Retrofitting of Existing Buildings and Facilities	√	√	√
Safe Room Construction	√	√	
Wind Retrofit for One- and Two-Family Residences	√	√	
Infrastructure Retrofit	√	√	√
Soil Stabilization	√	√	√
Wildfire Mitigation	√	√	
Post-Disaster Code Enforcement	√		
Generators	√	√	
5 Percent Initiative Projects	√		
Advance Assistance	√		
<b>2. Hazard Mitigation Planning</b>	√	√	√
<b>3. Management Costs</b>	√	√	√

HMGP = Hazard Mitigation Grant Program  
 PDM = Pre-Disaster Mitigation (Grant Program)  
 FMA = Flood Mitigation Assistance (Program)

HMA information: <https://www.fema.gov/hazard-mitigation-assistance>

## Hazard Mitigation Assistance Unified Guidance

July 12, 2013

[http://www.fema.gov/media-library-data/15463cb34a2267a900bde4774c3f42e4/FINAL\\_Guidance\\_081213\\_508.pdf](http://www.fema.gov/media-library-data/15463cb34a2267a900bde4774c3f42e4/FINAL_Guidance_081213_508.pdf)

### D.2 Ineligible Activities

The following list provides examples of activities that are not eligible for HMA funding:

- ◆ Projects that do not reduce the risk to people, structures, or infrastructure;
- ◆ Projects that are dependent on a contingent action in order to be effective and/or feasible (i.e., not a stand-alone mitigation project that solves a problem independently or constitutes a functional portion of a solution);
- ◆ Projects with the sole purpose of open space acquisition of unimproved land;
- ◆ Projects for which actual physical work such as groundbreaking, demolition, or construction of a raised foundation has occurred prior to award or final approval. Projects for which demolition and debris removal related to structures proposed for acquisition or mitigation reconstruction has already occurred may be eligible when such activities were initiated or completed under the FEMA Public Assistance program to alleviate a health or safety hazard as a result of a disaster;
- ◆ Projects that involve land that is contaminated with hazardous waste;
- ◆ Projects for preparedness activities or temporary measures (e.g., sandbags, bladders, geotubes);
- ◆ Projects that create revolving loan funds;
- ◆ Activities required as a result of negligence or intentional actions, or those intended to remedy a code violation, or the reimbursement of legal obligations such as those imposed by a legal settlement, court order, or State law;
- ◆ FEMA may, at its discretion, choose not to fund projects subject to ongoing litigation if such litigation may affect eligibility of the project or may substantially delay implementation of the project;
- ◆ All projects located in a CBRS Unit or in OPAs, other than property acquisition and structure demolition or relocation projects for open space under HMA. For details on property acquisition and structure demolition or relocation projects for open space within a CBRS Unit or OPAs see Addendum, Part A.2;
- ◆ Activities on Federal lands or associated with facilities owned by another Federal entity;
- ◆ Major flood control projects related to the construction, demolition, or repair of dams, dikes, levees, floodwalls, seawalls, groins, jetties, breakwaters, and erosion projects related to beach nourishment or re-nourishment;
- ◆ Projects for hazardous fuels reduction in excess of 2 miles from structures;
- ◆ Projects that address unmet needs from a disaster that are not related to mitigation;



- 
- ◆ Retrofitting facilities primarily used for religious purposes, such as places of worship (or other projects that solely benefit religious organizations). However, a place of worship may be included in a property acquisition and structure demolition or relocation project provided that the project benefits the entire community, such as when the whole neighborhood or community is being removed from the hazard area;
  - ◆ Activities that only address manmade hazards;
  - ◆ Projects that address, without an increase in the level of protection, operation, deferred or future maintenance, repairs, or replacement of existing structures, facilities, or infrastructure (e.g., dredging, debris removal, replacement of obsolete utility systems, bridges, and facility repair/rehabilitation);
  - ◆ Projects for the purpose of:
    - Landscaping for ornamentation (e.g., trees, shrubs);
    - Site remediation of hazardous materials (with the exception eligible activities, such as the abatement of asbestos and/or lead-based paint and the removal of household hazardous wastes to an approved landfill);
    - Water quality infrastructure;
    - Projects that primarily address ecological or agricultural issues;
    - Forest management;
    - Prescribed burning or clear-cutting;
    - Creation and maintenance of fire breaks, access roads, or staging areas;
    - Irrigation systems;
  - ◆ Studies not directly related to the design and implementation of a proposed mitigation project; and
  - ◆ Preparedness measures and response equipment (e.g., response training, electronic evacuation road signs, interoperable communications equipment).

All projects must also comply with any additional project-specific guidance provided in the Addendum.

### D.3 Cost-effectiveness

Mitigation program authorizing statutes (Flood Mitigation Assistance at 42 U.S.C. 4104c, Pre-Disaster Hazard Mitigation at 42 U.S.C. 5133, and Hazard Mitigation at 42 U.S.C. 5170c) require that FEMA provide funding for mitigation measures that are cost-effective or are in the interest of the NFIF. FEMA has specified minimum project criteria via regulation (44 CFR Part 79 and 44 CFR Section 206.434), including that Applicants must demonstrate mitigation projects are cost-effective. The determination of cost-effectiveness is performed in a variety of ways. It



Appendix D  
FMP Committee

*This page intentionally left blank*



Participation in the FMP Committee will include:

- Attendance of 3 FMP Committee meetings (between now and July)
- Periodic review of planning documents

Stakeholders interested in the CRS program and/or floodplain management planning are welcome:

- Ventura County Staff
- The cities of Ventura County
- Neighboring counties
- Special districts
- Non-governmental organizations
- Regional and State agencies

## Floodplain Management Planning (FMP) Committee 2015 Multi-Hazard Mitigation Plan Update

Ventura County has launched an effort to update their Multi-Hazard Mitigation Plan (MHMP) in accordance with FEMA regulations. The 2015 MHMP update includes the review of the natural and human-caused hazards the county is susceptible to and identifies ways to reduce the risks and vulnerability from these hazards.

Additionally, the updated 2015 MHMP will support the County's participation in the National Flood Insurance Program's Community Rating System (CRS) Program by addressing the Program's FMP activities.

For this project, we will have two committees; a committee to focus on hazard mitigation planning requirements (MHMP Committee) and a planning committee to focus specifically on the floodplain management planning requirements (FMP Committee). We invite you to be a part of this effort and participate as a member of the FMP Committee.

When:

Thursday, April 9, 2015

1:30pm – 3:30 pm

Where:

800 South Victoria – Ventura, CA 93009

Sheriff's Administration Building

West County Training Room (follow signs)

Please RSVP by Monday, April 6th

Brian Trushinski: [Brian.Trushinski@ventura.org](mailto:Brian.Trushinski@ventura.org)



RSVP:

VENTURA COUNTY  
2015 MHMP UPDATE  
FMP COMMITTEE MEETING #1  
April 9, 2015



## **AGENDA**

---

### **Introductions**

- County of Ventura Project Management
- AECOM
- Floodplain Management Planning (FMP) Committee Members

### **Hazard Mitigation Planning Overview**

- Multi-Hazard Mitigation Plan (MHMP) / Disaster Management Act of 2000\*
- Countywide MHMP 2005/2010
- Floodplain Management Planning / Community Rating System (CRS)\*

### **MHMP Update Overview**

- MHMP Outline\*
- MHMP Schedule\*
- FMP Committee Role

### **Items to Discuss**

- Hazard Identification: Climate Change
- Critical Facilities and Infrastructure\*
- Capability Assessment\*

### **Public Outreach**

- Website
- Online Survey
- Web Portal
- Ventura County Emergency Planning Council

### **Questions & Answers**

### **Next Meeting**

\* Handout

VENTURA COUNTY  
2015 MHMP UPDATE  
FMP COMMITTEE MEETING #1  
April 9, 2015



## MINUTES

### Attendees

Name	Agency
Dale Carnathan	Ventura County Sheriff's Office of Emergency Services (OES)
Anna Davis	AECOM
Dan Klemann	Ventura County Resource Management Agency, Planning Division
Howard De Leon	Ventura County Department of Public Works, Transportation Department
Lindsey Trumpy	AECOM
Brian Trushinski	Ventura County Watershed Protection District

### Hazard Mitigation Planning Overview

- The Ventura County Sheriff's OES has kicked off its' 2<sup>nd</sup> Multi-Hazard Mitigation Plan (MHMP) 5- Year Update.
- In addition, the Ventura County Watershed Protection District (VCWPD) is concurrently kicking-off the update for the 5-Year Cycle Community Rating System (CRS) Program's Floodplain Management Planning (FMP) activities. Similar to the 2010 MHMP, the CRS FMP activities will be addressed within the 2015 MHMP.
  - There are 10-steps to the CRS FMP activities worth a maximum of 382 points. The steps include: organize to prepare the plan (max. 15 points); involve the public (max. 120 points); coordinate with other agencies (max. 35 points); assess the hazard (max. 35 points); assess the problem (max. 52 points); set goals (max. 2 points); review possible activities (max. 35 points); draft an action plan (max. 60 points); adopt the plan (max. 2 points); implement, evaluate and revise the plan (max. 26 points).
  - CRS is a voluntary incentive program, under the National Flood Insurance Program (NFIP), that recognizes and encourages communities to go beyond the minimum floodplain protection requirements. In October 2010, Ventura County (Unincorporated Areas) joined the CRS program at a class 6 (20% annual flood insurance premium discount to insureds).
- A hazard mitigation plan forms the foundation for a community's long-term strategy to reduce disaster losses and break the cycle of disaster damage, reconstruction, and repeated damage.
- The planning process is as important as the plan itself. It creates a framework for risk-based decision making to reduce damages to lives, property, and the economy from future disasters.
- The Federal Disaster Mitigation Act of 2000 (DMA 2000) outlines a process which cities, counties, and special districts develop a hazard mitigation plan.
  - DMA 2000 is important because it marks the shift from a focus from disaster response and recovery to mitigation.



VENTURA COUNTY  
2015 MHMP UPDATE  
FMP COMMITTEE MEETING #1  
April 9, 2015



## MINUTES

---

- Local jurisdictions must have a FEMA-approved hazard mitigation plan to receive certain types of mitigation funding.
  - Local hazard mitigation plans must be updated, adopted, and approved by FEMA every 5 years – the 2010 MHMP expires in February 2016.
- It is important to note that a hazard mitigation plan is one of multiple plans that support the emergency management cycle. Other plans include a jurisdiction's Emergency Operations Plan and General Plan (specifically the Safety Element).

### MHMP Update Overview

- The 2015 MHMP will include the following sections:
  - Section 1 – Introduction: Provides an overview of the DMA 2000 and hazard mitigation and it will also provide a brief description of all participants the County, participating cities, and participating special districts - such as demographics and statistics.
  - Section 2 – Prerequisites: Describes the FEMA requirements considered for plan approval as well as the adoption documentation by participating jurisdictions.
  - Section 3 – Planning Process: Summarizes the planning process, including MHMP/FMP committee meetings, stakeholder coordination, and public outreach activities.
  - Section 4 – Hazard Analysis: Describes the process through which the MHMP/FMP Committees will identify, screen, and select the hazards to be profiled or re-profiled in the 2015 MHMP. The hazard analysis will include the nature, history, location, extent, and probability of future events for each hazard. Location and historical hazard figures will be provided.
  - Section 5 – Vulnerability Analysis: Identifies the methodology for analyzing potentially vulnerable assets—population, residential building stock, RL and SRL properties, and critical facilities and infrastructure. This information will be compiled by assessing the potential impacts from each hazard using Geographic Information System (GIS) data. The resulting information will identify the full range of hazards that each participant could face and the potential social impacts, damages, and economic losses.
  - Section 6 – Capability Assessment: Evaluates the human and technical, financial, and legal and regulatory resources available for hazard mitigation for each participating jurisdiction. The results of the capability assessment will also list current, ongoing, and completed mitigation projects and programs for each participant.
  - Section 7 - Mitigation Strategy: Provides a blueprint for reducing the potential losses identified in the vulnerability analysis. The MHMP/FMP Committees will review mitigation projects identified in the 2010 MHMP and revise the existing list to include only the most relevant and fundable mitigation projects.

**VENTURA COUNTY  
2015 MHMP UPDATE  
FMP COMMITTEE MEETING #1  
April 9, 2015**



## **MINUTES**

- Section 8 – Plan Maintenance: Describes the formal plan maintenance process to ensure that the 2010 HMP remains an active and applicable document. The process will include monitoring, evaluating, and updating the plan.
- Appendices: The 2015 MHMP will include several appendices, such as: A: FEMA Compliance; B: Adoption Resolutions; C: Project Management; D: MHMP Committee; E: FMP Committee; F: Public Outreach and Stakeholder Involvement; G: Figures; H-Y: Participant-Specific Appendices (to include critical facilities and infrastructure list, vulnerability analysis, capability assessment, and mitigation action plan); and Appendix Z: Plan Maintenance Documents.
- The following are key milestones in the MHMP update schedule:

Activity	Due Date
GIS: Updated Hazard Figures	April 24 (presented to the Committees end of April)
Ventura County Emergency Planning County (EPC) Presentation - Public Meeting #1	April 30 (presentation to the EPC and general public introducing the project, and request for input)
GIS: Draft Exposure Analysis	May 16 (presented to the Committees mid-May)
Administrative MHMP	June 26
Public Review MHMP	July 16 – August 14
Ventura County EPC Presentation – Public Meeting #2	July 30 (presentation to the EPC and the general public discussing the Public Review MHMP, and request for input)
Final Draft MHMP	Mid – August
Final MHMP	TBD post-FEMA approval

- The following are key FMP Committee activities:

Discussed at Committee Meeting	Activity	Activity Completion Date (by Committee members)
#1	Update 2010 Critical Facilities and Infrastructure List	Friday, April 24
	Update 2010 Capability Assessment	Friday, May 8
#2	Review 2010 Mitigation Action Plan	Friday, May 8
#3	Review 2015 Potential Mitigation Actions	Friday, May 29
	Create 2015 Mitigation Action Plan	Friday, June 5

### **Items to Discuss**

- One new flood-related hazard will be added to the 2015 MHMP update: climate change.
  - Climate change was discussed throughout the 2010 MHMP, but it was not included as a separate hazard. The 2015 MHMP will address climate change as a stand-alone hazard. 2015 MHMP will include data/figures from the NOAA's Sea-Level Rise Viewer, which



VENTURA COUNTY  
2015 MHMP UPDATE  
FMP COMMITTEE MEETING #1  
April 9, 2015



## MINUTES

simulates various sea level rise scenarios (from one to six feet above the average highest tides) and the corresponding areas that would be impacted by flooding.

- As part of the 2015 MHMP update process, each participant will need to review and update their participant-specific 2010 MHMP critical facilities list. A critical facility/infrastructure is broadly defined as – An asset that if severely damaged, would reduce the availability of essential community services necessary to cope with an emergency. The 2010 MHMP included: government facilities; community facilities; emergency response facilities; public utilities; educational facilities; and transportation infrastructure. For the VCWPD, critical facilities include gages, basins and dams.
  - The 2010 MHMP critical facilities and infrastructure list was distributed to FMP Committee members by email prior to the April 9 meeting and also each member in attendance was given a hard copy during the April 9 meeting. Each committee member is asked review their participant-specific list and provide updates to the list (remove facilities that no longer exist and add new facilities).
  - During the April 9 MHMP meeting (held the morning of the FMP Committee), the MHMP Committee decided to add bulk commercial fuel distribution facilities and private facilities to the list of critical facilities.

**IMPORTANT:** Updates made to the 2010 MHMP critical facilities and infrastructure list must be submitted; please provide an updated list to Ventura County OES and AECOM by Friday, April 24 ([Brian.Trushinski@ventura.org](mailto:Brian.Trushinski@ventura.org), [Lindsey.Trumpy@aecom.com](mailto:Lindsey.Trumpy@aecom.com), and [Anna.Davis@aecom.com](mailto:Anna.Davis@aecom.com)).

- As part of the 2015 MHMP update process, each participant will need to review and update their participant-specific 2010 MHMP capability assessment. A capability assessment includes the following tables: Human & Technical Resources; Financial Resources; Legal & Regulatory Resources; and Completed and Current Mitigation Projects and Programs.
  - The 2010 MHMP capability assessment was distributed to the MHMP Committee members during the April 9 meeting. Each committee member is asked to review their participant-specific list and provide update to the list.
- **IMPORTANT:** Updates made to the 2010 MHMP critical facilities and infrastructure list must be submitted; please provide an updated list to Ventura County OES and AECOM by Friday, May 8 ([Brian.Trushinski@ventura.org](mailto:Brian.Trushinski@ventura.org), [Lindsey.Trumpy@aecom.com](mailto:Lindsey.Trumpy@aecom.com), and [Anna.Davis@aecom.com](mailto:Anna.Davis@aecom.com)).

## Public Outreach

- **Website:** A project website has been developed that will contain information on planning process and announces each of the meetings being held for the project. The website will also be a reference for the committee members; we will post documents for review on the website and all meeting documentation (meeting announcements, as well as agendas and minutes).

VENTURA COUNTY  
2015 MHMP UPDATE  
FMP COMMITTEE MEETING #1  
April 9, 2015



## MINUTES

---

- Online Survey: A public online survey will be placed on the MHMP website. The survey will be used to gauge a general understanding of hazard mitigation planning and hazard mitigation projects within Ventura County and participating Cities.
- Web Portal: A hazard map web portal will be accessible toward the end of the project (and will be accessible after the project ends). Using Google Earth, the web portal will allow users to locate a chosen location (address or latitude/longitude coordinates) within the County and apply each hazard layer, allowing the user to see the susceptibility of a specific location to each hazard.
- Letters and Flyers: On April 1 and April 12, the VCWPD mailed out letters to City Floodplain Managers in Ventura County, US Army Corps of Engineers, the National Weather Service, the Federal Emergency Management Agency, and California Department of Water Resources asking them to provide additional relevant flood data, mapping and reports and also inviting them to participate in the MHMP update process. VCWPD also intends to send out flyers to residents located in the Special Flood Hazard Area notifying them of the MHMP update process.
- Ventura County Emergency Planning Council: Two public presentations, on April 30 and July 30, about the 2015 MHMP will be made at the Emergency Planning Council (from 10:00am – 11:00am on both dates).

## Next Meeting

- At the next FMP Committee meeting, committee members will review updated flood maps and also review the VCWPD's 2010 mitigation action plan.
- **IMPORTANT:** The next FMP Committee meeting will be the afternoon of April 30 from 1:30pm – 3:00pm in the VCWPD's offices, Conference Room 263.

VENTURA COUNTY  
2015 MHMP UPDATE  
FMP COMMITTEE MEETING #2  
April 30, 2015



## **AGENDA**

---

### **Introductions**

- County of Ventura Project Management
- AECOM
- Floodplain Management Planning (FMP) Committee Members

### **Multi-Hazard Mitigation Plan (MHMP) Updates**

- Project Schedule\*
- [www.VenturaCountyMHMP.com](http://www.VenturaCountyMHMP.com)
- VCWPD Critical Facilities List
- VCWPD Capability Assessment

### **Items to Discuss**

- Draft Hazard Figures\*
- 2010 Mitigation Action Plan\*
- CRS 510 Floodplain Management Planning Activity Step 7\*

### **Questions & Answers**

### **Next Meeting**

\* Handout



VENTURA COUNTY  
2015 MHMP UPDATE  
FMP COMMITTEE MEETING #2  
April 30, 2015



## MINUTES

### Attendees

Name	Agency
Dale Carnathan	Ventura County Sheriff's OES
Anna Davis	AECOM
Dan Klemann	Ventura County Resource Management Agency, Planning Division
Howard De Leon	Ventura County Department of Public Works, Transportation Department
Scott Holder	Ventura County Watershed Protection District
Phil Raba	Ventura County Public Works Agency
Jim O'Tousa	Ventura County Public Works Agency
Matt Wyatt	Ventura County Building and Safety Division
Brian Trushinski	Ventura County Watershed Protection District

### Items to Discuss

- Draft Hazard Figures

Name	Data Source/Additional Information
Sea-Level Rise Inundation Areas (3 feet and 6 feet)	<b>NOAA, Office for Coastal Management, Digital Coast.</b> Illustrates potential flooding from future sea level rise, calculated from current mean higher high water (the higher of the two high waters of any tidal day). Sea level rise scenarios from three-feet and six-feet above the average highest tides, and the corresponding areas that would be impacted by flooding are shown on the figure.
Extreme Winter Storm Scenario	<b>USGS, Coastal Storm Modeling System (CoSMoS), ARkStorm.</b> A numerical modelling system to predict coastal flooding due to both sea level rise and storms driven by climate change. Sea level along the California coast is expected to rise by as much as 1.7 meters (approximately 6 feet) by 2100. Winter storms can elevate coastal water levels by an additional 5 meters (approximately 16 feet) or more, primarily because of large waves and storm surge (rise in water level caused by low atmospheric pressure and wind). ARkStorm simulates an extreme winter storm event with a recurrence interval of at least 100-years. A team of atmospheric scientists with expertise in west coast storms used information from two powerful west coast storms in 1969 and 1986 to simulate this extreme winter storm event scenario.
Tsunami Inundation Areas	<b>CalEMA, Earthquake and Tsunami Program. Tsunami Inundation Map, February 2009 (CalEMA, CGS, USC).</b> CalEMA and CGS both confirmed there was no change to the 2009 model. New information on the Pitas Point/Ventura faults was published in 2014, and has recently made news headlines. CGS has been studying whether this new information about these faults would influence the current tsunami hazard maps. The inside scoop from Mark Johnson (Earthquake and Tsunami Program, CalEMA) and Rick Wilson (CGS) was that they took this new information into consideration and that it did not affect the 2009 tsunami inundation line.
Ground Shaking	<b>California Geological Survey (CGS), Earthquake Shaking Potential for California, Map Sheet 48 (Revised 2008).</b>

VENTURA COUNTY  
2015 MHMP UPDATE  
FMP COMMITTEE MEETING #2  
April 30, 2015



## MINUTES

Name	Data Source/Additional Information
Potential	<a href="http://www.consrv.ca.gov/cgs/information/publications/ms/Documents/MS48_revised.pdf">http://www.consrv.ca.gov/cgs/information/publications/ms/Documents/MS48_revised.pdf</a> This model shows the expected relative intensity of ground shaking and damage in California from anticipated future earthquakes. The shaking potential is calculated as the level of ground motion that has a 2% chance of being exceeded in 50 years. Earthquake shaking potential is calculated considering historic earthquakes, slip rates on major faults and deformation throughout the region, and the potential for amplification of seismic waves by near-surface geologic materials. Low frequency shaking potential is shown on the figure (shaking at 1.0 second periods)—local soil conditions have a greater effect on low frequency shaking.
Liquefaction Areas	<b>California Geological Survey (CGS), Seismic Hazard Zones, July 2003</b> Derived from CGS efforts to identify earthquake-triggered ground failures as required by the Seismic Hazards Mapping Act. Liquefaction represents areas where historical occurrence of liquefaction exists; or where local geological, geotechnical and groundwater conditions indicate a potential for permanent ground displacements such that mitigation would be required.
Special Flood Hazard Areas	<b>FEMA.</b> Ventura County DFIRM, version 03/19/2015.
Areas with Reduced Flood Risk Due to Levees	<b>FEMA.</b> Ventura County DFIRM, version 03/19/2015.
Dam Failure Inundation Areas	<b>CalOES.</b> Dam Inundation distribution DVD, version 11-3. Obtained May 6, 2015.
Recent Wildfire Perimeters	<b>California Department of Forestry and Fire Protection, Fire and Resource Assessment Program (CDF FRAP).</b> Fire perimeters, version 13_2. Fires over 1000 acres for the past three years are shown on the figure.
Wildfire Hazard Severity Zones	<b>California Department of Forestry and Fire Protection, Fire and Resource Assessment Program</b> Fire Hazard Severity Zones within State Responsibility Areas (SRA), and Local Responsibility Areas (LRA). SRA: Adopted 11/2007. LRA: Recommended 10/2010.

VENTURA COUNTY  
2015 MHMP UPDATE  
FMP COMMITTEE MEETING #2  
April 30, 2015



## MINUTES

- CRS Floodplain Management Step 7, Floodplain Management Category Activities (*CRS Coordinator's Manual* 510-20 Edition: 2013)

### Floodplain Management Category Activities

1. **Preventive** activities keep flood problems from getting worse. The use and development of flood-prone areas is limited through planning, land acquisition, or regulation. They are usually administered by building, zoning, planning, and/or code enforcement offices.

- Floodplain mapping and data Planning and zoning
- Open space preservation Stormwater management
- Floodplain regulations Drainage system maintenance
- Erosion setbacks Building codes

2. **Property protection** activities are usually undertaken by property owners on a building by building or parcel basis.

- Relocation
- Retrofitting
- Acquisition
- Sewer backup protection
- Building elevation
- Insurance

3. **Natural resource protection** activities preserve or restore natural areas or the natural functions of floodplain and watershed areas. They are implemented by a variety of agencies, primarily parks, recreation, or conservation agencies or organizations.

- Wetlands protection Water quality improvement
- Erosion and sediment control Coastal barrier protection
- Natural area preservation Environmental corridors
- Natural area restoration Natural functions protection

4. **Emergency services** measures are taken during an emergency to minimize its impact. These measures are usually the responsibility of city or county emergency management staff and the owners or operators of major or critical facilities.

- Hazard threat recognition Critical facilities protection
- Hazard warning Health and safety maintenance
- Hazard response operations Post-disaster mitigation actions

VENTURA COUNTY  
2015 MHMP UPDATE  
FMP COMMITTEE MEETING #2  
April 30, 2015



## MINUTES

### Floodplain Management Category Activities

5. **Structural projects** keep flood waters away from an area with a levee, reservoir, or other flood control measure. They are usually designed by engineers and managed or maintained by public works staff.

- Reservoirs
- Channel modifications
- Levees/floodwalls
- Storm drain improvements
- Diversions

6. **Public information** activities advise property owners, potential property owners, and visitors about the hazards, ways to protect people and property from the hazards, and the natural and beneficial functions of local floodplains. They are usually implemented by a public information office.

- Map information
- Library
- Outreach projects
- Technical assistance
- Real estate disclosure
- Environmental education



VENTURA COUNTY  
2015 MHMP UPDATE  
FMP COMMITTEE MEETING #3  
June 18, 2015



## **AGENDA**

---

### **Introductions**

- County of Ventura Project Management
- Floodplain Management Planning (FMP) Committee Members
- AECOM

### **Multi-Hazard Mitigation Plan (MHMP) Progress**

- Updated Hazard Figures
- Repetitive Loss Property Dataset
- MHMP Flyer
- Initial Draft Plan & Public Draft Plan
- Town Hall and Emergency Planning Council

### **Items to Discuss**

- 2015 Overarching and VCWPD-Specific Potential Mitigation Actions\*
- 2015 Ranking Process and CRS Credits\*
- 2015 VCWPD Mitigation Action Plan\*

### **Questions & Answers**

\* Handout

**VENTURA COUNTY**  
**2015 MHMP UPDATE**  
**FMP COMMITTEE MEETING #3**  
**June 18, 2015**



## **MINUTES**

### **Attendees**

<b>Name</b>	<b>Agency</b>
Anna Davis	AECOM
Howard De Leon	Ventura County Department of Public Works, Transportation Department
Scott Holder	Ventura County Watershed Protection District
Mark Bandarraga (Bruce Rindahl)	Ventura County Watershed Protection District
Dave Thomas (Matt Wyatt)	Ventura County Building and Safety Division
Jim O'Tousa	Ventura County Public Works Agency
Brian Trushinski	Ventura County Watershed Protection District

### **Multi-Hazard Mitigation Plan (MHMP) Progress**

- MHMP Flyer
  - On June 11, 2015, the VCWPD mailed first-class a CRS brochure to all 4,675 floodplain property owners in Unincorporated Ventura County. The brochure included a 1-page flyer announcing the MHMP update process and inviting all floodplain property owners to participate the update process.
- Town Hall and Emergency Planning Council
  - A "Town Hall" presentation of the Final Draft 2015 MHMP will happen on July 25 from 10am – 12pm at the City of Camarillo Police Department.
  - At the July 30 presentation, the consultant will discuss the Final Draft 2015 MHMP and as well as the CalOES and FEMA review and upcoming plan adoption process. The EPC and the general public will be given an opportunity to ask questions and were encouraged to read the Final Draft 2015 MHMP online and submit comments over a three-week public comment period from July 24 – August 14.

### **Items to Discuss**

- 2015 Overarching and VCWPD-Specific Potential Mitigation Actions

**VENTURA COUNTY**  
**2015 MHMP UPDATE**  
**FMP COMMITTEE MEETING #3**  
**June 18, 2015**



## MINUTES

No.	Description	Hazard	Floodplain Management Activity
VCWPD 1	<p>In 2015, the RMA, Planning Division initiated a General Plan Update project that is expected to take 5 years to complete. As part of the General Plan Update, the County will be considering the adoption of a number new elements that will include land use policies that will apply to new land use development projects within the unincorporated area of the County. In addition, the RMA, Planning Division is currently working on Phase II of an update to its Local Coastal Program ("LCP Update").</p> <p>The relevant issues that the General Plan Update and LCP Update will address include the following:</p> <ul style="list-style-type: none"> <li>• Climate change, including (but not limited to) sea level rise and coastal resiliency policies for new development along the coast;</li> <li>• Wildlife movement overlay zone that will limit new development within flood-prone areas (e.g., riparian corridors);</li> <li>• Limitations on new development within Environmentally Sensitive Habitat Areas (e.g., the Santa Monica Mountains that are characterized by steep slopes, relatively intact native habitat, and coastal areas subject to flooding hazards); and</li> <li>• Changes to the permitting requirements for brush removal in open space areas (e.g., areas with steep slopes that are prone to erosion, mudslide, and flood hazards).</li> </ul>	Climate Change, Flood, Landslide, Debris Flow	Preventive, Property Protection, Natural Resource Protection
VCWPD 2	Revise existing landslide maps to include potential runout areas and include the runout area with a classification scheme for probability. Present landslide maps only include the main slide mass or body and not the potential areas affect from potential future movement.	Landslide	Emergency Services, Public Information
VCWPD 3	Update Emergency Response scenario planning for recent theories on earthquake magnitudes for local faults. New studies suggest higher magnitude earthquakes may be possible on local faults and earthquake scenarios should be updated to keep pace with scientific knowledge.	Earthquake	Emergency Services
VCWPD 4	Integrate alluvial fan management measures for oil, agriculture and development to include stormwater runoff, sediment transport, and alluvial fan geomorphology from geologic perspective. Alluvial fans are presently considered only from hydrologic/hydraulic models.	Various hazards that may affect alluvial fans	Preventive, Property Protection, Natural Resource Protection

**VENTURA COUNTY**  
**2015 MHMP UPDATE**  
**FMP COMMITTEE MEETING #3**  
**June 18, 2015**



## MINUTES

No.	Description	Hazard	Floodplain Management Activity
VCWPD 5	Upgrade the County of Ventura's Flood warning system. The existing ALERT system is utilizing radio technology from the 1980's.	Flood	Emergency Services, Public Information
VCWPD 6	Complete the Ventura County Watershed Protection District's Integrated Watershed Protection Plan (IWPP) and establish cost-sharing, collaborative, and multi-jurisdictional project partnerships with public and private sector agencies and organizations, aimed at improving community resiliency to flood risk hazards, floodplain management, groundwater and environmental protection, and securing a sustainable water supply for urban and agricultural customers.	Flood, Post-Fire Debris Flow, Levee Failure, Dam Failure	Structural Projects, Preventive, Natural Resource Protection, Public Information
VCWPD 7	The County of Ventura Public Works Agency, Resource Management Agency, and the Ventura County Sheriff's Office of Emergency Services will work together to undertake public outreach initiatives aimed at increasing property owner awareness of the risks of coastal flooding from sea-level rise and actions that residents can take to reduce the risk of loss of life and property damage.	Sea-Level Rise	Public Outreach
VCWPD 8	Stabilize landslide-prone areas through stability improvement measures, including interceptor drains, in situ soil piles, drained earth buttresses, subdrains, removal of slide areas, and dewatering ground.	Landslide	Natural Resource Protection, Preventive
VCWPD 9	Acquire, relocate, elevate, and/or floodproof critical facilities located within the 100-year floodplain, as financially feasible. Acquisition projects will be managed by XX and land will be used as passive open space after it is acquired.	Flood	Property Protection
VCWPD 10	Reinforce County and local roads, bridges, and ramps from flooding through protection activities which may include elevating the road and installing culverts beneath the road or building a bridge across the area that experiences regular flooding. Reinstall/ repair aging traffic control devices to floodproofing standards (e.g., signal lights, warning and stop signs). Activities also include installation of rock rip-rap within channels at bridge approaches, ditch cleaning to maintain the capacity of ditches to drain the roadway system.	Flood	Structural Projects
VCWPD 11	Work with FEMA Region IX to address any floodplain management issues that may have arisen/arise from the countywide DFIRM, Community Assessment Visits, and/or DWR.	Flood	Structural Projects, Preventive, Natural Resource Protection, Public Information



**VENTURA COUNTY**  
**2015 MHMP UPDATE**  
**FMP COMMITTEE MEETING #3**  
**June 18, 2015**



## **MINUTES**

No.	Description	Hazard	Floodplain Management Activity
VCWPD 12	Increase participation in the NFIP by entering the Community Rating System program by maintaining the County of Ventura Class 6 CRS rating, which through enhanced floodplain management activities would allow property owners to receive a discount on their flood insurance.	Flood	Public Information, Structural Projects, Preventive, Natural Resource Protection
VCWPD 13	Continue to participate in the NWS TsunamiReady Program through continued implementation of Guideline 4: Community Preparedness measures, including public outreach material and curriculum.	Tsunami	Public Information
VCWPD 14	Implement the Best Management Practices (BMPs) identified in the Final Program Environmental Impact Report: Environmental Protection Measures for the Ongoing Routine Operations and Maintenance Program. The BMPs are specific feasible environmental protection measures that are to be incorporated into the current maintenance program for existing facilities. BMPs include: routine operations and maintenance; water diversion; stream gage maintenance; and rodent control activities.	Flood	Natural Resource Protection
VCWPD 15	Develop a tool to collect and analyze post-flood disaster risk assessment information that allows the VCWPD to analyze the effects of the flood and implement future mitigation projects. Information to be collected may include: number and location of structures, including RL properties, flooded; identification of flooded areas outside of the SFHA; number and location of failed gages; etc.	Flood	Other: Post-Disaster Mitigation
VCWPD 16	Work with the Cooperating Agencies of the Ventura River Multi-Species Habitat Conservation Plan to continue to implement proposed mitigation measures identified in the plan, such as improving habitat and/or access to habitat.	Flood	Natural Resource Protection
VCWPD 17	After every exercise or event an After Action Report should be completed. The After Action Review has two components: an After Action Report which captures observations and recommendations based on incident objectives associated with the capabilities and tasks and an Improvement Plan, which identifies corrective actions, assigns them to responsible parties, and establishes targets for their completion.	All Hazards	Other: Post-Disaster Mitigation
VCWPD 18	Encourage property owners located in the dam or levee inundation hazard areas to purchase voluntary flood insurance.	Dam Failure, Levee Failure	Public Information

**VENTURA COUNTY**  
**2015 MHMP UPDATE**  
**FMP COMMITTEE MEETING #3**  
**June 18, 2015**



## **MINUTES**

No.	Description	Hazard	Floodplain Management Activity
VCWPD 19	Rehabilitate three major Ventura County Watershed Protection District levees countywide in order to meet Federal levee certification requirements found in 44 CFR 65.10. Once rehabilitated, these levees will provide flood protection from the 1% annual chance flood event.	Levee Failure	Structural Project
VCWPD 20	Implement appropriate life/safety warning/evacuation systems in Ventura County, including the Emergency Alert System, Flood Threat Recognition System, Reverse 911 System, and Tsunami Watch and Warning messages during an event or disaster.	Flood, Tsunami, Debris Flow	Emergency Services, Public Information

VENTURA COUNTY  
2015 MHMP UPDATE  
FMP COMMITTEE MEETING #3  
June 18, 2015



## MINUTES

- 2015 Ranking Process and CRS Credits

Requirement	Description
Mitigation Planning	Links the existing mitigation plan, particularly the vulnerability analysis and capability assessment, to project scoping.
Technical Feasibility and Effectiveness	Conforms with accepted engineering practices, established codes, standards, modeling techniques, or best practices. Effective mitigation measures funded under HMA should provide a long-term or permanent solution.
Floodplain Management and Protection of Wetlands	Conforms to 44 CFR Part 9, which incorporates the requirements of Executive Order (EO) 11988 ( <i>Floodplain Management</i> ) and EO 11990 ( <i>Protection of Wetlands</i> ).
Environmental Planning and Historic Review and Compliance	Complies with all environmental and historic preservation (EHP) laws and with 44 CFR Part 10.
Cost Effectiveness	Is cost-effective or be in the interest of the National Flood Insurance Fund.
Cost Review	Is reasonable in costs compared to the probable benefits.
General Program Requirements	Is an eligible activity, including: property acquisition and structure demolition; property demolition and structure relocation; structure elevation; mitigation reconstruction; dry floodproofing of historic residential structures; dry floodproofing of nonresidential structures; minor localized flood reduction projects; structural retrofitting of existing buildings; non-structural retrofitting of existing buildings and facilities; infrastructure retrofit; soil stabilization; wildfire mitigation; post-disaster code enforcement.

- 2015 VCWPD Mitigation Action Plan Format

No.	Description	Goal	Floodplain Management Activity	Funding Source	Department or Agency	Timeframe (0-5 Years)



*This page intentionally left blank*

## Appendix E

### Public Outreach and Stakeholder Involvement

*This page intentionally left blank*

Multi-Media Releases &  
Floodplain Manager Outreach

**VENTURA COUNTY SHERIFF****MEDIA RELEASE**

**Nature of Event:** 2015 Ventura County Multi-Hazard Mitigation Plan Update

**Date & Time:** March 30, 2015 12:00 (noon)

**Unit Responsible:** Ventura County Sheriff's Office of Emergency Services

**Narrative:**

The Ventura County Sheriff's Office of Emergency Services (OES), in cooperation with the Ventura County Watershed Protection District, and various cities and special districts within Ventura County, is launching a countywide effort to re-assess risks posed by natural and human-caused disasters and identify ways to reduce those risks.

The planning process will result in the preparation of an updated Multi-Hazard Mitigation Plan (MHMP). The County developed their first MHMP in 2005, updated the plan in 2010 and is kicking-off the 2015 plan update process. An updated version of the plan is required under the Federal Disaster Mitigation Act of 2000 in order to be eligible to continue to receive certain forms of Federal disaster assistance. OES has received a grant from the Federal Emergency Management Agency for preparation of the updated plan.

Additionally, the updated 2015 MHMP will support the County's participation in the National Flood Insurance Program's Community Rating System (CRS) program by addressing the program's Floodplain Management Planning activities. To earn CRS credits and participate in the CRS program, communities must illustrate that they have gone beyond the minimum floodplain protection requirements and have developed extra measures to provide protection to their community from flooding. In 2011, Ventura County entered the CRS program at class 6 participation. Ventura County is the first county in California to enter the program at that level.

Ventura County is vulnerable to a wide range of disasters. In the past five years, Ventura County has received multiple Presidential disaster declarations and State Emergency Proclamations due to various natural disasters including the hazards of winter storm, drought and wildfire. The risks posed by these hazards and other hazards increases as the County's population continues to grow. The 2015 MHMP will provide the County, the participating cities and special districts with the necessary tools to identify these risks and prioritize future actions for reducing these risks. Additionally, the plan will provide a framework for future requests for Federal assistance to institute risk-reducing actions.

The County's current MHMP, as well as information about the CRS program can be found on the County of Ventura's flood information webpage: <http://www.vcfloodinfo.com>.

The planning process will occur from March – August 2015. For further information about the project and/or if you are interested in participating in the plan update process please contact Dale Carnathan at [dale.carnathan@ventura.org](mailto:dale.carnathan@ventura.org) or (805) 654-5152. For further information specific to CRS and the CRS requirements, please contact Brian Trushinski at [Brian.Trushinski@ventura.org](mailto:Brian.Trushinski@ventura.org) or (805) 477-1967. Additionally, there will be an opportunity for public comments on a draft of the plan. The comment period is anticipated to occur in July 2015; specific details will be distributed closer to the comment period date.

**Follow-up Contact:** Dale Carnathan, Ventura County Sheriff's Office – OES at (805) 654-5152

**Approved By:** Captain Randy Downard

**Date of Release:** March 30, 2015

###

## Ventura County Watershed Protection District



**PUBLIC WORKS AGENCY**  
**JEFF PRATT**  
Agency Director

April 1, 2015

City of Camarillo  
601 Carmen Drive  
Camarillo, CA 93010

Subject: Ventura County Multi-Hazard Mitigation Plan Data Acquisition

**Tully Clifford, Director**  
Watershed Protection District

**Gerhardt Hubner**  
Water/Environmental Resources

**Karl Novak**  
Operations/Maintenance

**Peter Sheydayi**  
Design/Construction

**Sergio Vargas**  
Planning/Regulatory

Dear Troy Spayd:

The Ventura County Sheriff's Office of Emergency Services (OES), in cooperation with the Ventura County Watershed Protection District (VCWPD), and various cities and special districts within Ventura County, is launching a countywide effort to re-assess risks posed by natural hazards (e.g., flooding, wildfires, earthquakes) and human-caused disasters, and identify ways to reduce those risks. The planning process will result in the 2015 Multi-Hazard Mitigation Plan (MHMP). The Ventura County OES developed the first MHMP in 2005 and last updated the MHMP in 2010. A five-year update to the MHMP is required under the Federal Disaster Mitigation Act of 2000 in order to be eligible to continue to receive certain forms of Federal disaster assistance.

Additionally, the 2015 MHMP will support Ventura County's (Unincorporated Areas) participation in the National Flood Insurance Program's Community Rating System (CRS) program by addressing the program's Floodplain Management Planning activities. To earn CRS credits and participate in the CRS program, communities must demonstrate that they have developed and implement extra measures to protect to their community from flooding.

As part of the MHMP update process, the VCWPD and its' consultant (AECOM) will be reviewing flood-related plans, studies, and reports, including the preliminary revised Ventura County and Incorporated Areas Flood Insurance Study (September 2014) and the Final Study Report: Upper Calleguas Creek Watershed Management Strategy (May 2013). The VCWPD would appreciate any additional relevant flood data, mapping, and/or flood projects that you may have that the VCWPD could incorporate into MHMP update. This information can be emailed to Brian Trushinski at [Brian.Trushinski@ventura.org](mailto:Brian.Trushinski@ventura.org) by May 1.

In addition to data acquisition, the VCWPD would like to invite you and all the other City Floodplain Managers within Ventura County to participate in the MHMP update process, which will occur from March to August 2015. Ventura County OES and its' consultant will be giving a presentation about the MHMP update at the Ventura County Emergency Planning Council meeting on April 30. Additionally, the VCWPD and its' consultant will provide an overview of MHMP update, including a brief discussion on flood data coordination, at the Ventura County Floodplain Managers meeting on May 20.

The current MHMP can be found on the VCWPD flood information webpage: <http://www.vcfloodinfo.com/home>. For further information please contact me at the email address listed above or by phone at (805) 477-1967.

Sincerely,

A handwritten signature in black ink, appearing to read "B. Trushinski".

Brian Trushinski, MA, CFM  
Ventura County Floodplain Manager  
Ventura County Watershed Protection District

---

800 South Victoria Avenue • Ventura, California 93009-1610  
(805) 654-2001 • Fax (805) 654-3350 • <http://www.vcwatershed.org>



## Ventura County Watershed Protection District



**PUBLIC WORKS AGENCY**  
**JEFF PRATT**  
Agency Director

April 1, 2015

City of Fillmore  
250 Central Avenue  
Fillmore, CA 93015

Subject: Ventura County Multi-Hazard Mitigation Plan Data Acquisition

**Tully Clifford, Director**  
Watershed Protection District

**Gerhardt Hubner**  
Water/Environmental Resources

**Karl Novak**  
Operations/Maintenance

**Peter Sheydayl**  
Design/Construction

**Sergio Vargas**  
Planning/Regulatory

Dear Michael Lapraik:

The Ventura County Sheriff's Office of Emergency Services (OES), in cooperation with the Ventura County Watershed Protection District (VCWPD), and various cities and special districts within Ventura County, is launching a countywide effort to re-assess risks posed by natural hazards (e.g., flooding, wildfires, earthquakes) and human-caused disasters, and identify ways to reduce those risks. The planning process will result in the 2015 Multi-Hazard Mitigation Plan (MHMP). The Ventura County OES developed the first MHMP in 2005 and last updated the MHMP in 2010. A five-year update to the MHMP is required under the Federal Disaster Mitigation Act of 2000 in order to be eligible to continue to receive certain forms of Federal disaster assistance.

Additionally, the 2015 MHMP will support Ventura County's (Unincorporated Areas) participation in the National Flood Insurance Program's Community Rating System (CRS) program by addressing the program's Floodplain Management Planning activities. To earn CRS credits and participate in the CRS program, communities must demonstrate that they have developed and implement extra measures to protect to their community from flooding.

As part of the MHMP update process, the VCWPD and its' consultant (AECOM) will be reviewing flood-related plans, studies, and reports, including the preliminary revised Ventura County and Incorporated Areas Flood Insurance Study (September 2014) and the Final Study Report: Upper Calleguas Creek Watershed Management Strategy (May 2013). The VCWPD would appreciate any additional relevant flood data, mapping, and/or flood projects that you may have that the VCWPD could incorporate into MHMP update. This information can be emailed to Brian Trushinski at [Brian.Trushinski@ventura.org](mailto:Brian.Trushinski@ventura.org) by May 1.

In addition to data acquisition, the VCWPD would like to invite you and all the other City Floodplain Managers within Ventura County to participate in the MHMP update process, which will occur from March to August 2015. Ventura County OES and its' consultant will be giving a presentation about the MHMP update at the Ventura County Emergency Planning Council meeting on April 30. Additionally, the VCWPD and its' consultant will provide an overview of MHMP update, including a brief discussion on flood data coordination, at the Ventura County Floodplain Managers meeting on May 20.

The current MHMP can be found on the VCWPD flood information webpage: <http://www.vcfloodinfo.com/home>. For further information please contact me at the email address listed above or by phone at (805) 477-1967.

Sincerely,

A handwritten signature in black ink, appearing to read "B. Trushinski".

Brian Trushinski, MA, CFM  
Ventura County Floodplain Manager  
Ventura County Watershed Protection District

---

800 South Victoria Avenue • Ventura, California 93009-1610  
(805) 654-2001 • Fax (805) 654-3350 • <http://www.vcwatershed.org>

## Ventura County Watershed Protection District



**PUBLIC WORKS AGENCY**  
**JEFF PRATT**  
Agency Director

April 1, 2015

City of Moorpark  
799 Moorpark Avenue  
Moorpark, CA 93021

Subject: Ventura County Multi-Hazard Mitigation Plan Data Acquisition

**Tully Clifford, Director**  
Watershed Protection District

**Gerhardt Hubner**  
Water/Environmental Resources

**Karl Novak**  
Operations/Maintenance

**Peter Sheydayi**  
Design/Construction

**Sergio Vargas**  
Planning/Regulatory

Dear Dave Klotzle:

The Ventura County Sheriff's Office of Emergency Services (OES), in cooperation with the Ventura County Watershed Protection District (VCWPD), and various cities and special districts within Ventura County, is launching a countywide effort to re-assess risks posed by natural hazards (e.g., flooding, wildfires, earthquakes) and human-caused disasters, and identify ways to reduce those risks. The planning process will result in the 2015 Multi-Hazard Mitigation Plan (MHMP). The Ventura County OES developed the first MHMP in 2005 and last updated the MHMP in 2010. A five-year update to the MHMP is required under the Federal Disaster Mitigation Act of 2000 in order to be eligible to continue to receive certain forms of Federal disaster assistance.

Additionally, the 2015 MHMP will support Ventura County's (Unincorporated Areas) participation in the National Flood Insurance Program's Community Rating System (CRS) program by addressing the program's Floodplain Management Planning activities. To earn CRS credits and participate in the CRS program, communities must demonstrate that they have developed and implement extra measures to protect to their community from flooding.

As part of the MHMP update process, the VCWPD and its' consultant (AECOM) will be reviewing flood-related plans, studies, and reports, including the preliminary revised Ventura County and Incorporated Areas Flood Insurance Study (September 2014) and the Final Study Report: Upper Calleguas Creek Watershed Management Strategy (May 2013). The VCWPD would appreciate any additional relevant flood data, mapping, and/or flood projects that you may have that the VCWPD could incorporate into MHMP update. This information can be emailed to Brian Trushinski at [Brian.Trushinski@ventura.org](mailto:Brian.Trushinski@ventura.org) by May 1.

In addition to data acquisition, the VCWPD would like to invite you and all the other City Floodplain Managers within Ventura County to participate in the MHMP update process, which will occur from March to August 2015. Ventura County OES and its' consultant will be giving a presentation about the MHMP update at the Ventura County Emergency Planning Council meeting on April 30. Additionally, the VCWPD and its' consultant will provide an overview of MHMP update, including a brief discussion on flood data coordination, at the Ventura County Floodplain Managers meeting on May 20.

The current MHMP can be found on the VCWPD flood information webpage: <http://www.vcfloodinfo.com/home>. For further information please contact me at the email address listed above or by phone at (805) 477-1967.

Sincerely,

A handwritten signature in black ink, appearing to read "B. Trushinski".

Brian Trushinski, MA, CFM  
Ventura County Floodplain Manager  
Ventura County Watershed Protection District



## Ventura County Watershed Protection District



**PUBLIC WORKS AGENCY**  
**JEFF PRATT**  
Agency Director

April 1, 2015

City of Ojai  
401 S. Ventura Street  
Ojai, CA 93023

Subject: Ventura County Multi-Hazard Mitigation Plan Data Acquisition

**Tully Clifford, Director**  
Watershed Protection District

**Gerhardt Hubner**  
Water/Environmental Resources

**Karl Novak**  
Operations/Maintenance

**Peter Sheydayl**  
Design/Construction

**Sergio Vargas**  
Planning/Regulatory

Dear Greg Grant:

The Ventura County Sheriff's Office of Emergency Services (OES), in cooperation with the Ventura County Watershed Protection District (VCWPD), and various cities and special districts within Ventura County, is launching a countywide effort to re-assess risks posed by natural hazards (e.g., flooding, wildfires, earthquakes) and human-caused disasters, and identify ways to reduce those risks. The planning process will result in the 2015 Multi-Hazard Mitigation Plan (MHMP). The Ventura County OES developed the first MHMP in 2005 and last updated the MHMP in 2010. A five-year update to the MHMP is required under the Federal Disaster Mitigation Act of 2000 in order to be eligible to continue to receive certain forms of Federal disaster assistance.

Additionally, the 2015 MHMP will support Ventura County's (Unincorporated Areas) participation in the National Flood Insurance Program's Community Rating System (CRS) program by addressing the program's Floodplain Management Planning activities. To earn CRS credits and participate in the CRS program, communities must demonstrate that they have developed and implement extra measures to protect to their community from flooding.

As part of the MHMP update process, the VCWPD and its' consultant (AECOM) will be reviewing flood-related plans, studies, and reports, including the preliminary revised Ventura County and Incorporated Areas Flood Insurance Study (September 2014) and the Final Study Report: Upper Calleguas Creek Watershed Management Strategy (May 2013). The VCWPD would appreciate any additional relevant flood data, mapping, and/or flood projects that you may have that the VCWPD could incorporate into MHMP update. This information can be emailed to Brian Trushinski at [Brian.Trushinski@ventura.org](mailto:Brian.Trushinski@ventura.org) by May 1.

In addition to data acquisition, the VCWPD would like to invite you and all the other City Floodplain Managers within Ventura County to participate in the MHMP update process, which will occur from March to August 2015. Ventura County OES and its' consultant will be giving a presentation about the MHMP update at the Ventura County Emergency Planning Council meeting on April 30. Additionally, the VCWPD and its' consultant will provide an overview of MHMP update, including a brief discussion on flood data coordination, at the Ventura County Floodplain Managers meeting on May 20.

The current MHMP can be found on the VCWPD flood information webpage: <http://www.vcfloodinfo.com/home>. For further information please contact me at the email address listed above or by phone at (805) 477-1967.

Sincerely,

A handwritten signature in black ink, appearing to read "B. Trushinski".

Brian Trushinski, MA, CFM  
Ventura County Floodplain Manager  
Ventura County Watershed Protection District

---

800 South Victoria Avenue • Ventura, California 93009-1610  
(805) 654-2001 • Fax (805) 654-3350 • <http://www.vcwatershed.org>

## Ventura County Watershed Protection District



**PUBLIC WORKS AGENCY**  
**JEFF PRATT**  
Agency Director

April 1, 2015

City of Oxnard  
Development Services, Building & Engineering Division  
214 South C Street  
Oxnard, CA 93030

Subject: Ventura County Multi-Hazard Mitigation Plan Data Acquisition

Dear Robert Hearne:

**Tully Clifford, Director**  
Watershed Protection District  
  
**Gerhardt Hubner**  
Water/Environmental Resources  
  
**Karl Novak**  
Operations/Maintenance  
  
**Peter Sheydayi**  
Design/Construction  
  
**Sergio Vargas**  
Planning/Regulatory

The Ventura County Sheriff's Office of Emergency Services (OES), in cooperation with the Ventura County Watershed Protection District (VCWPD), and various cities and special districts within Ventura County, is launching a countywide effort to re-assess risks posed by natural hazards (e.g., flooding, wildfires, earthquakes) and human-caused disasters, and identify ways to reduce those risks. The planning process will result in the 2015 Multi-Hazard Mitigation Plan (MHMP). The Ventura County OES developed the first MHMP in 2005 and last updated the MHMP in 2010. A five-year update to the MHMP is required under the Federal Disaster Mitigation Act of 2000 in order to be eligible to continue to receive certain forms of Federal disaster assistance.

Additionally, the 2015 MHMP will support Ventura County's (Unincorporated Areas) participation in the National Flood Insurance Program's Community Rating System (CRS) program by addressing the program's Floodplain Management Planning activities. To earn CRS credits and participate in the CRS program, communities must demonstrate that they have developed and implement extra measures to protect to their community from flooding.

As part of the MHMP update process, the VCWPD and its' consultant (AECOM) will be reviewing flood-related plans, studies, and reports, including the preliminary revised Ventura County and Incorporated Areas Flood Insurance Study (September 2014) and the Final Study Report: Upper Calleguas Creek Watershed Management Strategy (May 2013). The VCWPD would appreciate any additional relevant flood data, mapping, and/or flood projects that you may have that the VCWPD could incorporate into MHMP update. This information can be emailed to Brian Trushinski at [Brian.Trushinski@ventura.org](mailto:Brian.Trushinski@ventura.org) by May 1.

In addition to data acquisition, the VCWPD would like to invite you and all the other City Floodplain Managers within Ventura County to participate in the MHMP update process, which will occur from March to August 2015. Ventura County OES and its' consultant will be giving a presentation about the MHMP update at the Ventura County Emergency Planning Council meeting on April 30. Additionally, the VCWPD and its' consultant will provide an overview of MHMP update, including a brief discussion on flood data coordination, at the Ventura County Floodplain Managers meeting on May 20.

The current MHMP can be found on the VCWPD flood information webpage: <http://www.vcfloodinfo.com/home>. For further information please contact me at the email address listed above or by phone at (805) 477-1967.

Sincerely,

A handwritten signature in black ink, appearing to read "B. Trushinski".

Brian Trushinski, MA, CFM  
Ventura County Floodplain Manager  
Ventura County Watershed Protection District



## Ventura County Watershed Protection District



**PUBLIC WORKS AGENCY**  
**JEFF PRATT**  
Agency Director

April 1, 2015

City of Port Hueneme  
250 N. Ventura Road  
Port Hueneme, CA 93041

Subject: Ventura County Multi-Hazard Mitigation Plan Data Acquisition

**Tully Clifford, Director**  
Watershed Protection District

**Gerhardt Hubner**  
Water/Environmental Resources

**Karl Novak**  
Operations/Maintenance

**Peter Sheydayl**  
Design/Construction

**Sergio Vargas**  
Planning/Regulatory

Dear Greg Brown:

The Ventura County Sheriff's Office of Emergency Services (OES), in cooperation with the Ventura County Watershed Protection District (VCWPD), and various cities and special districts within Ventura County, is launching a countywide effort to re-assess risks posed by natural hazards (e.g., flooding, wildfires, earthquakes) and human-caused disasters, and identify ways to reduce those risks. The planning process will result in the 2015 Multi-Hazard Mitigation Plan (MHMP). The Ventura County OES developed the first MHMP in 2005 and last updated the MHMP in 2010. A five-year update to the MHMP is required under the Federal Disaster Mitigation Act of 2000 in order to be eligible to continue to receive certain forms of Federal disaster assistance.

Additionally, the 2015 MHMP will support Ventura County's (Unincorporated Areas) participation in the National Flood Insurance Program's Community Rating System (CRS) program by addressing the program's Floodplain Management Planning activities. To earn CRS credits and participate in the CRS program, communities must demonstrate that they have developed and implement extra measures to protect to their community from flooding.

As part of the MHMP update process, the VCWPD and its' consultant (AECOM) will be reviewing flood-related plans, studies, and reports, including the preliminary revised Ventura County and Incorporated Areas Flood Insurance Study (September 2014) and the Final Study Report: Upper Calleguas Creek Watershed Management Strategy (May 2013). The VCWPD would appreciate any additional relevant flood data, mapping, and/or flood projects that you may have that the VCWPD could incorporate into MHMP update. This information can be emailed to [Brian.Trushinski@ventura.org](mailto:Brian.Trushinski@ventura.org) by May 1.

In addition to data acquisition, the VCWPD would like to invite you and all the other City Floodplain Managers within Ventura County to participate in the MHMP update process, which will occur from March to August 2015. Ventura County OES and its' consultant will be giving a presentation about the MHMP update at the Ventura County Emergency Planning Council meeting on April 30. Additionally, the VCWPD and its' consultant will provide an overview of MHMP update, including a brief discussion on flood data coordination, at the Ventura County Floodplain Managers meeting on May 20.

The current MHMP can be found on the VCWPD flood information webpage: <http://www.vcfloodinfo.com/home>. For further information please contact me at the email address listed above or by phone at (805) 477-1967.

Sincerely,

Brian Trushinski, MA, CFM  
Ventura County Floodplain Manager  
Ventura County Watershed Protection District

---

800 South Victoria Avenue • Ventura, California 93009-1610  
(805) 654-2001 • Fax (805) 654-3350 • <http://www.vcwatershed.org>

## Ventura County Watershed Protection District



**PUBLIC WORKS AGENCY**  
**JEFF PRATT**  
Agency Director

April 1, 2015

City of Santa Paula  
7474 Eisenhower Street  
Ventura, CA 93003

Subject: Ventura County Multi-Hazard Mitigation Plan Data Acquisition

**Tully Clifford, Director**  
Watershed Protection District

**Gerhardt Hubner**  
Water/Environmental Resources

**Karl Novak**  
Operations/Maintenance

**Peter Sheydayi**  
Design/Construction

**Sergio Vargas**  
Planning/Regulatory

Dear Randy Toedter:

The Ventura County Sheriff's Office of Emergency Services (OES), in cooperation with the Ventura County Watershed Protection District (VCWPD), and various cities and special districts within Ventura County, is launching a countywide effort to re-assess risks posed by natural hazards (e.g., flooding, wildfires, earthquakes) and human-caused disasters, and identify ways to reduce those risks. The planning process will result in the 2015 Multi-Hazard Mitigation Plan (MHMP). The Ventura County OES developed the first MHMP in 2005 and last updated the MHMP in 2010. A five-year update to the MHMP is required under the Federal Disaster Mitigation Act of 2000 in order to be eligible to continue to receive certain forms of Federal disaster assistance.

Additionally, the 2015 MHMP will support Ventura County's (Unincorporated Areas) participation in the National Flood Insurance Program's Community Rating System (CRS) program by addressing the program's Floodplain Management Planning activities. To earn CRS credits and participate in the CRS program, communities must demonstrate that they have developed and implement extra measures to protect to their community from flooding.

As part of the MHMP update process, the VCWPD and its' consultant (AECOM) will be reviewing flood-related plans, studies, and reports, including the preliminary revised Ventura County and Incorporated Areas Flood Insurance Study (September 2014) and the Final Study Report: Upper Calleguas Creek Watershed Management Strategy (May 2013). The VCWPD would appreciate any additional relevant flood data, mapping, and/or flood projects that you may have that the VCWPD could incorporate into MHMP update. This information can be emailed to Brian Trushinski at [Brian.Trushinski@ventura.org](mailto:Brian.Trushinski@ventura.org) by May 1.

In addition to data acquisition, the VCWPD would like to invite you and all the other City Floodplain Managers within Ventura County to participate in the MHMP update process, which will occur from March to August 2015. Ventura County OES and its' consultant will be giving a presentation about the MHMP update at the Ventura County Emergency Planning Council meeting on April 30. Additionally, the VCWPD and its' consultant will provide an overview of MHMP update, including a brief discussion on flood data coordination, at the Ventura County Floodplain Managers meeting on May 20.

The current MHMP can be found on the VCWPD flood information webpage: <http://www.vcfloodinfo.com/home>. For further information please contact me at the email address listed above or by phone at (805) 477-1967.

Sincerely,

A handwritten signature in black ink, appearing to read "B. Trushinski".

Brian Trushinski, MA, CFM  
Ventura County Floodplain Manager  
Ventura County Watershed Protection District

---

800 South Victoria Avenue • Ventura, California 93009-1610  
(805) 654-2001 • Fax (805) 654-3350 • <http://www.vcwatershed.org>



## Ventura County Watershed Protection District



PUBLIC WORKS AGENCY  
JEFF PRATT  
Agency Director

April 1, 2015

City of Simi Valley  
2929 Tapo Cyn. Rd.  
Simi Valley, CA 93063

Subject: Ventura County Multi-Hazard Mitigation Plan Data Acquisition

Tully Clifford, Director  
Watershed Protection District

Gerhardt Hubner  
Water/Environmental Resources

Karl Novak  
Operations/Maintenance

Peter Sheydayl  
Design/Construction

Sergio Vargas  
Planning/Regulatory

Dear Brent Siemer:

The Ventura County Sheriff's Office of Emergency Services (OES), in cooperation with the Ventura County Watershed Protection District (VCWPD), and various cities and special districts within Ventura County, is launching a countywide effort to re-assess risks posed by natural hazards (e.g., flooding, wildfires, earthquakes) and human-caused disasters, and identify ways to reduce those risks. The planning process will result in the 2015 Multi-Hazard Mitigation Plan (MHMP). The Ventura County OES developed the first MHMP in 2005 and last updated the MHMP in 2010. A five-year update to the MHMP is required under the Federal Disaster Mitigation Act of 2000 in order to be eligible to continue to receive certain forms of Federal disaster assistance.

Additionally, the 2015 MHMP will support Ventura County's (Unincorporated Areas) participation in the National Flood Insurance Program's Community Rating System (CRS) program by addressing the program's Floodplain Management Planning activities. To earn CRS credits and participate in the CRS program, communities must demonstrate that they have developed and implement extra measures to protect to their community from flooding.

As part of the MHMP update process, the VCWPD and its' consultant (AECOM) will be reviewing flood-related plans, studies, and reports, including the preliminary revised Ventura County and Incorporated Areas Flood Insurance Study (September 2014) and the Final Study Report: Upper Calleguas Creek Watershed Management Strategy (May 2013). The VCWPD would appreciate any additional relevant flood data, mapping, and/or flood projects that you may have that the VCWPD could incorporate into MHMP update. This information can be emailed to [Brian.Trushinski@ventura.org](mailto:Brian.Trushinski@ventura.org) by May 1.

In addition to data acquisition, the VCWPD would like to invite you and all the other City Floodplain Managers within Ventura County to participate in the MHMP update process, which will occur from March to August 2015. Ventura County OES and its' consultant will be giving a presentation about the MHMP update at the Ventura County Emergency Planning Council meeting on April 30. Additionally, the VCWPD and its' consultant will provide an overview of MHMP update, including a brief discussion on flood data coordination, at the Ventura County Floodplain Managers meeting on May 20.

The current MHMP can be found on the VCWPD flood information webpage: <http://www.vcfloodinfo.com/home>. For further information please contact me at the email address listed above or by phone at (805) 477-1967.

Sincerely,

A handwritten signature in black ink, appearing to read "B. Trushinski".

Brian Trushinski, MA, CFM  
Ventura County Floodplain Manager  
Ventura County Watershed Protection District

---

800 South Victoria Avenue • Ventura, California 93009-1610  
(805) 654-2001 • Fax (805) 654-3350 • <http://www.vcwatershed.org>

## Ventura County Watershed Protection District



**PUBLIC WORKS AGENCY**  
**JEFF PRATT**  
Agency Director

April 1, 2015

City of Thousand Oaks  
2100 E Thousand Oaks Blvd.  
Thousand Oaks, CA 91362

Subject: Ventura County Multi-Hazard Mitigation Plan Data Acquisition

**Tully Clifford, Director**  
Watershed Protection District

**Gerhardt Hubner**  
Water/Environmental Resources

**Karl Novak**  
Operations/Maintenance

**Peter Sheydayi**  
Design/Construction

**Sergio Vargas**  
Planning/Regulatory

Dear Jim Taylor:

The Ventura County Sheriff's Office of Emergency Services (OES), in cooperation with the Ventura County Watershed Protection District (VCWPD), and various cities and special districts within Ventura County, is launching a countywide effort to re-assess risks posed by natural hazards (e.g., flooding, wildfires, earthquakes) and human-caused disasters, and identify ways to reduce those risks. The planning process will result in the 2015 Multi-Hazard Mitigation Plan (MHMP). The Ventura County OES developed the first MHMP in 2005 and last updated the MHMP in 2010. A five-year update to the MHMP is required under the Federal Disaster Mitigation Act of 2000 in order to be eligible to continue to receive certain forms of Federal disaster assistance.

Additionally, the 2015 MHMP will support Ventura County's (Unincorporated Areas) participation in the National Flood Insurance Program's Community Rating System (CRS) program by addressing the program's Floodplain Management Planning activities. To earn CRS credits and participate in the CRS program, communities must demonstrate that they have developed and implement extra measures to protect to their community from flooding.

As part of the MHMP update process, the VCWPD and its' consultant (AECOM) will be reviewing flood-related plans, studies, and reports, including the preliminary revised Ventura County and Incorporated Areas Flood Insurance Study (September 2014) and the Final Study Report: Upper Calleguas Creek Watershed Management Strategy (May 2013). The VCWPD would appreciate any additional relevant flood data, mapping, and/or flood projects that you may have that the VCWPD could incorporate into MHMP update. This information can be emailed to Brian Trushinski at [Brian.Trushinski@ventura.org](mailto:Brian.Trushinski@ventura.org) by May 1.

In addition to data acquisition, the VCWPD would like to invite you and all the other City Floodplain Managers within Ventura County to participate in the MHMP update process, which will occur from March to August 2015. Ventura County OES and its' consultant will be giving a presentation about the MHMP update at the Ventura County Emergency Planning Council meeting on April 30. Additionally, the VCWPD and its' consultant will provide an overview of MHMP update, including a brief discussion on flood data coordination, at the Ventura County Floodplain Managers meeting on May 20.

The current MHMP can be found on the VCWPD flood information webpage: <http://www.vcfloodinfo.com/home>. For further information please contact me at the email address listed above or by phone at (805) 477-1967.

Sincerely,

A handwritten signature in black ink, appearing to read "B. Trushinski".

Brian Trushinski, MA, CFM  
Ventura County Floodplain Manager  
Ventura County Watershed Protection District

---

800 South Victoria Avenue • Ventura, California 93009-1610  
(805) 654-2001 • Fax (805) 654-3350 • <http://www.vcwatershed.org>



## Ventura County Watershed Protection District



**PUBLIC WORKS AGENCY**  
**JEFF PRATT**  
Agency Director

April 1, 2015

City of Ventura  
P. O. Box 99  
Ventura, CA 93002-99

Subject: Ventura County Multi-Hazard Mitigation Plan Data Acquisition

**Tully Clifford, Director**  
Watershed Protection District

**Gerhardt Hubner**  
Water/Environmental Resources

**Karl Novak**  
Operations/Maintenance

**Peter Sheydayl**  
Design/Construction

**Sergio Vargas**  
Planning/Regulatory

Dear Yolanda Bundy:

The Ventura County Sheriff's Office of Emergency Services (OES), in cooperation with the Ventura County Watershed Protection District (VCWPD), and various cities and special districts within Ventura County, is launching a countywide effort to re-assess risks posed by natural hazards (e.g., flooding, wildfires, earthquakes) and human-caused disasters, and identify ways to reduce those risks. The planning process will result in the 2015 Multi-Hazard Mitigation Plan (MHMP). The Ventura County OES developed the first MHMP in 2005 and last updated the MHMP in 2010. A five-year update to the MHMP is required under the Federal Disaster Mitigation Act of 2000 in order to be eligible to continue to receive certain forms of Federal disaster assistance.

Additionally, the 2015 MHMP will support Ventura County's (Unincorporated Areas) participation in the National Flood Insurance Program's Community Rating System (CRS) program by addressing the program's Floodplain Management Planning activities. To earn CRS credits and participate in the CRS program, communities must demonstrate that they have developed and implement extra measures to protect to their community from flooding.

As part of the MHMP update process, the VCWPD and its' consultant (AECOM) will be reviewing flood-related plans, studies, and reports, including the preliminary revised Ventura County and Incorporated Areas Flood Insurance Study (September 2014) and the Final Study Report: Upper Calleguas Creek Watershed Management Strategy (May 2013). The VCWPD would appreciate any additional relevant flood data, mapping, and/or flood projects that you may have that the VCWPD could incorporate into MHMP update. This information can be emailed to [Brian.Trushinski@ventura.org](mailto:Brian.Trushinski@ventura.org) by May 1.

In addition to data acquisition, the VCWPD would like to invite you and all the other City Floodplain Managers within Ventura County to participate in the MHMP update process, which will occur from March to August 2015. Ventura County OES and its' consultant will be giving a presentation about the MHMP update at the Ventura County Emergency Planning Council meeting on April 30. Additionally, the VCWPD and its' consultant will provide an overview of MHMP update, including a brief discussion on flood data coordination, at the Ventura County Floodplain Managers meeting on May 20.

The current MHMP can be found on the VCWPD flood information webpage: <http://www.vcfloodinfo.com/home>. For further information please contact me at the email address listed above or by phone at (805) 477-1967.

Sincerely,

A handwritten signature in black ink, appearing to read "B. Trushinski".

Brian Trushinski, MA, CFM  
Ventura County Floodplain Manager  
Ventura County Watershed Protection District

---

800 South Victoria Avenue • Ventura, California 93009-1610  
(805) 654-2001 • Fax (805) 654-3350 • <http://www.vcwatershed.org>

## Ventura County Watershed Protection District



**PUBLIC WORKS AGENCY**  
**JEFF PRATT**  
Agency Director

April 12, 2015

California Department of Water Resources  
Flood Operations Branch  
3310 El Camino Ave Suite 200  
Sacramento, CA 95821

Subject: Ventura County Multi-Hazard Mitigation Plan Data Acquisition

**Tully Clifford, Director**  
Watershed Protection District

**Gerhardt Hubner**  
Water/Environmental Resources

**Karl Novak**  
Operations/Maintenance

**Peter Sheydayi**  
Design/Construction

**Sergio Vargas**  
Planning/Regulatory

Dear John Paasch:

The Ventura County Sheriff's Office of Emergency Services (OES), in cooperation with the Ventura County Watershed Protection District (VCWPD), and various cities and special districts within Ventura County, is launching a countywide effort to re-assess risks posed by natural hazards (e.g., flooding, wildfires, earthquakes) and human-caused disasters, and identify ways to reduce those risks. The planning process will result in the 2015 Multi-Hazard Mitigation Plan (MHMP). The Ventura County OES developed the first MHMP in 2005 and last updated the MHMP in 2010. A five-year update to the MHMP is required under the Federal Disaster Mitigation Act of 2000 in order to be eligible to continue to receive certain forms of Federal disaster assistance.

Additionally, the 2015 MHMP will support Ventura County's (Unincorporated Areas) participation in the National Flood Insurance Program's Community Rating System (CRS) program by addressing the program's Floodplain Management Planning activities. To earn CRS credits and participate in the CRS program, communities must demonstrate that they have developed and implement extra measures to protect to their community from flooding.

As part of the MHMP update process, the VCWPD and its' consultant (AECOM) will be reviewing flood-related plans, studies, and reports, including the preliminary revised Ventura County and Incorporated Areas Flood Insurance Study (September 2014) and the Final Study Report: Upper Calleguas Creek Watershed Management Strategy (May 2013). The VCWPD would appreciate any additional relevant State flood data, mapping, and/or flood projects that you may have that the VCWPD could incorporate into MHMP update. This information can be emailed to Brian Trushinski at [Brian.Trushinski@ventura.org](mailto:Brian.Trushinski@ventura.org) by May 1.

In addition to data acquisition, the VCWPD would like to invite you to participate in the MHMP update process, which will occur from March to August 2015. Ventura County OES and its' consultant will be giving a presentation about the MHMP update at the Ventura County Emergency Planning Council meeting on April 30. Additionally, the VCWPD and its' consultant will provide an overview of MHMP update, including a brief discussion on flood data coordination, at the Ventura County Floodplain Managers meeting on May 20.

The current MHMP can be found on the VCWPD flood information webpage: <http://www.vcfloodinfo.com>. For further information please contact me at the email address listed above or by phone at (805) 477-1967.

Sincerely,

A handwritten signature in black ink, appearing to read "B. Trushinski".

Brian Trushinski, MA, CFM  
Ventura County Floodplain Manager  
Ventura County Watershed Protection District



## Ventura County Watershed Protection District



**PUBLIC WORKS AGENCY**  
**JEFF PRATT**  
Agency Director

April 12, 2015

California Department of Water Resources  
State-Federal Flood Operations Center  
3310 El Camino Ave Suite 200  
Sacramento, CA 95821

Subject: Ventura County Multi-Hazard Mitigation Plan Data Acquisition

**Tully Clifford, Director**  
Watershed Protection District  
  
**Gerhardt Hubner**  
Water/Environmental Resources  
  
**Karl Novak**  
Operations/Maintenance  
  
**Peter Sheydayl**  
Design/Construction  
  
**Sergio Vargas**  
Planning/Regulatory

Dear Patricia Clark:

The Ventura County Sheriff's Office of Emergency Services (OES), in cooperation with the Ventura County Watershed Protection District (VCWPD), and various cities and special districts within Ventura County, is launching a countywide effort to re-assess risks posed by natural hazards (e.g., flooding, wildfires, earthquakes) and human-caused disasters, and identify ways to reduce those risks. The planning process will result in the 2015 Multi-Hazard Mitigation Plan (MHMP). The Ventura County OES developed the first MHMP in 2005 and last updated the MHMP in 2010. A five-year update to the MHMP is required under the Federal Disaster Mitigation Act of 2000 in order to be eligible to continue to receive certain forms of Federal disaster assistance.

Additionally, the 2015 MHMP will support Ventura County's (Unincorporated Areas) participation in the National Flood Insurance Program's Community Rating System (CRS) program by addressing the program's Floodplain Management Planning activities. To earn CRS credits and participate in the CRS program, communities must demonstrate that they have developed and implement extra measures to protect to their community from flooding.

As part of the MHMP update process, the VCWPD and its' consultant (AECOM) will be reviewing flood-related plans, studies, and reports, including the preliminary revised Ventura County and Incorporated Areas Flood Insurance Study (September 2014) and the Final Study Report: Upper Calleguas Creek Watershed Management Strategy (May 2013). The VCWPD would appreciate any additional relevant State flood data, mapping, and/or flood projects that you may have that the VCWPD could incorporate into MHMP update. This information can be emailed to Brian Trushinski at [Brian.Trushinski@ventura.org](mailto:Brian.Trushinski@ventura.org) by May 1.

In addition to data acquisition, the VCWPD would like to invite you to participate in the MHMP update process, which will occur from March to August 2015. Ventura County OES and its' consultant will be giving a presentation about the MHMP update at the Ventura County Emergency Planning Council meeting on April 30. Additionally, the VCWPD and its' consultant will provide an overview of MHMP update, including a brief discussion on flood data coordination, at the Ventura County Floodplain Managers meeting on May 20.

The current MHMP can be found on the VCWPD flood information webpage: <http://www.vcfloodinfo.com>. For further information please contact me at the email address listed above or by phone at (805) 477-1967.

Sincerely,

A handwritten signature in black ink, appearing to read "B. Trushinski".

Brian Trushinski, MA, CFM  
Ventura County Floodplain Manager  
Ventura County Watershed Protection District

---

800 South Victoria Avenue • Ventura, California 93009-1610  
(805) 654-2001 • Fax (805) 654-3350 • <http://www.vcwatershed.org>

## Ventura County Watershed Protection District



**PUBLIC WORKS AGENCY**  
**JEFF PRATT**  
Agency Director

April 12, 2015

California Department of Water Resources  
Division of Integrated Regional Water Management, Southern Region  
770 Fairmont Avenue, Suite 102  
Glendale, CA 91203

Subject: Ventura County Multi-Hazard Mitigation Plan Data Acquisition

**Tully Clifford, Director**  
Watershed Protection District

**Gerhardt Hubner**  
Water/Environmental Resources

**Karl Novak**  
Operations/Maintenance

**Peter Sheydayi**  
Design/Construction

**Sergio Vargas**  
Planning/Regulatory

Dear Salomon Miranda:

The Ventura County Sheriff's Office of Emergency Services (OES), in cooperation with the Ventura County Watershed Protection District (VCWPD), and various cities and special districts within Ventura County, is launching a countywide effort to re-assess risks posed by natural hazards (e.g., flooding, wildfires, earthquakes) and human-caused disasters, and identify ways to reduce those risks. The planning process will result in the 2015 Multi-Hazard Mitigation Plan (MHMP). The Ventura County OES developed the first MHMP in 2005 and last updated the MHMP in 2010. A five-year update to the MHMP is required under the Federal Disaster Mitigation Act of 2000 in order to be eligible to continue to receive certain forms of Federal disaster assistance.

Additionally, the 2015 MHMP will support Ventura County's (Unincorporated Areas) participation in the National Flood Insurance Program's Community Rating System (CRS) program by addressing the program's Floodplain Management Planning activities. To earn CRS credits and participate in the CRS program, communities must demonstrate that they have developed and implement extra measures to protect to their community from flooding.

As part of the MHMP update process, the VCWPD and its' consultant (AECOM) will be reviewing flood-related plans, studies, and reports, including the preliminary revised Ventura County and Incorporated Areas Flood Insurance Study (September 2014) and the Final Study Report: Upper Calleguas Creek Watershed Management Strategy (May 2013). The VCWPD would appreciate any additional relevant State flood data, mapping, and/or flood projects that you may have that the VCWPD could incorporate into MHMP update. This information can be emailed to Brian Trushinski at [Brian.Trushinski@ventura.org](mailto:Brian.Trushinski@ventura.org) by May 1.

In addition to data acquisition, the VCWPD would like to invite you to participate in the MHMP update process, which will occur from March to August 2015. Ventura County OES and its' consultant will be giving a presentation about the MHMP update at the Ventura County Emergency Planning Council meeting on April 30. Additionally, the VCWPD and its' consultant will provide an overview of MHMP update, including a brief discussion on flood data coordination, at the Ventura County Floodplain Managers meeting on May 20.

The current MHMP can be found on the VCWPD flood information webpage: <http://www.vcfloodinfo.com>. For further information please contact me at the email address listed above or by phone at (805) 477-1967.

Sincerely,

Brian Trushinski, MA, CFM  
Ventura County Floodplain Manager  
Ventura County Watershed Protection District



## Ventura County Watershed Protection District



**PUBLIC WORKS AGENCY**  
**JEFF PRATT**  
Agency Director

April 12, 2015

FEMA Region IX  
1111 Broadway, Suite 1200  
Oakland, CA 94607

Subject: Ventura County Multi-Hazard Mitigation Plan Data Acquisition

**Tully Clifford, Director**  
Watershed Protection District

**Gerhardt Hubner**  
Water/Environmental Resources

**Karl Novak**  
Operations/Maintenance

**Peter Sheydayl**  
Design/Construction

**Sergio Vargas**  
Planning/Regulatory

Dear Edward Curtis:

The Ventura County Sheriff's Office of Emergency Services (OES), in cooperation with the Ventura County Watershed Protection District (VCWPD), and various cities and special districts within Ventura County, is launching a countywide effort to re-assess risks posed by natural hazards (e.g., flooding, wildfires, earthquakes) and human-caused disasters, and identify ways to reduce those risks. The planning process will result in the 2015 Multi-Hazard Mitigation Plan (MHMP). The Ventura County OES developed the first MHMP in 2005 and last updated the MHMP in 2010. A five-year update to the MHMP is required under the Federal Disaster Mitigation Act of 2000 in order to be eligible to continue to receive certain forms of Federal disaster assistance.

Additionally, the 2015 MHMP will support Ventura County's (Unincorporated Areas) participation in the National Flood Insurance Program's Community Rating System (CRS) program by addressing the program's Floodplain Management Planning activities. To earn CRS credits and participate in the CRS program, communities must demonstrate that they have developed and implement extra measures to protect to their community from flooding.

As part of the MHMP update process, the VCWPD and its' consultant (AECOM) will be reviewing flood-related plans, studies, and reports, including the preliminary revised Ventura County and Incorporated Areas Flood Insurance Study (September 2014) and the Final Study Report: Upper Calleguas Creek Watershed Management Strategy (May 2013). The VCWPD would appreciate any additional relevant National Flood Insurance Program flood data, mapping, and/or flood projects that you may have that the VCWPD could incorporate into MHMP update. This information can be emailed to Brian Trushinski at [Brian.Trushinski@ventura.org](mailto:Brian.Trushinski@ventura.org) by May 1.

In addition to data acquisition, the VCWPD would like to invite you to participate in the MHMP update process, which will occur from March to August 2015. Ventura County OES and its' consultant will be giving a presentation about the MHMP update at the Ventura County Emergency Planning Council meeting on April 30. Additionally, the VCWPD and its' consultant will provide an overview of MHMP update, including a brief discussion on flood data coordination, at the Ventura County Floodplain Managers meeting on May 20.

The current MHMP can be found on the VCWPD flood information webpage: <http://www.vcfloodinfo.com>. For further information please contact me at the email address listed above or by phone at (805) 477-1967.

Sincerely,

A handwritten signature in black ink, appearing to read "B. Trushinski".

Brian Trushinski, MA, CFM  
Ventura County Floodplain Manager  
Ventura County Watershed Protection District

---

800 South Victoria Avenue • Ventura, California 93009-1610  
(805) 654-2001 • Fax (805) 654-3350 • <http://www.vcwatershed.org>

## Ventura County Watershed Protection District



**PUBLIC WORKS AGENCY**  
**JEFF PRATT**  
Agency Director

April 12, 2015

NOAA – National Weather Service Forecast Office Los Angeles/Oxnard  
520 North Elevar Street  
Oxnard, CA 93030

Subject: Ventura County Multi-Hazard Mitigation Plan Data Acquisition

**Tully Clifford, Director**  
Watershed Protection District

**Gerhardt Hubner**  
Water/Environmental Resources

**Karl Novak**  
Operations/Maintenance

**Peter Sheydayi**  
Design/Construction

**Sergio Vargas**  
Planning/Regulatory

Dear Eric Boldt:

The Ventura County Sheriff's Office of Emergency Services (OES), in cooperation with the Ventura County Watershed Protection District (VCWPD), and various cities and special districts within Ventura County, is launching a countywide effort to re-assess risks posed by natural hazards (e.g., flooding, wildfires, earthquakes) and human-caused disasters, and identify ways to reduce those risks. The planning process will result in the 2015 Multi-Hazard Mitigation Plan (MHMP). The Ventura County OES developed the first MHMP in 2005 and last updated the MHMP in 2010. A five-year update to the MHMP is required under the Federal Disaster Mitigation Act of 2000 in order to be eligible to continue to receive certain forms of Federal disaster assistance.

Additionally, the 2015 MHMP will support Ventura County's (Unincorporated Areas) participation in the National Flood Insurance Program's Community Rating System (CRS) program by addressing the program's Floodplain Management Planning activities. To earn CRS credits and participate in the CRS program, communities must demonstrate that they have developed and implement extra measures to protect to their community from flooding.

As part of the MHMP update process, the VCWPD and its' consultant (AECOM) will be reviewing flood-related plans, studies, and reports, including the preliminary revised Ventura County and Incorporated Areas Flood Insurance Study (September 2014) and the Final Study Report: Upper Calleguas Creek Watershed Management Strategy (May 2013). The VCWPD would appreciate any additional weather-relevant flood data, mapping, and/or flood projects that you may have that the VCWPD could incorporate into MHMP update. This information can be emailed to Brian Trushinski at [Brian.Trushinski@ventura.org](mailto:Brian.Trushinski@ventura.org) by May 1.

In addition to data acquisition, the VCWPD would like to invite you to participate in the MHMP update process, which will occur from March to August 2015. Ventura County OES and its' consultant will be giving a presentation about the MHMP update at the Ventura County Emergency Planning Council meeting on April 30. Additionally, the VCWPD and its' consultant will provide an overview of MHMP update, including a brief discussion on flood data coordination, at the Ventura County Floodplain Managers meeting on May 20.

The current MHMP can be found on the VCWPD flood information webpage: <http://www.vcfloodinfo.com>. For further information please contact me at the email address listed above or by phone at (805) 477-1967.

Sincerely,

A handwritten signature in black ink, appearing to read "B. Trushinski".

Brian Trushinski, MA, CFM  
Ventura County Floodplain Manager  
Ventura County Watershed Protection District



## Ventura County Watershed Protection District



**PUBLIC WORKS AGENCY**  
**JEFF PRATT**  
Agency Director

April 12, 2015

California-Nevada River Forecast Center  
NOAA – National Weather Service  
3310 El Camino Avenue, Room 227  
Sacramento, CA 95821-6373

Subject: Ventura County Multi-Hazard Mitigation Plan Data Acquisition

**Tully Clifford, Director**  
Watershed Protection District

**Gerhardt Hubner**  
Water/Environmental Resources

**Karl Novak**  
Operations/Maintenance

**Peter Sheydayl**  
Design/Construction

**Sergio Vargas**  
Planning/Regulatory

Dear Robert Hartman:

The Ventura County Sheriff's Office of Emergency Services (OES), in cooperation with the Ventura County Watershed Protection District (VCWPD), and various cities and special districts within Ventura County, is launching a countywide effort to re-assess risks posed by natural hazards (e.g., flooding, wildfires, earthquakes) and human-caused disasters, and identify ways to reduce those risks. The planning process will result in the 2015 Multi-Hazard Mitigation Plan (MHMP). The Ventura County OES developed the first MHMP in 2005 and last updated the MHMP in 2010. A five-year update to the MHMP is required under the Federal Disaster Mitigation Act of 2000 in order to be eligible to continue to receive certain forms of Federal disaster assistance.

Additionally, the 2015 MHMP will support Ventura County's (Unincorporated Areas) participation in the National Flood Insurance Program's Community Rating System (CRS) program by addressing the program's Floodplain Management Planning activities. To earn CRS credits and participate in the CRS program, communities must demonstrate that they have developed and implement extra measures to protect to their community from flooding.

As part of the MHMP update process, the VCWPD and its' consultant (AECOM) will be reviewing flood-related plans, studies, and reports, including the preliminary revised Ventura County and Incorporated Areas Flood Insurance Study (September 2014) and the Final Study Report: Upper Calleguas Creek Watershed Management Strategy (May 2013). The VCWPD would appreciate any additional relevant riverine flood data, mapping, and/or flood projects that you may have that the VCWPD could incorporate into MHMP update. This information can be emailed to Brian Trushinski at [Brian.Trushinski@ventura.org](mailto:Brian.Trushinski@ventura.org) by May 1.

In addition to data acquisition, the VCWPD would like to invite you to participate in the MHMP update process, which will occur from March to August 2015. Ventura County OES and its' consultant will be giving a presentation about the MHMP update at the Ventura County Emergency Planning Council meeting on April 30. Additionally, the VCWPD and its' consultant will provide an overview of MHMP update, including a brief discussion on flood data coordination, at the Ventura County Floodplain Managers meeting on May 20.

The current MHMP can be found on the VCWPD flood information webpage: <http://www.vcfloodinfo.com>. For further information please contact me at the email address listed above or by phone at (805) 477-1967.

Sincerely,

Brian Trushinski, MA, CFM  
Ventura County Floodplain Manager  
Ventura County Watershed Protection District

800 South Victoria Avenue • Ventura, California 93009-1610  
(805) 654-2001 • Fax (805) 654-3350 • <http://www.vcwatershed.org>

## Ventura County Watershed Protection District



**PUBLIC WORKS AGENCY**  
**JEFF PRATT**  
Agency Director

April 12, 2015

US Army Corps of Engineers  
Los Angeles District  
915 Wilshire Blvd., Suite 1240  
Los Angeles, CA 90017

**Tully Clifford, Director**  
Watershed Protection District

**Gerhardt Hubner**  
Water/Environmental Resources

**Karl Novak**  
Operations/Maintenance

**Peter Sheydayi**  
Design/Construction

**Sergio Vargas**  
Planning/Regulatory

Subject: Ventura County Multi-Hazard Mitigation Plan Data Acquisition

Dear Anne Hutton:

The Ventura County Sheriff's Office of Emergency Services (OES), in cooperation with the Ventura County Watershed Protection District (VCWPD), and various cities and special districts within Ventura County, is launching a countywide effort to re-assess risks posed by natural hazards (e.g., flooding, wildfires, earthquakes) and human-caused disasters, and identify ways to reduce those risks. The planning process will result in the 2015 Multi-Hazard Mitigation Plan (MHMP). The Ventura County OES developed the first MHMP in 2005 and last updated the MHMP in 2010. A five-year update to the MHMP is required under the Federal Disaster Mitigation Act of 2000 in order to be eligible to continue to receive certain forms of Federal disaster assistance.

Additionally, the 2015 MHMP will support Ventura County's (Unincorporated Areas) participation in the National Flood Insurance Program's Community Rating System (CRS) program by addressing the program's Floodplain Management Planning activities. To earn CRS credits and participate in the CRS program, communities must demonstrate that they have developed and implement extra measures to protect to their community from flooding.

As part of the MHMP update process, the VCWPD and its' consultant (AECOM) will be reviewing flood-related plans, studies, and reports, including the preliminary revised Ventura County and Incorporated Areas Flood Insurance Study (September 2014) and the Final Study Report: Upper Calleguas Creek Watershed Management Strategy (May 2013). The VCWPD would appreciate any additional US Army Corps of Engineers relevant flood data, mapping, and/or flood projects that you may have that the VCWPD could incorporate into MHMP update. This information can be emailed to Brian Trushinski at [Brian.Trushinski@ventura.org](mailto:Brian.Trushinski@ventura.org) by May 1.

In addition to data acquisition, the VCWPD would like to invite you to participate in the MHMP update process, which will occur from March to August 2015. Ventura County OES and its' consultant will be giving a presentation about the MHMP update at the Ventura County Emergency Planning Council meeting on April 30. Additionally, the VCWPD and its' consultant will provide an overview of MHMP update, including a brief discussion on flood data coordination, at the Ventura County Floodplain Managers meeting on May 20.

The current MHMP can be found on the VCWPD flood information webpage: <http://www.vcfloodinfo.com>. For further information please contact me at the email address listed above or by phone at (805) 477-1967.

Sincerely,

A handwritten signature in black ink, appearing to read "B. Trushinski".

Brian Trushinski, MA, CFM  
Ventura County Floodplain Manager  
Ventura County Watershed Protection District





## VENTURA COUNTY FLOODPLAIN MANAGERS MEETING

Wednesday, May 20, 2015 – 1:00 p.m. - 3:30 p.m.  
City of Camarillo – Central Conference Room

### A G E N D A

1. A Tribute to the Retirement of Glenn Hawks.....All  
(45 minutes)
2. Approval of Meeting Minutes .....Sergio Vargas  
February 18, 2015 Meeting (5 minutes)
3. Updates on FEMA Initiatives.....Ed Curtis  
(25 minutes)
  - ◆ Santa Clara River: Preliminary FIRM and Flood Insurance Study
  - ◆ Ventura River VR-1 CTP and LAMP
  - ◆ California Coastal Analysis and Mapping Project (CCAMP)
  - ◆ Other Initiatives
4. HEC-RAS 2-D Workshop at VCWPD Offices: June 2-5, 2015 (\*) .....Sergio Vargas  
(10 minutes)
5. FMA Conference in Palm Springs (September 8-11, 2015) .....Brian Trushinski  
(5 minutes)
6. Ventura County Multi-Hazard Mitigation Plan  
& Floodplain Management Plan ..... Anna Davis (AECOM)  
(45 minutes)
7. Updates from the Cities.....Group  
(10 minutes)
8. Miscellaneous/New Business Agenda Items .....Group  
(5 minutes)
9. Date of Next Meeting/Location..... Group

### MEETING ADJOURNED

(\*) Emails were sent out to the Cities and Consultants by Zia Hosseinipour in March and April, 2015. Please contact Sonnette Aquino (805) 650-4060 for seat availability. ASFPM will accept this training workshop as 24-hours Professional Development Hours/Continuing Education Credits for CFMs.

May 20, 2015  
Camarillo

Floodplain Managers Meeting - 5/20/15

NAME	ORGANIZATION	EMAIL ADDRESS
Brian Trushinski	Ventura County Watershed Prot. Dist.	brian.trushinski@ventura.org
Randy Toedter	CONSULTANT FOR CITY OF SANTA PAULA	toedter2@gmail.com
Tali Tucker	City of Camarillo	ttucker@cityofcamarillo.org
Troy Spayd	CITY OF CAMARILLO	tspayd@cityofcamarillo.org
Brent Siemer	CITY OF SIMI VALLEY	bsiemer@simivalley.org
Bill O'Brien	for City of Ventura	bill@ngeneng.com
SERGIO VARGAS	Ventura County Watershed Prot. Dist.	sergio.vargas@ventura.org
Hassan Kasraie	Camarillo/Kasraie Consulting	kasraie@kasraieconsulting.com
ROBERT HEARNE	CITY OF OXNARD	ROBERT.HEARNE@CI.OXNARD.CA.US
Ed Curtis - FEMA Region IX (to be conference)		
Guest - Anna Davis, AECOM (Planner)		



**Ventura County Sherriff's Office Facebook Account – March 30, 2015**

<https://www.facebook.com/VenturaCountySheriff>

**facebook**

Email or Phone  Password  **Log In**

☐ Keep me logged in [Forgot your password?](#)

**Ventura County Sheriff's Office - Official Page**  
is on Facebook.

To connect with Ventura County Sheriff's Office - Official Page, sign up for Facebook today.

**Sign Up** **Log In**

**Ventura County Sheriff's Office - Official Page**  
Government Organization

**Timeline** About Photos Reviews More ▾

**PEOPLE** >

★★★★★  
5,549 likes  
133 visits

**ABOUT** >

[www.twitter.com/venturasheriff](http://www.twitter.com/venturasheriff) "@venturasheriff"  
<http://local.nixle.com/ventura-county-sheriffs-office>  
[www.instagram.com/vcsheeriff](http://www.instagram.com/vcsheeriff)

<http://www.vcsd.org/>

**PHOTOS** >

**Ventura County Sheriff's Office - Official Page** shared a link.  
3 hrs · 🌐

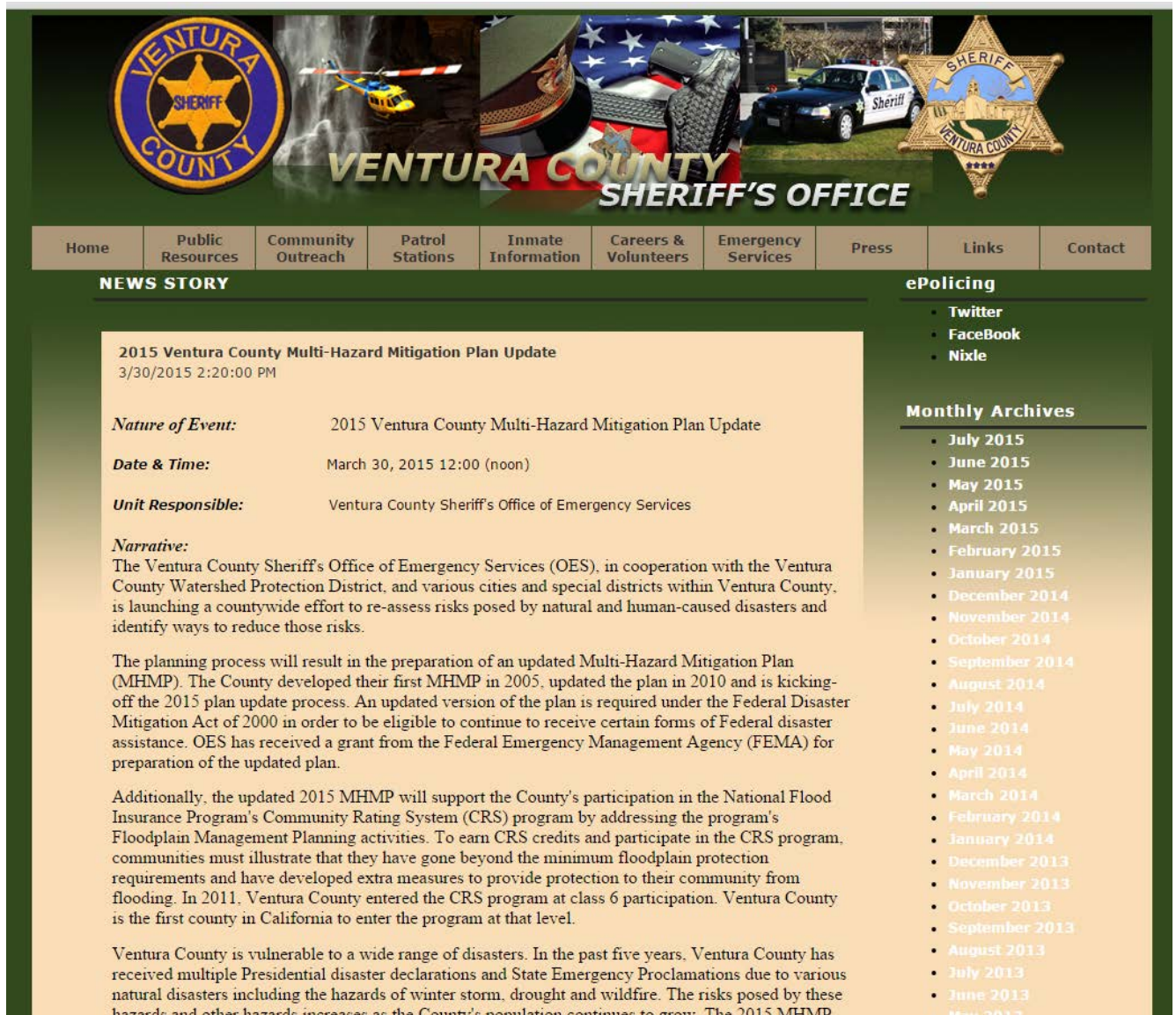
**2015 Ventura County Multi-Hazard Mitigation Plan #sheriffvc**  
Nature of Event: 2015 Ventura County Multi-Hazard Mitigation Plan Date & Time: March 30, 2015 12:00 (noon) Unit Responsible: Ventura County Sheriff's Office of Emergency Services Narrative: The...  
[HTTPS://LOCAL.NIXLE.COM/ALERT/5385825/](https://local.nixle.com/alert/5385825/)

Like · Comment · Share · 12 👍 2 ➦

**Ventura County Sheriff's Office - Official Page** shared a link.  
March 26 at 11:02am · 🌐

**Three Suspects Arrested with 13,000 Pills and 13 Guns #sheriffvc**  
Nature of Incident: Three Suspects Arrested with 13,000 Pills and 13 Guns Report Number: 15-6521 Location: Oxnard, CA Date & Time: March 20, 2015 – March 24, 2015 Unit(s) Responsible: Ventura...

## Ventura County Sheriff's Office Website



The screenshot shows the Ventura County Sheriff's Office website. The header features a collage of images including the Ventura County Sheriff's Office seal, a helicopter, a police car, and a sheriff's badge. Below the header is a navigation menu with links: Home, Public Resources, Community Outreach, Patrol Stations, Inmate Information, Careers & Volunteers, Emergency Services, Press, Links, and Contact.

**NEWS STORY**

**2015 Ventura County Multi-Hazard Mitigation Plan Update**  
3/30/2015 2:20:00 PM

**Nature of Event:** 2015 Ventura County Multi-Hazard Mitigation Plan Update

**Date & Time:** March 30, 2015 12:00 (noon)

**Unit Responsible:** Ventura County Sheriff's Office of Emergency Services

**Narrative:**  
The Ventura County Sheriff's Office of Emergency Services (OES), in cooperation with the Ventura County Watershed Protection District, and various cities and special districts within Ventura County, is launching a countywide effort to re-assess risks posed by natural and human-caused disasters and identify ways to reduce those risks.

The planning process will result in the preparation of an updated Multi-Hazard Mitigation Plan (MHMP). The County developed their first MHMP in 2005, updated the plan in 2010 and is kicking-off the 2015 plan update process. An updated version of the plan is required under the Federal Disaster Mitigation Act of 2000 in order to be eligible to continue to receive certain forms of Federal disaster assistance. OES has received a grant from the Federal Emergency Management Agency (FEMA) for preparation of the updated plan.

Additionally, the updated 2015 MHMP will support the County's participation in the National Flood Insurance Program's Community Rating System (CRS) program by addressing the program's Floodplain Management Planning activities. To earn CRS credits and participate in the CRS program, communities must illustrate that they have gone beyond the minimum floodplain protection requirements and have developed extra measures to provide protection to their community from flooding. In 2011, Ventura County entered the CRS program at class 6 participation. Ventura County is the first county in California to enter the program at that level.

Ventura County is vulnerable to a wide range of disasters. In the past five years, Ventura County has received multiple Presidential disaster declarations and State Emergency Proclamations due to various natural disasters including the hazards of winter storm, drought and wildfire. The risks posed by these hazards and other hazards increases as the County's population continues to grow. The 2015 MHMP

**ePolicing**

- Twitter
- FaceBook
- Nixle

**Monthly Archives**

- July 2015
- June 2015
- May 2015
- April 2015
- March 2015
- February 2015
- January 2015
- December 2014
- November 2014
- October 2014
- September 2014
- August 2014
- July 2014
- June 2014
- May 2014
- April 2014
- March 2014
- February 2014
- January 2014
- December 2013
- November 2013
- October 2013
- September 2013
- August 2013
- July 2013
- June 2013
- May 2013



communities must illustrate that they have gone beyond the minimum floodplain protection requirements and have developed extra measures to provide protection to their community from flooding. In 2011, Ventura County entered the CRS program at class 6 participation. Ventura County is the first county in California to enter the program at that level.

Ventura County is vulnerable to a wide range of disasters. In the past five years, Ventura County has received multiple Presidential disaster declarations and State Emergency Proclamations due to various natural disasters including the hazards of winter storm, drought and wildfire. The risks posed by these hazards and other hazards increases as the County's population continues to grow. The 2015 MHMP will provide the County, the participating cities and special districts with the necessary tools to identify these risks and prioritize future actions for reducing these risks. Additionally, the plan will provide a framework for future requests for Federal assistance to institute risk-reducing actions.

The County's current Multi-Hazard Mitigation Plan, as well as information about the CRS program can be found on the County of Ventura's flood information webpage: <http://www.vcfloodinfo.com/home>.

The planning process will occur from March ' August 2015. For further information about the project and/or if you are interested in participating in the plan update process please contact Dale Carnathan at [dale.carnathan@ventura.org](mailto:dale.carnathan@ventura.org) or (805) 654-5152. For further information specific to CRS and the FMP appendix, please contact Brian Trushinski at [Brian.Trushinski@ventura.org](mailto:Brian.Trushinski@ventura.org) or (805) 477-1967. Additionally, there will be an opportunity for public comments on a draft of the plan. The comment period is anticipated to occur in July 2015; specific details will be distributed closer to the comment period date.

**Follow-up Contact:** Dale Carnathan, Ventura County Sheriff's Office ' OES at (805) 654-5152

**Approved By:** Captain Randy Downard

**Date of Release:** March 30, 2015



- December 2013
- November 2013
- October 2013
- September 2013
- August 2013
- July 2013
- June 2013
- May 2013
- April 2013
- March 2013
- February 2013
- January 2013
- December 2012
- November 2012
- October 2012
- September 2012
- August 2012
- July 2012
- June 2012
- May 2012
- April 2012
- March 2012
- February 2012
- January 2012
- December 2011
- November 2011
- October 2011
- September 2011
- August 2011
- July 2011
- June 2011
- May 2011

ABOUT US	PUBLIC RESOURCES	COMMUNITY OUTREACH	CAREERS & VOLUNTEERS	LINKS	CONTACT
Overview	To Report a Crime	Citizens Academy	Employment	County of Ventura	Directory
Mission Statement	Crime Prevention	Chaplain Program	Application Form	Local Law Enforcement Agencies	Patrol Stations Map
History & Information	Civil Processes	Neighborhood Watch	Volunteers in Policing	State & Federal Law Enforcement Agencies	Citizen's Concerns
Sheriff Geoff Dean	Sex Registrants	Parent Project	Inmate Services	Sheriff's Foundation	Feedback
Executive Staff	Inmate Information	VC Alert	Search & Rescue		Retiree Information
Command Staff	Concealed Weapons Permit	Ride Along Program			
Divisions	Alcohol Test Results	911 FAQ			
Memorials	VINE	Community Oriented Policing Services			

© Copyright 2013 Ventura County Sheriff's Office


## Ventura County Sheriff's Office Nixle Account – March 30, 2015


<https://local.nixle.com/alert/5385825/>


Registered Subscribers: [Sign In Here](#)  [Sign up with Facebook](#)





Receive alerts from your local agencies [Sign Up](#) ...or text your ZIP CODE to 888777 for mobile alerts [not sure how?](#)

[« Back](#) | Full Notification




**Ventura County Sheriff's Office**

Monday March 30th, 2015 :: 02:24 p.m. PDT

 Share
 Tweet
 Forward
 g+

Community
**2015 Ventura County Multi-Hazard Mitigation Plan**  
**#sheriffvc**

Nature of Event: 2015 Ventura County Multi-Hazard Mitigation Plan  
Date & Time: March 30, 2015 12:00 (noon)  
Unit Responsible: Ventura County Sheriff's Office of Emergency Services

Narrative:  
The Ventura County Sheriff's Office of Emergency Services (OES), in cooperation with the Ventura County Watershed Protection District, and various cities and special districts within Ventura County, is launching a countywide effort to re-assess risks posed by natural and human-caused disasters and identify ways to reduce those risks.  
The planning process will result in the preparation of an updated Multi-Hazard Mitigation Plan (MHMP). The County developed their first MHMP in 2005, updated the plan in 2010 and is kicking-off the 2015 plan update process. An updated version of the plan is required under the Federal Disaster Mitigation Act of 2000 in order to be eligible to continue to receive certain forms of Federal disaster assistance. OES has received a grant from the Federal Emergency Management Agency (FEMA) for preparation of the updated plan.

Additionally, the updated 2015 MHMP will support the County's participation in the National Flood Insurance Program's Community Rating System (CRS) program by addressing the program's Floodplain Management Planning activities. To earn CRS credits and participate in the CRS program, communities must illustrate that they have gone beyond the minimum floodplain protection requirements and have developed extra measures to provide protection to their community from flooding. In 2011, Ventura County entered the CRS program at class 6 participation. Ventura County is the first county in California to enter the program at that level.

More Messages

[See more messages from Ventura, California »](#)

Navigate & Discover

Enter a town, zip code or address
[GO!](#)

Ventura County is vulnerable to a wide range of disasters. In the past five years, Ventura County has received multiple Presidential disaster declarations and State Emergency Proclamations due to various natural disasters including the hazards of winter storm, drought and wildfire. The risks posed by these hazards and other hazards increases as the County's population continues to grow. The 2015 MHMP will provide the County, the participating cities and special districts with the necessary tools to identify these risks and prioritize future actions for reducing these risks. Additionally, the plan will provide a framework for future requests for Federal assistance to institute risk-reducing actions.

The County's current Multi-Hazard Mitigation Plan, as well as information about the CRS program can be found on the County of Ventura's flood information webpage: <http://www.vcfloodinfo.com/home>.

The planning process will occur from March – August 2015. For further information about the project and/or if you are interested in participating in the plan update process please contact Dale Carnathan at [dale.carnathan@ventura.org](mailto:dale.carnathan@ventura.org) or (805) 654-5152. For further information specific to CRS and the FMP appendix, please contact Brian Trushinski at [Brian.Trushinski@ventura.org](mailto:Brian.Trushinski@ventura.org) or (805) 477-1967. Additionally, there will be an opportunity for public comments on a draft of the plan. The comment period is anticipated to occur in July 2015; specific details will be distributed closer to the comment period date.

Follow-up Contact: Dale Carnathan, Ventura County Sheriff's Office – OES at (805)

654-5152

Approved By: Captain Randy Downard

Date of Release: March 30, 2015


Address/Location

[Ventura County Sheriff's Office](#)  
800 S Victoria Ave  
Ventura, CA 93009

Contact

Emergency: 9-1-1

Non-emergencies: 805-654-9511



 Facebook social plugin

For help, reply HELP to 888777. To cancel, reply STOP to 888777. No charge but Message & Data rates may apply. Message frequency varies.  
More info at [nixle.com](http://nixle.com). AT&T, T-Mobile®, Sprint, Verizon Wireless and most other carriers are supported. Contact customer support at [support@nixle.com](mailto:support@nixle.com)



## Ventura County Sheriff's Office Twitter Account – March 30, 2015

<https://twitter.com/venturasheriff>

The screenshot shows the Twitter profile of the Ventura County Sheriff's Office (@VENTURASHERIFF). The profile picture is the official Ventura County Sheriff's Office badge. The header image is a large, stylized version of the same badge overlaid on a scenic landscape of a coastline and mountains. The bio states: "Visit facebook.com/venturacountysheriff, instagram.com/vcsheriff and subscribe to receive NIXLE alerts at vcsd.org/nixle.php". It also lists the location as "Ventura, CA", the website "vcsd.org", and the join date "Joined March 2009". The statistics show 2,722 tweets, 363 following, 12.8K followers, 136 favorites, and 6 lists. The "Follow" button is visible. The "Tweets & replies" tab is selected, showing three tweets. The first tweet is from @VENTURASHERIFF about the 2015 Multi-Hazard Mitigation Plan. The second is a retweet from @VCSOVentura congratulating a runner. The third is a retweet from @NWSLosAngeles about record heat. A weather alert banner at the bottom indicates high temperatures for Thursday, Friday, and Saturday, with a reminder to drink plenty of water. On the right, there is a sign-up form for updates and a list of trending topics.

**Ventura Co. Sheriff**  
@VENTURASHERIFF  
Visit facebook.com/venturacountysheriff, instagram.com/vcsheriff and subscribe to receive NIXLE alerts at vcsd.org/nixle.php  
Ventura, CA  
vcsd.org  
Joined March 2009  
294 Photos and videos

**Tweets** | Tweets & replies | Photos & videos

**Ventura Co. Sheriff** @VENTURASHERIFF · 3h  
2015 Ventura County Multi-Hazard Mitigation Plan #sheriffvc nixle.us/8MG9H

Ventura Co. Sheriff retweeted  
**VCSO Ventura** @VCSOVentura · Mar 26  
Good luck to the @VENTURASHERIFF Baker to Vegas runners! @toaksvcsd @camarillovcso @OjaiPoliceDept @fillmoresheriff @VCSOVentura

Ventura Co. Sheriff retweeted  
**NWS Los Angeles** @NWSLosAngeles · Mar 26  
More record heat on the way for #Socal on Friday. #LAHeat #LAWeather #cawx

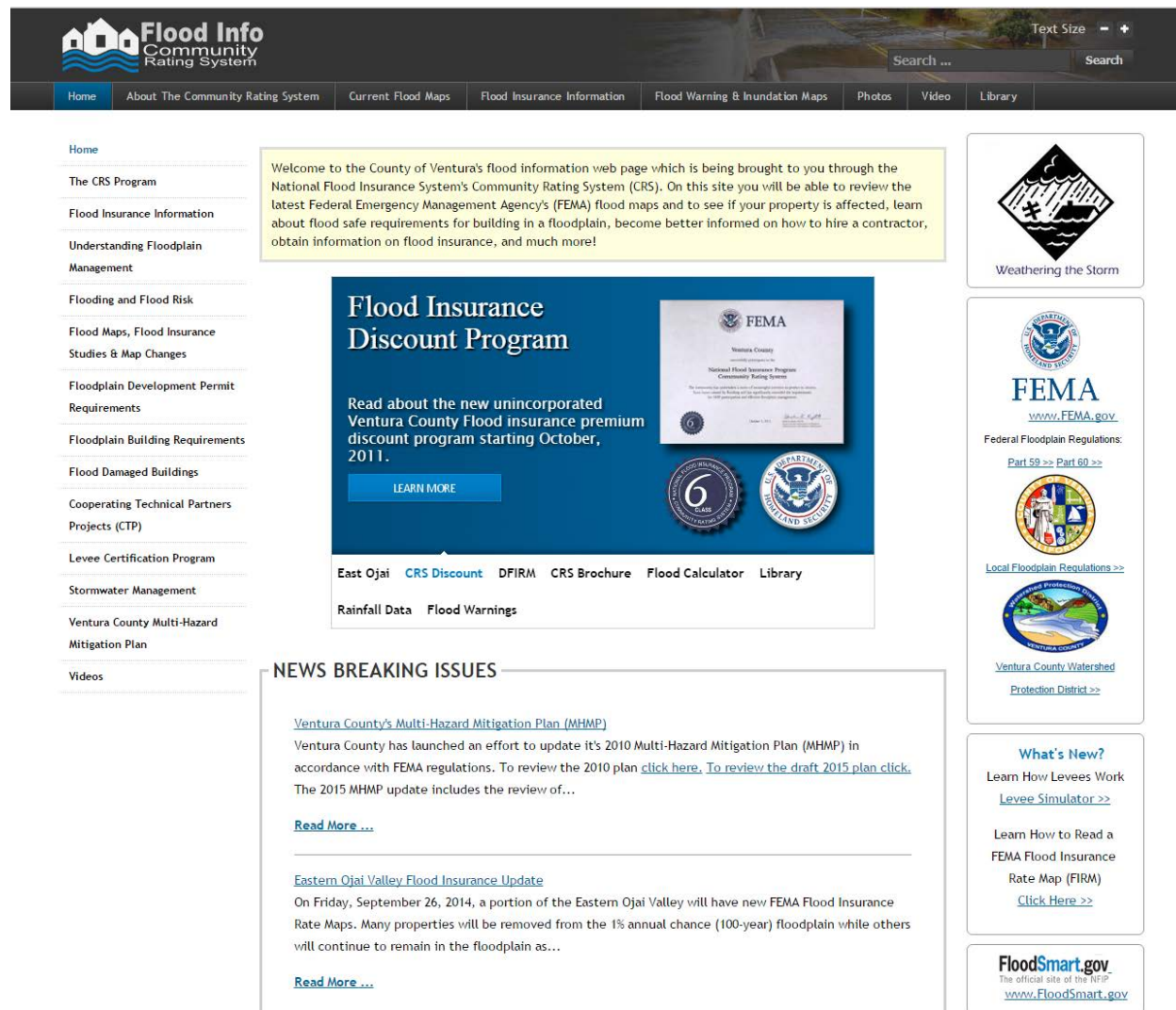
**Hot Weather Safety Actions**  
• Drink plenty of water

**Don't miss any updates from Ventura Co. Sheriff**  
Full name  
Email  
Password  
Sign up for Twitter

**Trends** · Change  
Lucha Dragons  
#masterofallwisdom  
#TIDALforALL  
Kalisto  
Zaughty  
#ruduroast  
#YouLookStupid  
#GoTPremiereNYU  
Trevor Noah  
Sassy Louis

## County of Ventura's CRS Website

(<http://www.vcfloodinfo.com/>)



The screenshot displays the County of Ventura's CRS Website. The header features the "Flood Info Community Rating System" logo and a navigation menu with links: Home, About The Community Rating System, Current Flood Maps, Flood Insurance Information, Flood Warning & Inundation Maps, Photos, Video, and Library. A search bar is located on the right side of the header.

The main content area is divided into three columns:

- Left Column (Navigation Menu):**
  - Home
  - The CRS Program
  - Flood Insurance Information
  - Understanding Floodplain Management
  - Flooding and Flood Risk
  - Flood Maps, Flood Insurance Studies & Map Changes
  - Floodplain Development Permit Requirements
  - Floodplain Building Requirements
  - Flood Damaged Buildings
  - Cooperating Technical Partners Projects (CTP)
  - Levee Certification Program
  - Stormwater Management
  - Ventura County Multi-Hazard Mitigation Plan
  - Videos
- Center Column (Main Content):**

Welcome to the County of Ventura's flood information web page which is being brought to you through the National Flood Insurance System's Community Rating System (CRS). On this site you will be able to review the latest Federal Emergency Management Agency's (FEMA) flood maps and to see if your property is affected, learn about flood safe requirements for building in a floodplain, become better informed on how to hire a contractor, obtain information on flood insurance, and much more!

**Flood Insurance Discount Program**

Read about the new unincorporated Ventura County Flood insurance premium discount program starting October, 2011.

[LEARN MORE](#)


East Ojai [CRS Discount](#) [DFIRM](#) [CRS Brochure](#) [Flood Calculator](#) [Library](#)

[Rainfall Data](#) [Flood Warnings](#)
- Right Column (Sidebar):**
  - Weathering the Storm** (with a diamond-shaped logo)
  - FEMA** (with the FEMA logo and text: [www.FEMA.gov](http://www.FEMA.gov), Federal Floodplain Regulations: [Part 59 >>](#) [Part 60 >>](#))
  - Local Floodplain Regulations >>** (with a circular logo)
  - Ventura County Watershed Protection District >>** (with a circular logo)
  - What's New?**
    - Learn How Levees Work [Levee Simulator >>](#)
    - Learn How to Read a FEMA Flood Insurance Rate Map (FIRM) [Click Here >>](#)
  - FloodSmart.gov** (The official site of the NFIP, [www.FloodSmart.gov](http://www.FloodSmart.gov))

**NEWS BREAKING ISSUES**

[Ventura County's Multi-Hazard Mitigation Plan \(MHMP\)](#)  
Ventura County has launched an effort to update its 2010 Multi-Hazard Mitigation Plan (MHMP) in accordance with FEMA regulations. To review the 2010 plan [click here](#). To review the draft 2015 plan [click](#). The 2015 MHMP update includes the review of...  
[Read More ...](#)

[Eastern Ojai Valley Flood Insurance Update](#)  
On Friday, September 26, 2014, a portion of the Eastern Ojai Valley will have new FEMA Flood Insurance Rate Maps. Many properties will be removed from the 1% annual chance (100-year) floodplain while others will continue to remain in the floodplain as...  
[Read More ...](#)



Text Size - +

Search ... Search

Home About The Community Rating System Current Flood Maps Flood Insurance Information Flood Warning & Inundation Maps Photos Video Library

Home

The CRS Program

Flood Insurance Information

Understanding Floodplain Management

Flooding and Flood Risk

Flood Maps, Flood Insurance Studies & Map Changes

Floodplain Development Permit Requirements

Floodplain Building Requirements

Flood Damaged Buildings

Cooperating Technical Partners Projects (CTP)


Levee Certification Program

Stormwater Management

Ventura County Multi-Hazard Mitigation Plan

Videos

Welcome to the County of Ventura's flood information web page which is being brought to you through the National Flood Insurance System's Community Rating System (CRS). On this site you will be able to review the latest Federal Emergency Management Agency's (FEMA) flood maps and to see if your property is affected, learn about flood safe requirements for building in a floodplain, become better informed on how to hire a contractor, obtain information on flood insurance, and much more!




**Important Flood Information!**

If you live in a floodplain, click "Learn More" to view important flood insurance information


LEARN MORE

East Ojai CRS Discount DFIRM CRS Brochure Flood Calculator Library

Rainfall Data Flood Warnings



Weathering the Storm




**FEMA**


[www.FEMA.gov](http://www.FEMA.gov)

Federal Floodplain Regulations:

[Part 59 >> Part 60 >>](#)



[Local Floodplain Regulations >>](#)



[Ventura County Watershed Protection District >>](#)

**NEWS BREAKING ISSUES**

[Ventura County's Multi-Hazard Mitigation Plan \(MHMP\)](#)

Ventura County has launched an effort to update its 2010 Multi-Hazard Mitigation Plan (MHMP) in accordance with FEMA regulations. To review the 2010 plan [click here](#). To review the draft 2015 plan [click](#). The 2015 MHMP update includes the review of...

[Read More ...](#)

---

[Eastern Ojai Valley Flood Insurance Update](#)

On Friday, September 26, 2014, a portion of the Eastern Ojai Valley will have new FEMA Flood Insurance Rate Maps. Many properties will be removed from the 1% annual chance (100-year) floodplain while others will continue to remain in the floodplain as...

[Read More ...](#)

**What's New?**

Learn How Levees Work

[Levee Simulator >>](#)

Learn How to Read a FEMA Flood Insurance Rate Map (FIRM)

[Click Here >>](#)

**FloodSmart.gov**

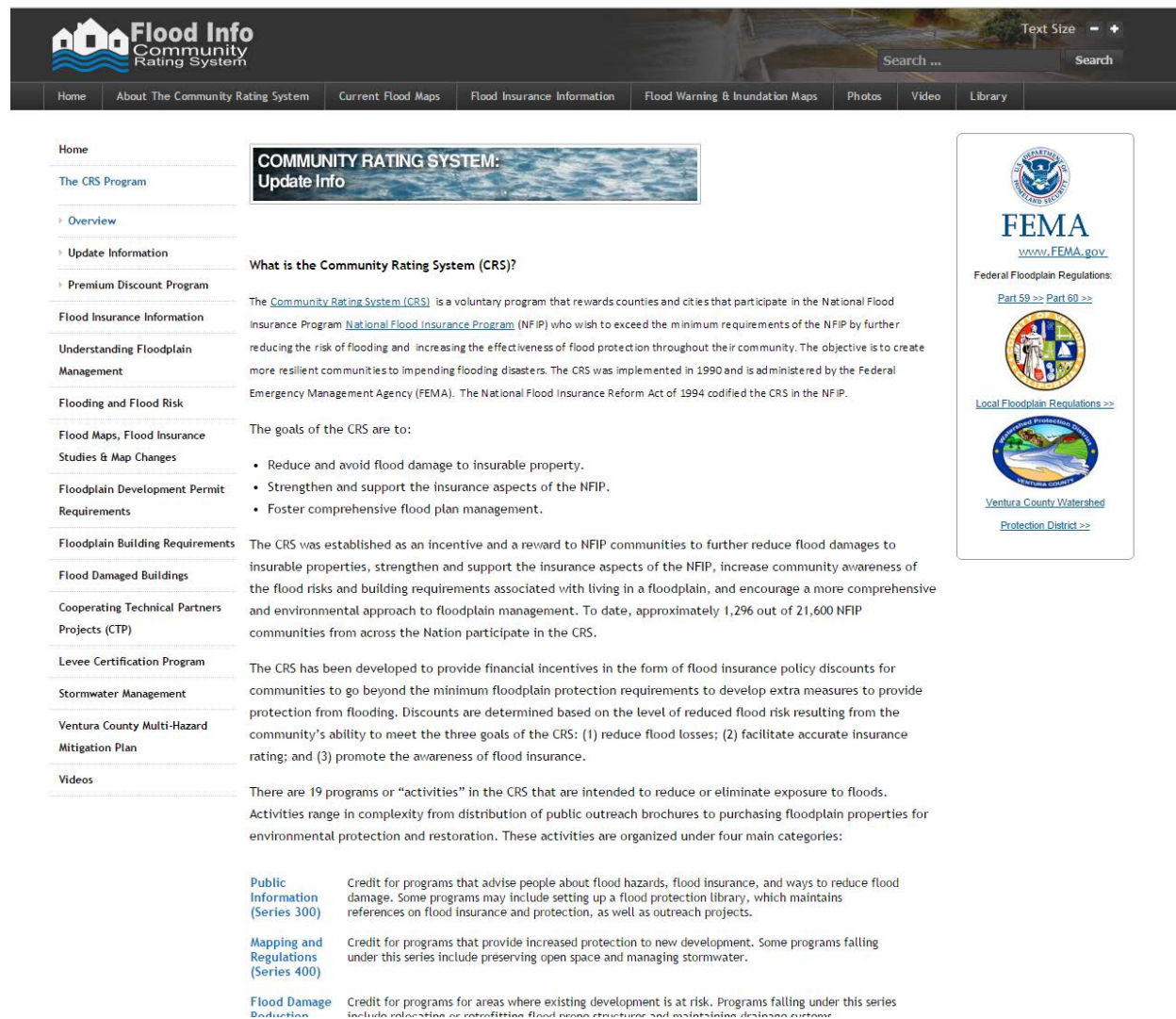
The official site of the NFIP

[www.FloodSmart.gov](http://www.FloodSmart.gov)



## About the Community Rating System

(<http://www.vcfloodinfo.com/the-crs-program/overview>)



**Flood Info Community Rating System**

Home | About The Community Rating System | Current Flood Maps | Flood Insurance Information | Flood Warning & Inundation Maps | Photos | Video | Library

Text Size - +

Search ... Search

Home

The CRS Program

Overview

Update Information

Premium Discount Program

Flood Insurance Information

Understanding Floodplain Management

Flooding and Flood Risk

Flood Maps, Flood Insurance Studies & Map Changes

Floodplain Development Permit Requirements

Floodplain Building Requirements

Flood Damaged Buildings

Cooperating Technical Partners Projects (CTP)

Levee Certification Program

Stormwater Management

Ventura County Multi-Hazard Mitigation Plan

Videos

**COMMUNITY RATING SYSTEM: Update Info**

**What is the Community Rating System (CRS)?**

The [Community Rating System \(CRS\)](#) is a voluntary program that rewards counties and cities that participate in the National Flood Insurance Program [National Flood Insurance Program \(NFIP\)](#) who wish to exceed the minimum requirements of the NFIP by further reducing the risk of flooding and increasing the effectiveness of flood protection throughout their community. The objective is to create more resilient communities to impending flooding disasters. The CRS was implemented in 1990 and is administered by the Federal Emergency Management Agency (FEMA). The National Flood Insurance Reform Act of 1994 codified the CRS in the NFIP.

The goals of the CRS are to:

- Reduce and avoid flood damage to insurable property.
- Strengthen and support the insurance aspects of the NFIP.
- Foster comprehensive flood plan management.

The CRS was established as an incentive and a reward to NFIP communities to further reduce flood damages to insurable properties, strengthen and support the insurance aspects of the NFIP, increase community awareness of the flood risks and building requirements associated with living in a floodplain, and encourage a more comprehensive and environmental approach to floodplain management. To date, approximately 1,296 out of 21,600 NFIP communities from across the Nation participate in the CRS.

The CRS has been developed to provide financial incentives in the form of flood insurance policy discounts for communities to go beyond the minimum floodplain protection requirements to develop extra measures to provide protection from flooding. Discounts are determined based on the level of reduced flood risk resulting from the community's ability to meet the three goals of the CRS: (1) reduce flood losses; (2) facilitate accurate insurance rating; and (3) promote the awareness of flood insurance.

There are 19 programs or "activities" in the CRS that are intended to reduce or eliminate exposure to floods. Activities range in complexity from distribution of public outreach brochures to purchasing floodplain properties for environmental protection and restoration. These activities are organized under four main categories:

**Public Information (Series 300)** Credit for programs that advise people about flood hazards, flood insurance, and ways to reduce flood damage. Some programs may include setting up a flood protection library, which maintains references on flood insurance and protection, as well as outreach projects.

**Mapping and Regulations (Series 400)** Credit for programs that provide increased protection to new development. Some programs falling under this series include preserving open space and managing stormwater.

**Flood Damage Reduction** Credit for programs for areas where existing development is at risk. Programs falling under this series include relocating or retrofitting flood prone structures and maintaining drainage systems.

**FEMA**  
[www.FEMA.gov](http://www.FEMA.gov)

Federal Floodplain Regulations:  
[Part 59 >>](#) [Part 60 >>](#)

[Local Floodplain Regulations >>](#)

[Ventura County Watershed Protection District >>](#)

## Ventura edhat Website – March 30, 2015

<https://ventura.edhat.com/site/tidbit.cfm?nid=150439&showcomments=T#top>  
[Comment](#)

The screenshot shows the Ventura edhat website interface. At the top, there's a header with the 'Ventura edhat' logo and a 'SUBSCRIBE FOR FREE!' banner. Below the header is a navigation bar with links for LOGIN, Twitter, facebook, and RSS. A search bar is on the left. The main content area features a sidebar with various links like 'FRESH LOCAL NEWS', 'LOGIN TO ACCOUNT', 'YOUR COMMENTS', 'EVENTS CALENDAR', 'SUBSCRIBE TO EMAIL', 'DEALS & BARGAINS', 'ADVERTISERS', 'Edhat Features', 'Where Is It?', 'Ventura History', 'Funky Town', 'Wine Lovers', 'The Dog House', 'Garden of Ed', 'Ask Edda', 'Edhat Communities', 'Santa Barbara', and 'Ventura'. The main article is titled '2015 Ventura County Multi-Hazard Mitigation Plan' and includes a 'Tweet' button, a 'Source' line, and a 'Narrative' section.

**Stay in touch with Ventura!**  
 Sign up today for the Daily Edhat Newsletter

Email:

**News Events Referrals Deals Classifieds Comments About**

**2015 Ventura County Multi-Hazard Mitigation Plan**  
 updated: Mar 30, 2015, 2:50 PM

*Source: Ventura County Sheriff's Department*

2015 Ventura County Multi-Hazard Mitigation Plan

Nature of Event: 2015 Ventura County Multi-Hazard Mitigation Plan

Date & Time: March 30, 2015 12:00 (noon)

Unit Responsible: Ventura County Sheriff's Office of Emergency Services

**Narrative:**

The Ventura County Sheriff's Office of Emergency Services (OES), in cooperation with the Ventura County Watershed Protection District, and various cities and special districts within Ventura County, is launching a countywide effort to re-assess risks posed by natural and human-caused disasters and identify ways to reduce those risks.

The planning process will result in the preparation of an updated Multi-Hazard Mitigation Plan (MHMP). The County developed their first MHMP in 2005, updated the plan in 2010 and is kicking-off the 2015 plan update process. An updated version of the plan is required under the Federal Disaster Mitigation Act of 2000 in order to be eligible to continue to receive certain forms of Federal disaster assistance. OES has received a grant from the Federal Emergency Management Agency (FEMA) for preparation of the updated plan.



Ventura County Star – April 4, 2015

# Grant to help update disaster plan

## ■ FEMA gives county \$150K to gauge risks

**By Megan Diskin**  
megan.diskin@vcstar.com  
805-437-0258

Officials in Ventura County will assess possible hazards over the next six months as they update a plan to reduce long-term risks from natural and human-caused disasters.

The Ventura County Sheriff's Office of Emergency Services announced this week a grant of about \$150,000 from the Federal Emergency

Management Agency to help update the county's multihazard mitigation plan, said Dale Carnathan, a program administrator in the office.

Emergency Services and the Ventura County Watershed Protection District are launching the effort, officials said in a news release. About 40 agencies will evaluate potential areas and structures at risk during disasters, Carnathan said.

The document is supposed to be updated every five years, and FEMA has told the county to include plans this time for dealing with climate change, Carnathan said. Drought

strategies also will be included, he said.

Once the plan is approved by the Ventura County Board of Supervisors and state and federal officials, the county can apply for additional grants to fund specific projects, Carnathan said. Grant money in the past has been used to reinforce old masonry buildings against earthquakes and conduct controlled burns, he said.

Wildfire season is an "upcoming event of interest" that probably will get attention in the update, he said.

"As often as we mitigate one end of the county,

the other end burns," Carnathan said.

An updated plan also allows the county to continue participating in the National Flood Insurance Program's Community Rating System, officials said. The system provides flood insurance discounts to participants who take flood-prevention measures. Carnathan said Ventura County is one of the highest-rated participants in the state.

A public-comment period on a draft plan will be offered in July. Details on how residents can voice opinions will be provided closer to the date, officials said.

*The Star April 4, 2015*


MHMP Website

### Ventura County MHMP Project Website

<http://www.venturacountymhmp.com/>

venturacountymhmp.com/committees

Apps Customize Links Hotmail UASI HMPs Travel\_Expenses The Source - Home Deltak Time & Expe... 511.org Diablo CrossFit | Fit ... PIMS Other bookmarks

 **Ventura County Multi-Hazard Mitigation Plan**

Home Committees Plan Participation Documents Contact Us

## Committees

For this project, two committees have been established: a committee to focus on hazard mitigation planning requirements (MHMP Committee), and a committee to focus specifically on the floodplain management planning requirements (FMP Committee).

The Committees will:

- Guide development of the plan
- Review and update jurisdiction-specific information
- Review and provide input on draft plans

The planning process will occur from March – August 2015. Meeting information is provided below. For further information about the project and/or if you are interested in participating in the plan update process, please contact Dale Carnathan at [dale.carnathan@ventura.org](mailto:dale.carnathan@ventura.org) or (805) 654-5152. For further information specific to CRS and the CRS requirements, please contact Brian Trushinski at [Brian.Trushinski@ventura.org](mailto:Brian.Trushinski@ventura.org) or (805) 477-1967.

### MHMP Committee

[MHMP Committee Meeting #2:](#) Tuesday, May 19, 2015 (10:00AM-12:00PM)  
[MHMP Meeting Agenda:](#) [Agenda\\_MHMP PC Mitg 2.pdf](#)

### FMP Committee

[FMP Committee Meeting #1:](#) Thursday, April 30, 2015 (13:30-15:00PM)

### MHMP Committee

[Emergency Planning Committee Meeting:](#) Thursday, April 30, 2015 (10:30-11:30AM)

### News and Announcements


2015 Ventura County MHMP Update is underway!  
[Project Kickoff Media Release \(link\)](#)

### Upcoming Events

[MHMP Committee Meeting #2](#)  
Ventura County Sheriff's Pre-Trial Detention Facility - West County Training Room,  
800 S. Victoria Ave  
Ventura, CA 93009  
Tuesday, May 19, 2015 (10:00AM-12:00PM)

### Latest Document

- [2010 MHMP Plan \(Redacted\)](#)
- [MHMP Media Release](#)

**VENTURA COUNTY SHERIFF**  
**OES**  **Office of  
Emergency  
Services**



www.venturacountymhmp.com/documents

Apps Customize Links Hotmail UASL HMPs Travel\_Expenses The Source - Home 511.org Diablo CrossFit | Fit ... PIMS AECOM Bookmarks



# Ventura County Multi-Hazard Mitigation Plan

Home Committees Plan Participation Documents Contact Us

## 2015 MHMP Draft Documents


Please provide comments on the draft plan to [Lindsey.Trumpy@aecom.com](mailto:Lindsey.Trumpy@aecom.com).

Ventura HMP DRAFT



3701 Las Posas Rd  
Camarillo, CA 93010  
Saturday, July 25, 2015 (10:00AM-12:00PM)  
Ventura County Emergency Planning Council  
(EPC) Meeting  
816 Camarillo Springs Road,  
The Orchid Professional Building  
Camarillo, CA 93012  
Thursday, July 30, 2015 (10:00AM-12:00PM)




2015 Ventura County MHMP Draft and  
2015 Draft Hazard Maps



## Online Questionnaire



**Online Questionnaire – Website Link Located on MHMP Website**



## Ventura County Multi-Hazard Mitigation Plan Questionnaire

This questionnaire is designed to help the Ventura County Sheriff's Office of Emergency Services and Ventura County Watershed Protection District identify the community's concerns about natural and human-caused hazards. The questionnaire should be completed by an adult, preferably the homeowner or the head of the household. All individual responses are strictly confidential and for research purposes only.

**1. Are you a resident of Ventura County?**

☐ Yes

☐ No

**2. If "yes" to question 1, how many years have you lived in Ventura County?**

☐ 0-1 years

☐ 2-5 years

☐ 6-10 years

☐ 11 or more years

**3. What hazards have you experienced in Ventura County?**  
(check all that apply)

☐ Agricultural Infestation

☐ Drought

☐ Earthquake

☐ Flood

☐ Landslide/Mudslide

☐ Liquefaction

☐ Post-Fire Debris Flow

☐ Severe Winter Storm

☐ Tsunami

☐ Wildfire

**4. Are you aware that Ventura County has a Multi-Hazard Mitigation Plan – a plan that is written to guide how a community will lower its risk and exposure to disasters?**

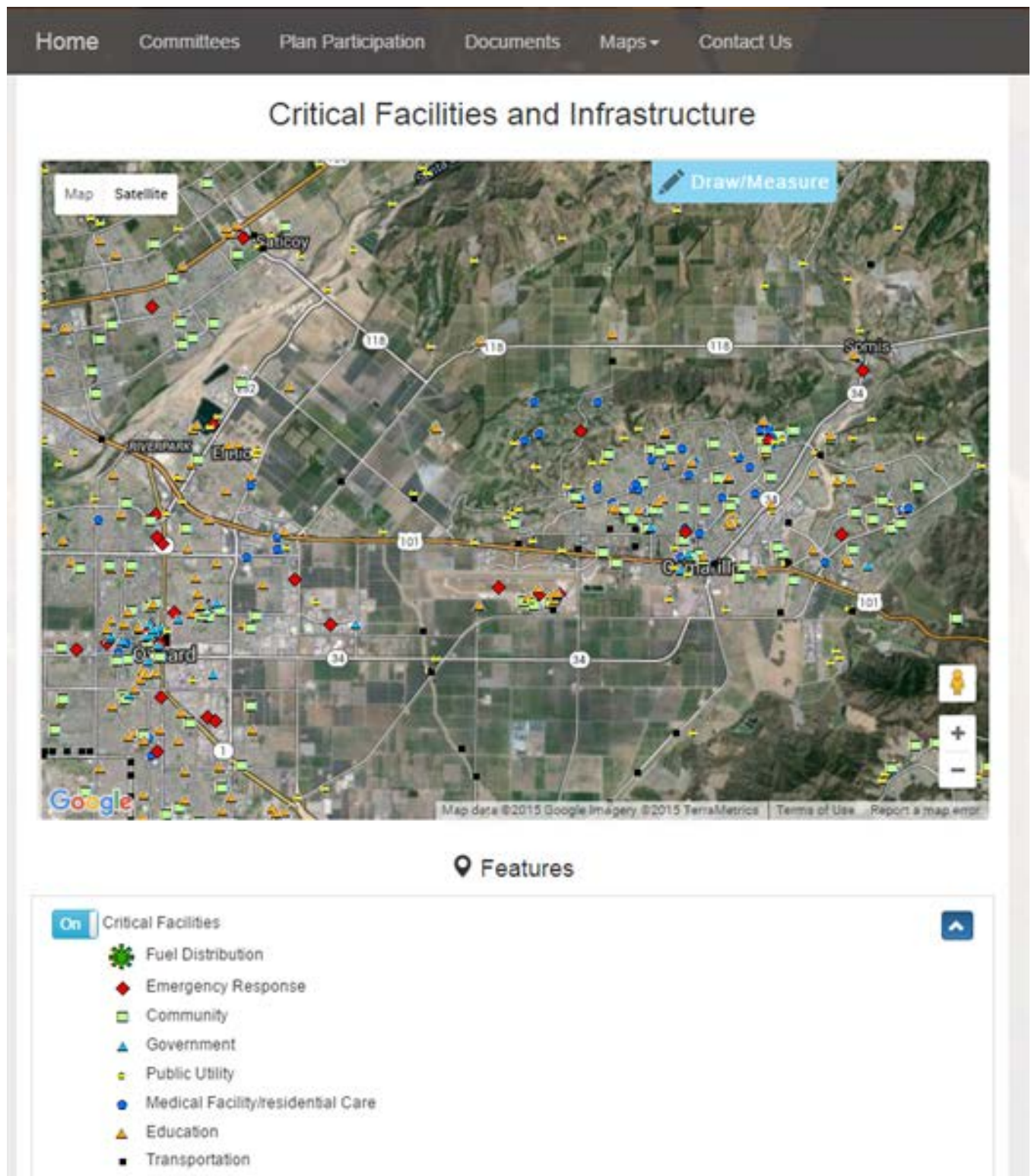
☐ Yes

☐ No

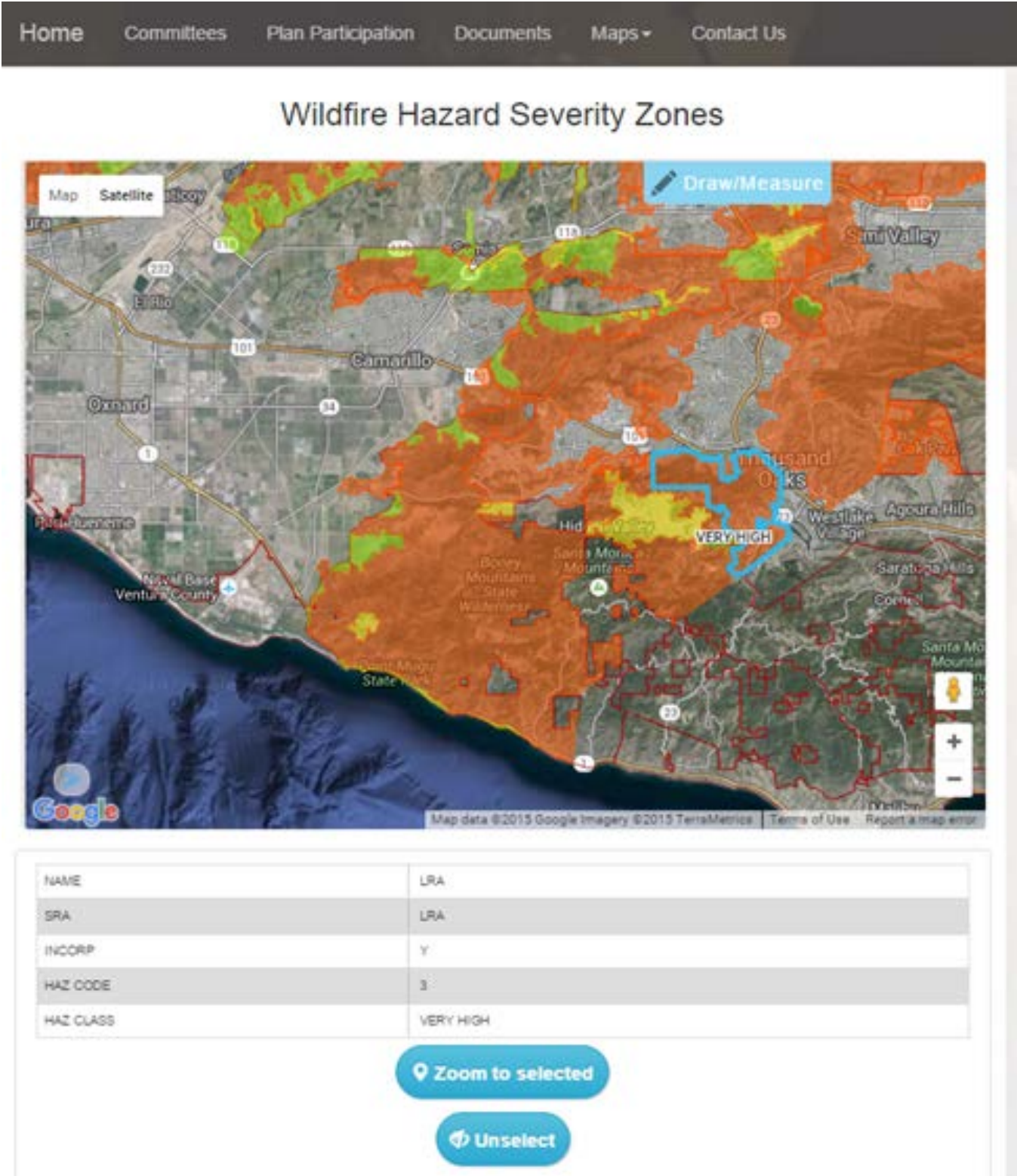
**5. What activities have you or someone in your household done?**  
(Check all that apply)

☐ Attended meetings or received written information on natural disasters or emergency preparedness

Web Portal







## Emergency Planning Council Meetings





### **2014 Membership**

#### ***Executive Leadership***

*Kathy Long, Chair  
Geoff Dean, Vice Chair  
Kevin McGowan  
Mark Lorenzen*

#### ***Extended Leadership***

*Mike Powers  
Jim McGee  
Barry Fisher  
Debbie Traffenstedt*

#### ***Members At-Large***

*Jeff Pratt  
Maggie Tougas  
CAPT Chris Janke  
David Endaya  
John Reid  
David Barley  
Paul Grossgold  
Rigoberto Vargas  
Jeri Williams*

#### ***Alternates***

*Linda Parks  
Steve Decesari  
Patrick Maynard  
Vaughan Miller  
Christy Madden  
Barry Zimmerman  
Meloney Roy  
Jay Spurgin  
Lt Col. Joe Wildman  
Laura Hernandez  
Rigo Landeros  
Dr. David Banks  
Dr. Dick Rush  
Ron Van Dyck  
Steve Carroll  
Ken Corney*

### **VENTURA COUNTY EMERGENCY PLANNING COUNCIL (EPC)**

Thursday, April 30 – 10:00 A.M. TO 11:00 A.M.

Ventura County Sheriff's Pre-Trial Detention Facility – West County Training  
Room  
800 S. Victoria, Ventura, CA 93009

- I. Call to Order, Introductions/Declaration of Quorum, Pledge of Allegiance (5 Minutes)
- II. Public Comment (5 Minutes)
- III. Operational Area Hazard Mitigation Plan Briefing (15 Minutes)
- IV. EPC Funding Priorities (10 Minutes)
- V. Mission Incident and Camarillo Springs Debris Flow Briefing (15 Minutes)
- VI. Roundtable discussion
- VII. Meeting Adjourned

***Mission Statement***

*The Emergency Planning Council will lead a unified effort to improve Operational Area disaster preparedness, response, recovery and mitigation efforts. These efforts are achieved through a partnership of cooperation and collaboration with government, non-governmental and private sector organizations.*

***Committees******Business Preparedness***

David Barley – Amgen  
Dr. David Banks – DacarEnterprise

***Emergency Telecommunications***

Scott Allison, VC-ITS

***Infrastructure***

Jeff Pratt, Director VCPW  
Jay Spurgin, TO Public Works

***Logistics***

Paul Grossgold, VCGSA

***Mass Care***

Jim McGee, Exec. Director ARC  
Barry Zimmerman, Director, HSA

***Nuclear Safety (Adhoc)***

Dr. Robert Levin

***Plan Review***

Dale Carnathan, OES

***Public Information and Education***

Bill Nash, CEO  
Sheila Murphy, HCA

***Strategic Planning***

Ron Van Dyck, Dep. Director GSA  
Christy Madden, CEO

*For EPC information contact*

*Sheriff's OES at  
(805) 654-2551*

**2015 Meeting Dates**

**July 30, 2015 – 10:00 am to 11:00 am**  
**October 29, 2015 – 10:00 am to 11:00 am**

**If we can't REACH you, we can't ALERT you!**



To register, go to [www.vcalert.org](http://www.vcalert.org)

**2015 Membership*****Executive Leadership***

*Kathy Long, Chair  
Geoff Dean, Vice Chair  
Kevin McGowan  
Mark Lorenzen*

***Extended Leadership***

*Mike Powers  
Jim McGee  
Barry Fisher  
Debbie Traffenstedt*

***Members At-Large***

*Jeff Pratt  
Maggie Tougas  
CAPT Chris Janke  
David Endaya  
John Reid  
David Barley  
Paul Grossgold  
Rigoberto Vargas  
Jeri Williams*

***Alternates***

*Linda Parks  
Steve DeCesari  
Patrick Maynard  
Vaughan Miller  
Christy Madden  
Barry Zimmerman  
Meloney Roy  
Jay Spurgin  
Lt Col. Joe Wildman  
Laura Hernandez  
Rigo Landeros  
Dr. David Banks  
Dr. Dick Rush  
Ron Van Dyck  
Steve Carroll  
Ken Corney*

**VENTURA COUNTY  
EMERGENCY PLANNING COUNCIL (EPC)**

Thursday, July 30 – 10:00 A.M. TO 11:00 A.M.

**The Orchid Professional Building  
816 Camarillo Springs Road, Camarillo, CA 93012**

- I. Call to Order, Introductions/Declaration of Quorum, Pledge of Allegiance (5 Minutes)
- II. Public Comment (5 Minutes)
- III. Operational Area Hazard Mitigation Plan Final Briefing (25 Minutes)
- IV. Major Incident Debrief – February 24<sup>th</sup> Metrolink Derailment (15 Minutes)
- V. Roundtable Comments (10 Minutes)
- VI. Meeting Adjourned

## Town Hall



# Hazard Mitigation Plan

**SATURDAY, JULY 25, 2015 10 AM–12 PM**

**TRAINING ROOM - CAMARILLO POLICE DEPARTMENT  
3701 LAS POSAS RD, CAMARILLO, 93010**

**TOWN  
HALL**

Ventura County has launched a regional effort to review the risks posed by natural and human-caused hazards and to identify ways to reduce the damage from those risks through the update of a County-wide Hazard Mitigation Plan. Additionally this project will support the County's participation in the National Flood Insurance Program's Community Rating System (CRS) program by addressing floodplain management planning activities.

We invite you to attend a town hall to learn about the planning efforts and to provide your input regarding your concerns about natural and human-caused hazards.

Please join us anytime between 10am and 12pm.

**A formal 15 minute presentation will occur on the hour at 10am, and 11am the remainder of each hour will be an open forum to ask questions, view maps, and interact with the project staff.**

## POINTS OF CONTACT

Dale Carnathan - Ventura County OES  
[Dale.Carnathan@ventura.org](mailto:Dale.Carnathan@ventura.org)  
805-654-5152



Lindsey Trumpy - AECOM  
[Lindsey.Trumpy@aecom.com](mailto:Lindsey.Trumpy@aecom.com)  
510-874-3171







## CRS Information Brochure

**Brochure**

## 2015 Ventura County Multi-Hazard Mitigation Plan

The Ventura County Sheriff's Office of Emergency Services (OES), in cooperation with the Ventura County Watershed Protection District (VCWPD), and various cities and special districts within Ventura County, has launched a countywide effort to re-assess risks posed by natural and human-caused disasters and identify ways to reduce those risks.

The planning process will result in the preparation of an updated Multi-Hazard Mitigation Plan (MHMP). The County developed their first MHMP in 2005, updated the plan in 2010 and is now underway with the 2015 plan update process. An updated version of the plan is required under the Federal Disaster Mitigation Act of 2000 in order to be eligible to continue to receive certain forms of Federal disaster assistance. OES has received a grant from the Federal Emergency Management Agency for preparation of the updated plan. Additionally, the updated 2015 MHMP will support the County's participation in the National Flood Insurance Program's Community Rating System (CRS) program by addressing the program's Floodplain Management Planning activities. To earn CRS credits and participate in the CRS program, communities must illustrate that they have gone beyond the minimum floodplain protection requirements and have developed extra measures to provide protection to their community from flooding. In 2010, Unincorporated Ventura County entered the CRS program with a 20% annual flood insurance premium discount. Unincorporated Ventura County is the first county in California to enter the program at that level.

Ventura County is vulnerable to a wide range of disasters. In the past fifteen years, Ventura County has received multiple Presidential disaster declarations and State Emergency Proclamations due to various natural disasters including the hazards of winter storm, drought and wildfire. The risks posed by these hazards and other hazards increases as the County's population continues to grow. The 2015 MHMP will provide the County, the participating cities and special districts with the necessary tools to identify these risks and prioritize future actions for reducing these risks. Additionally, the plan will provide a framework for future requests for Federal assistance to institute risk-reducing actions.

Information about the 2015 MHMP update, including new hazard maps and an online questionnaire, can be found at: [www.2015MHMP.com](http://www.2015MHMP.com). Information about the CRS program can be found at: <http://www.vcfloodinfo.com/>. In addition, there will be an opportunity for public comments on the draft plan. The comment period is anticipated to occur in July 2015, with an Open House on July 25th from 10:00 am. to Noon at the Camarillo Police Department: 3701 East Las Posas Road, Camarillo, CA.

For more information about the project, please contact Dale Camathan at the Ventura County Sheriff's OES at [Dale.Camathan@ventura.org](mailto:Dale.Camathan@ventura.org) or Brian Trushinski at the VCWPD at: [Brian.Trushinski@ventura.org](mailto:Brian.Trushinski@ventura.org)

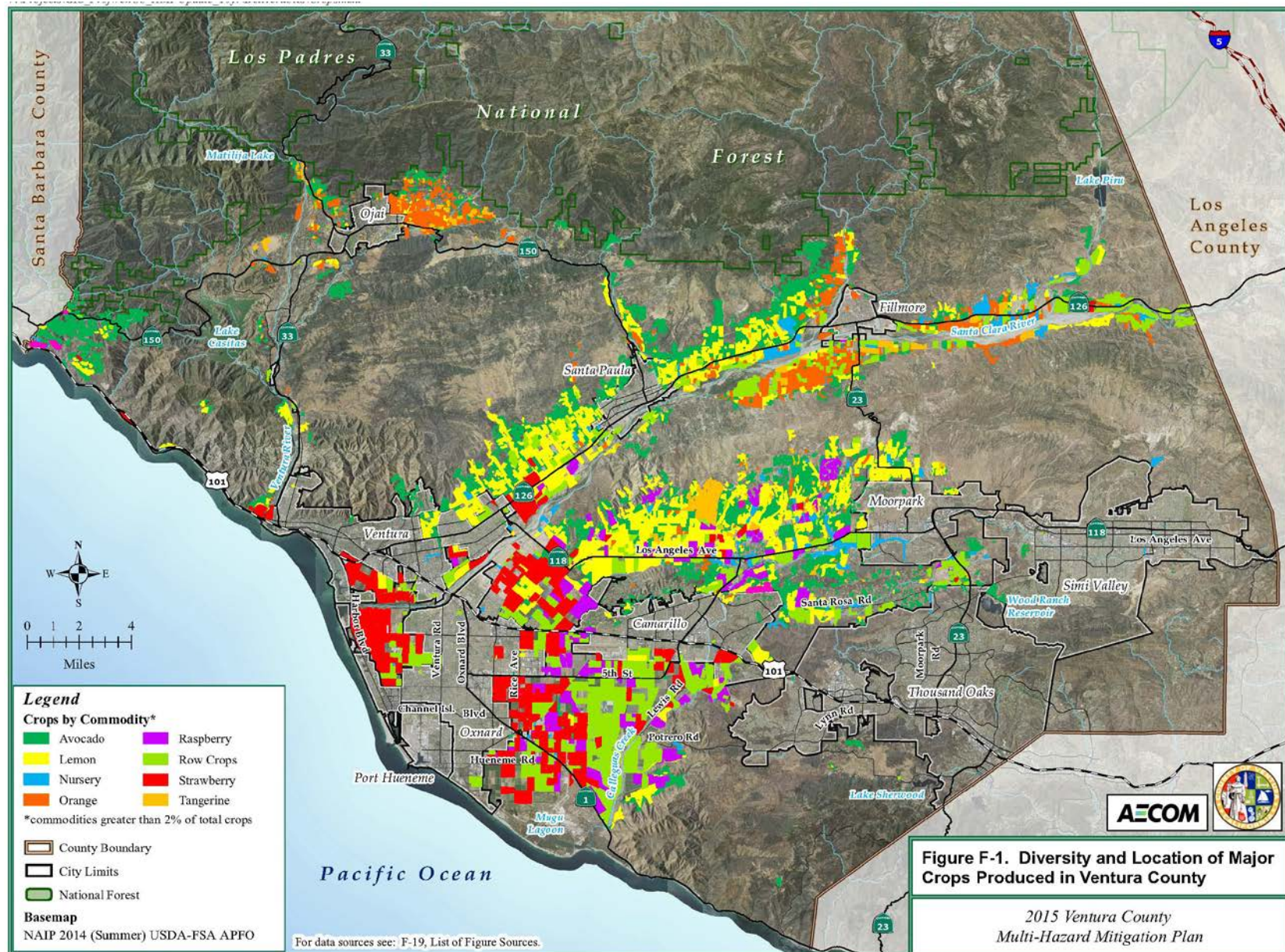
*This page intentionally left blank*

## Appendix F

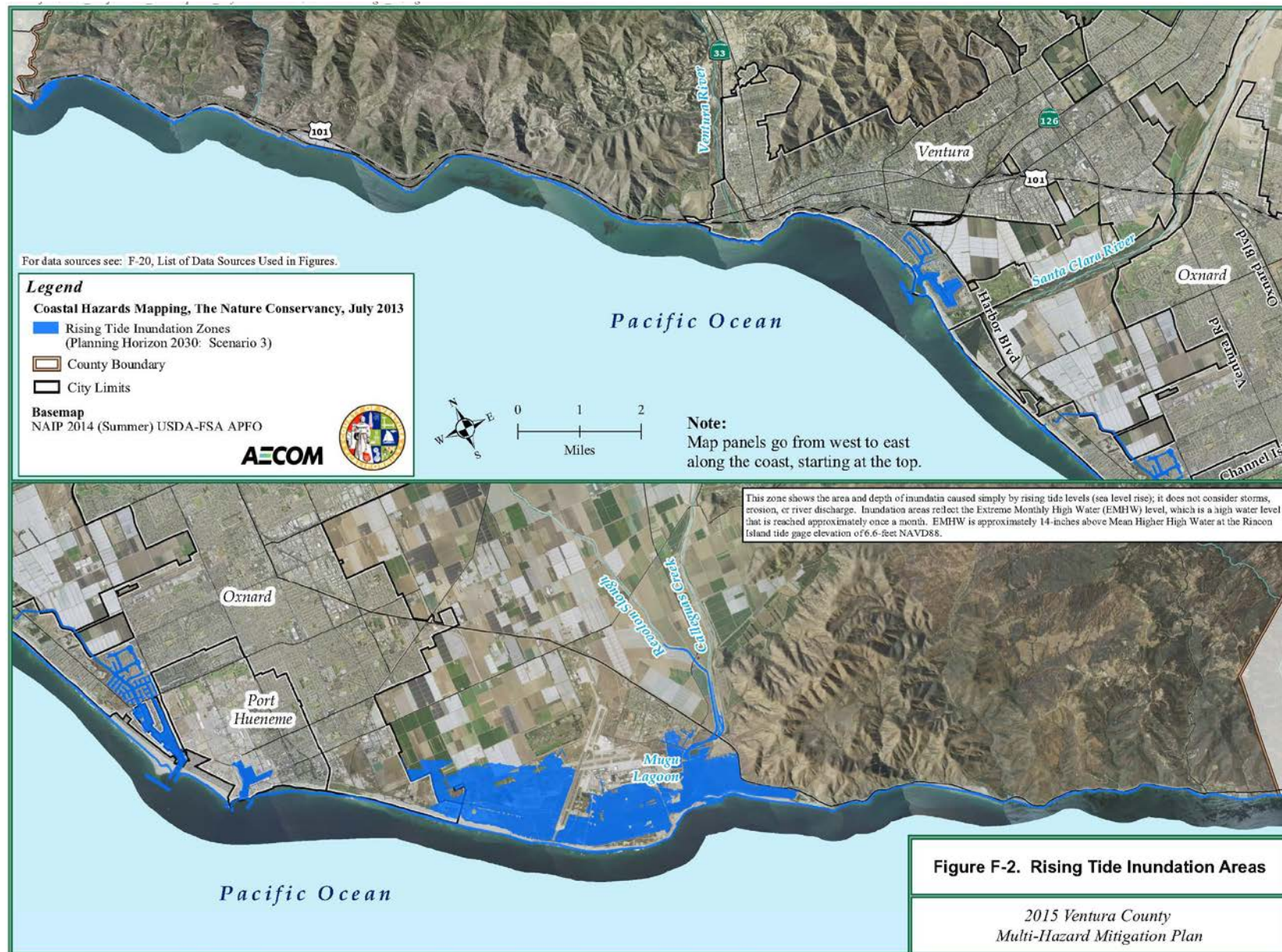
### Figures



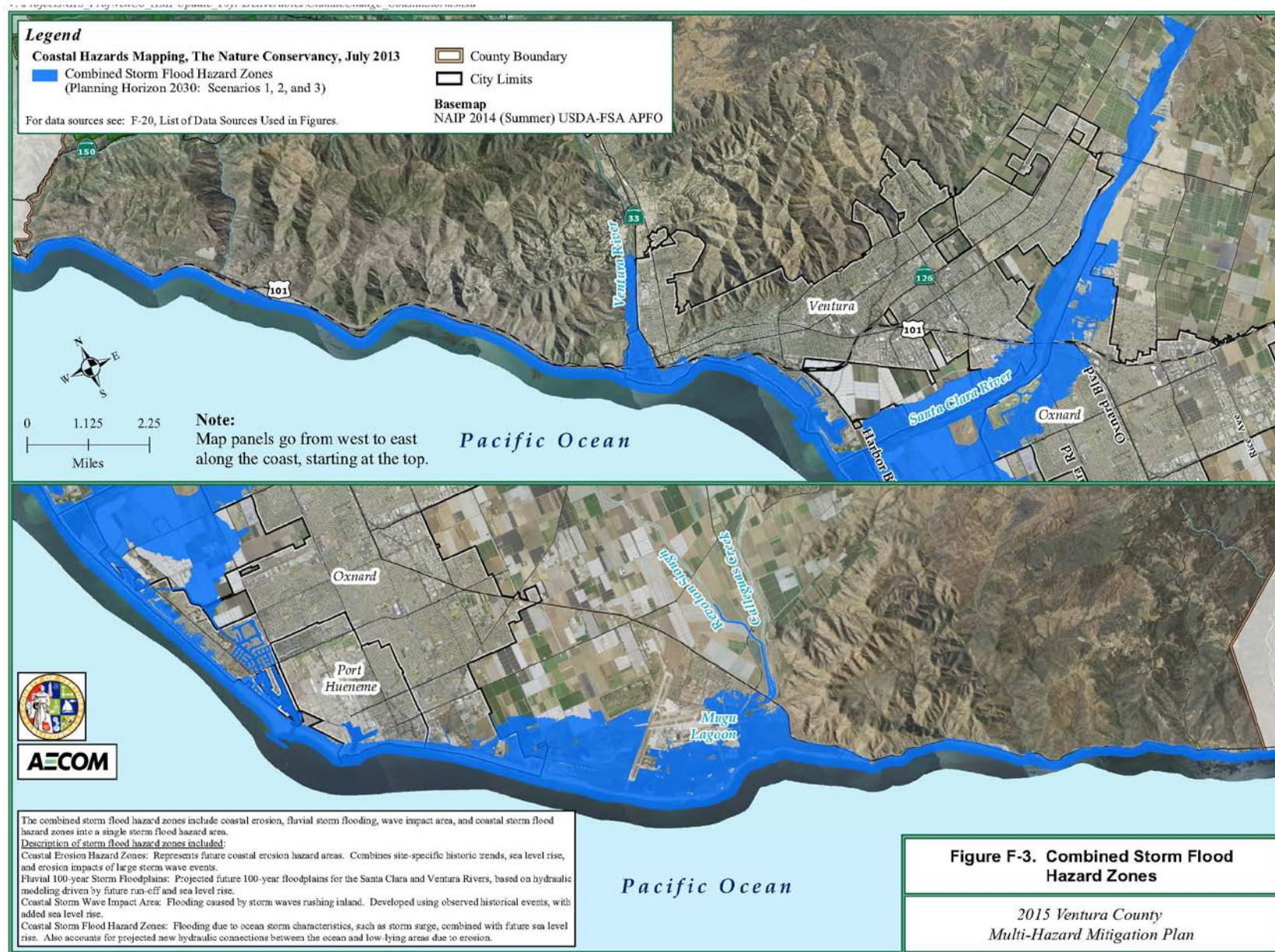
*This page intentionally left blank*



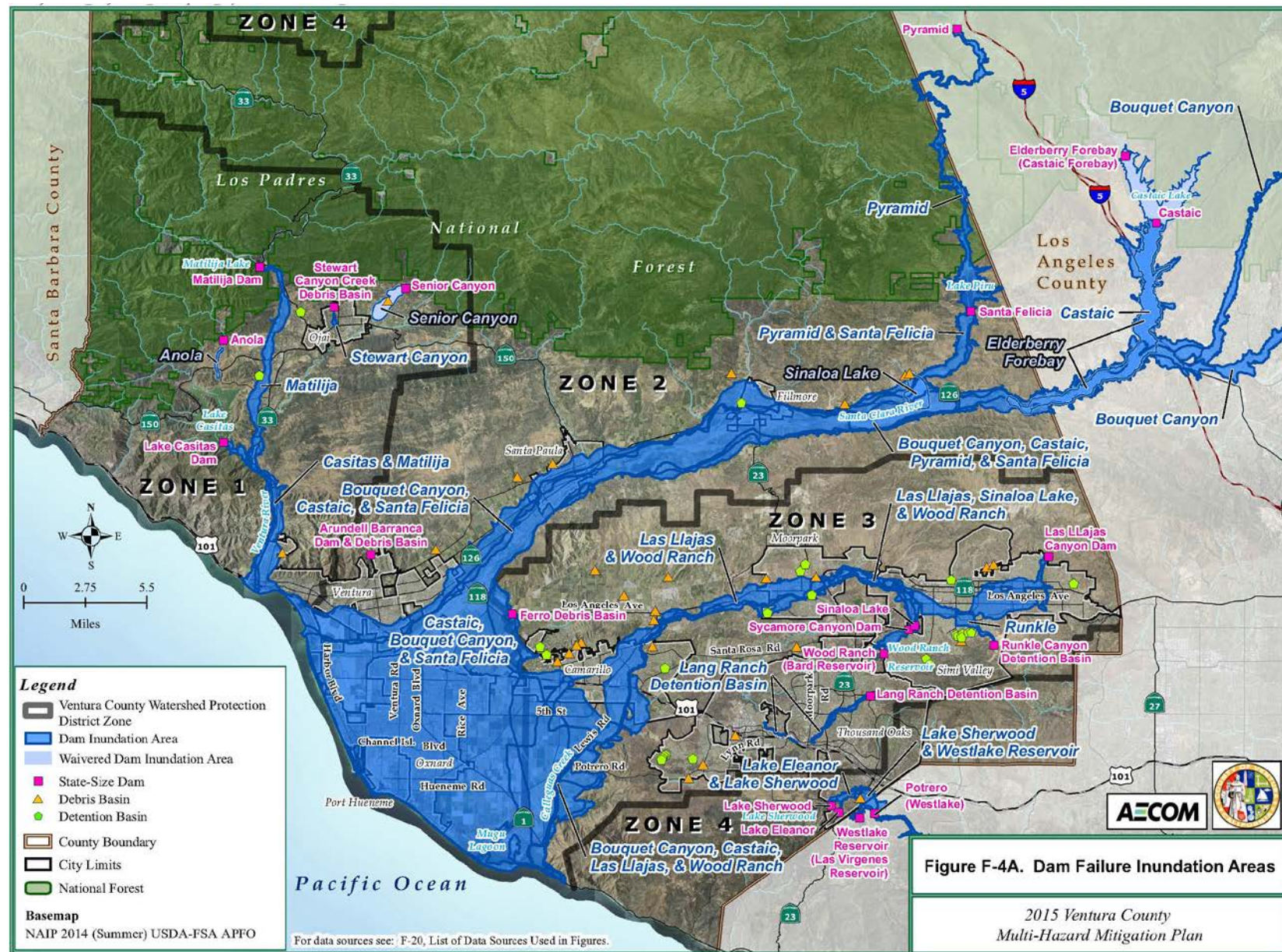




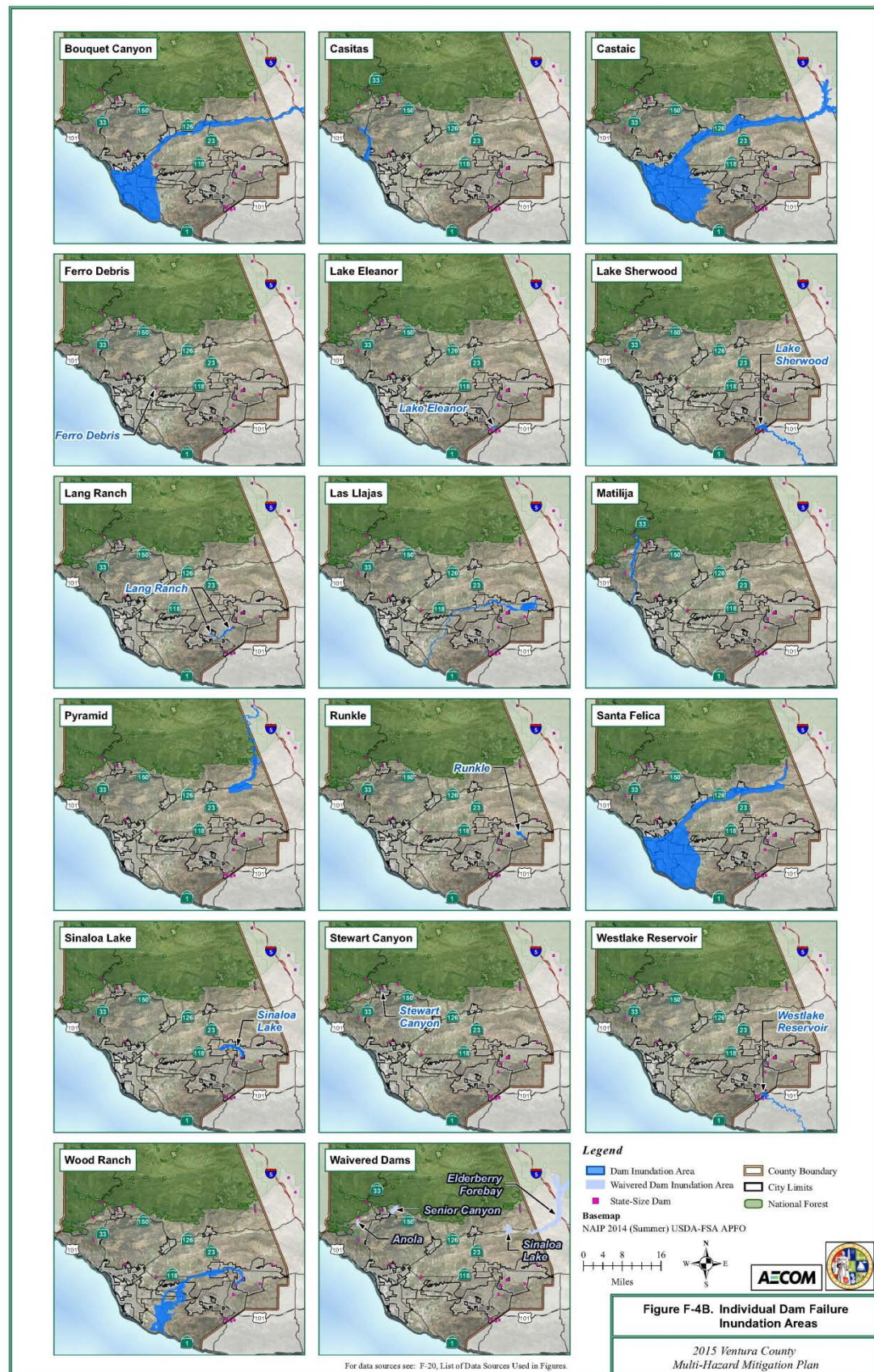




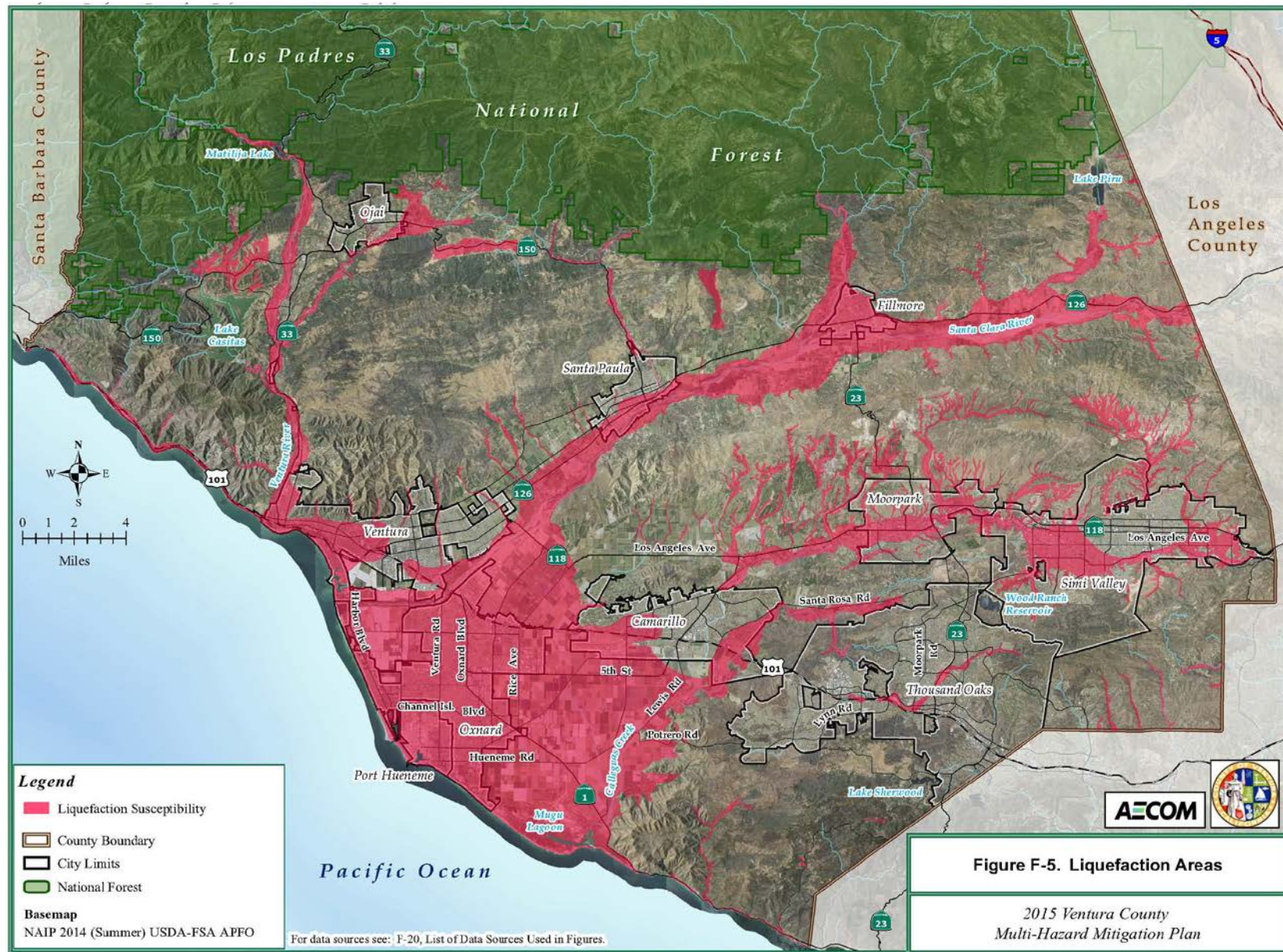




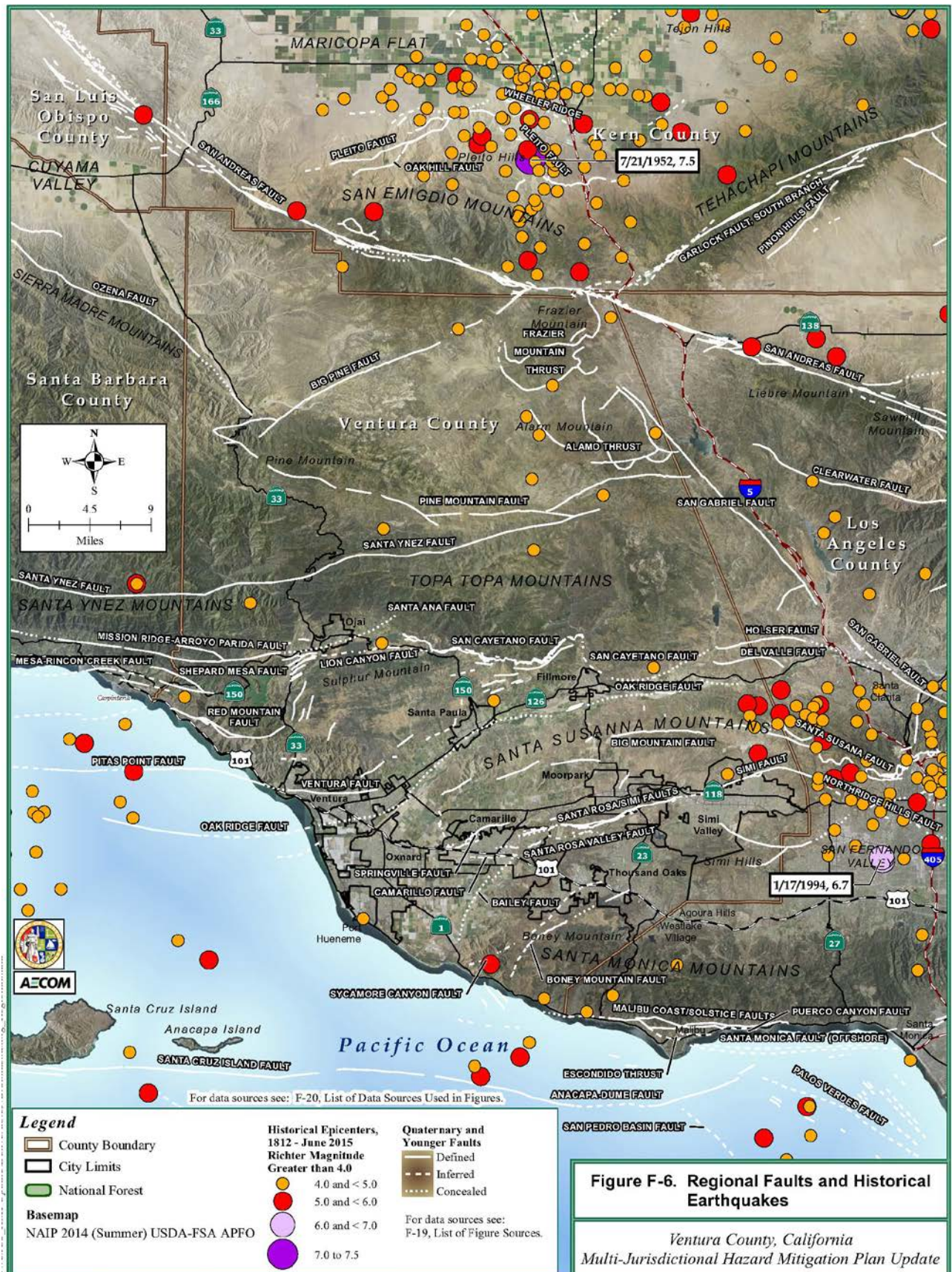




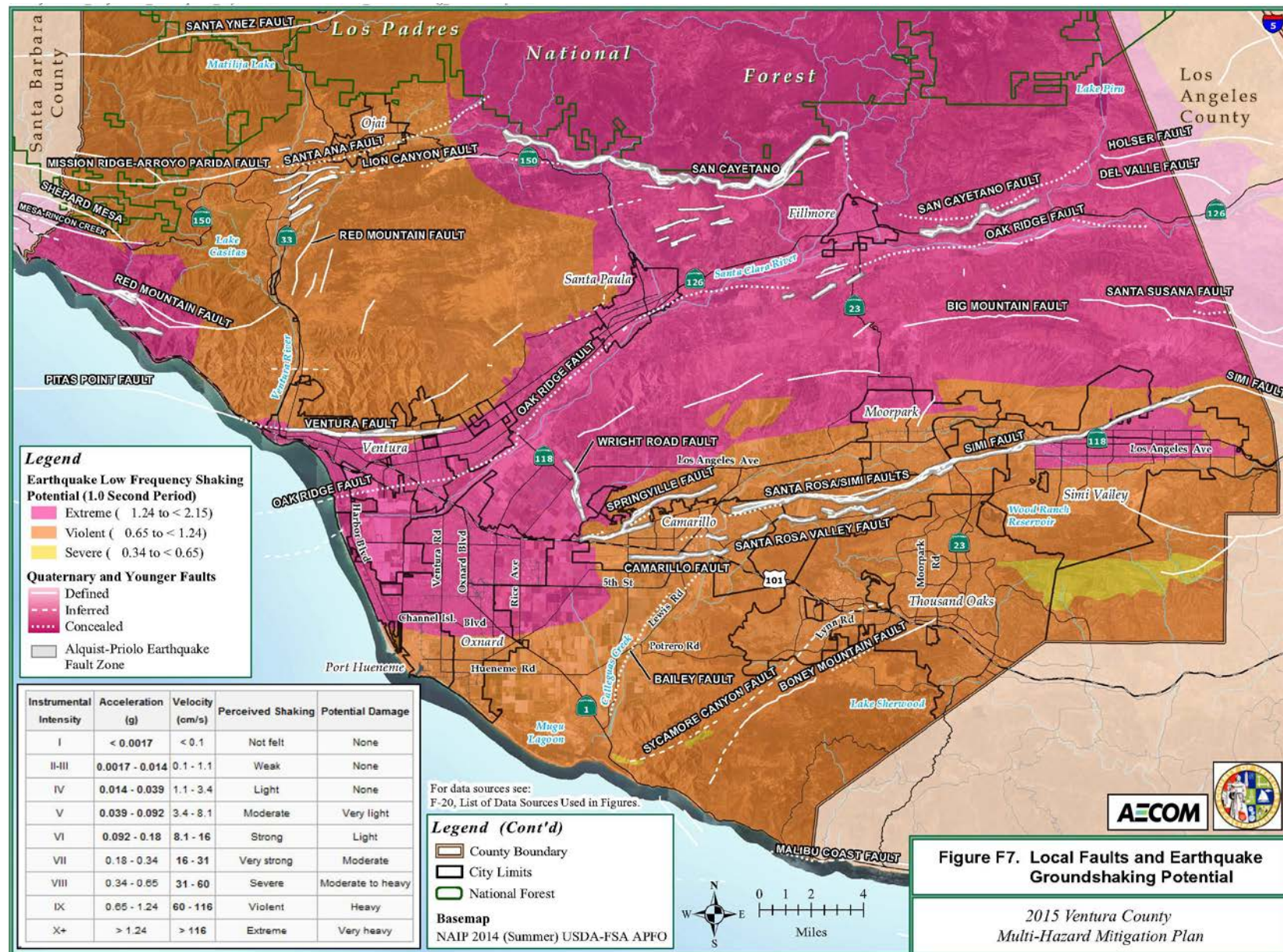




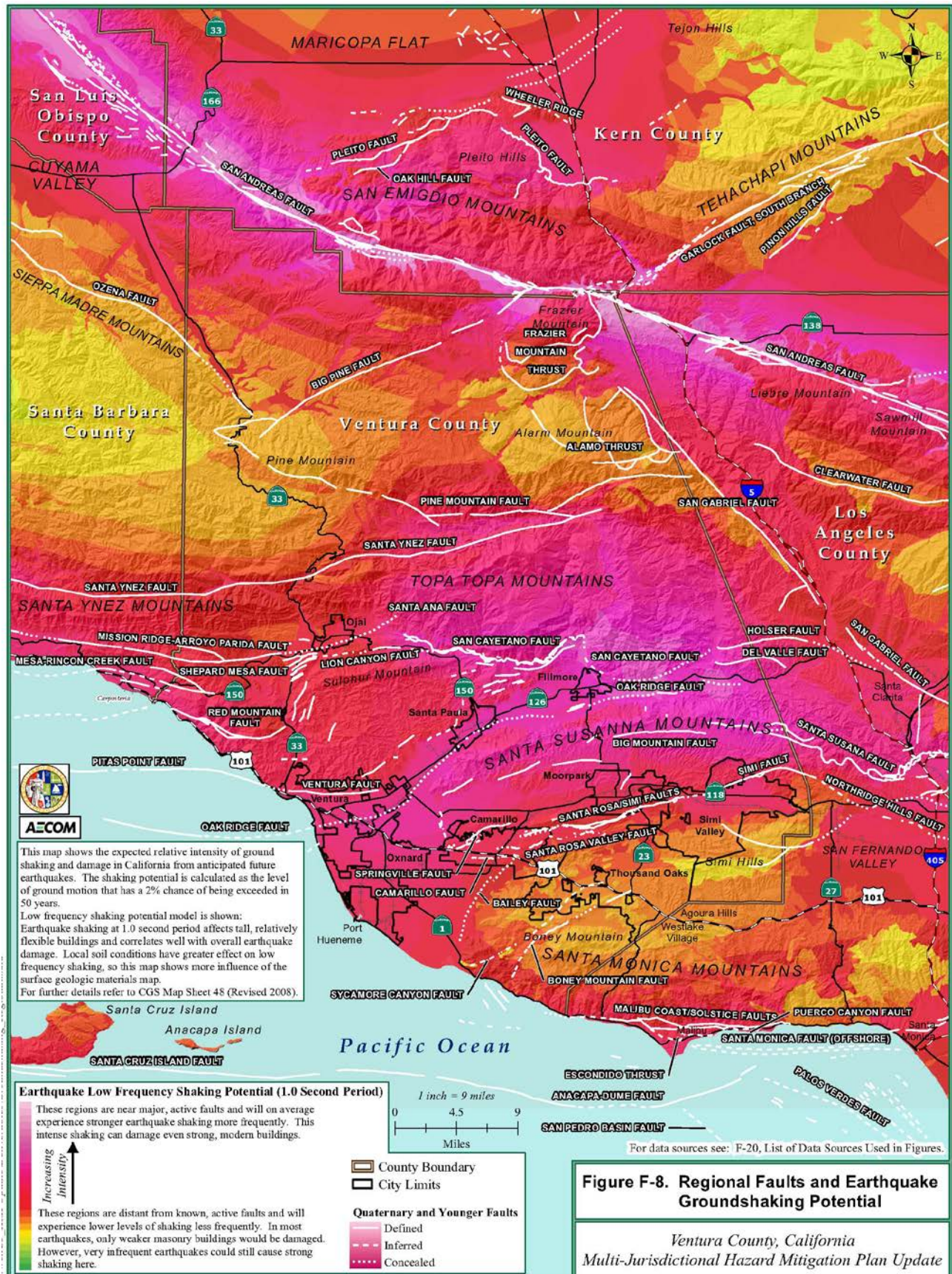








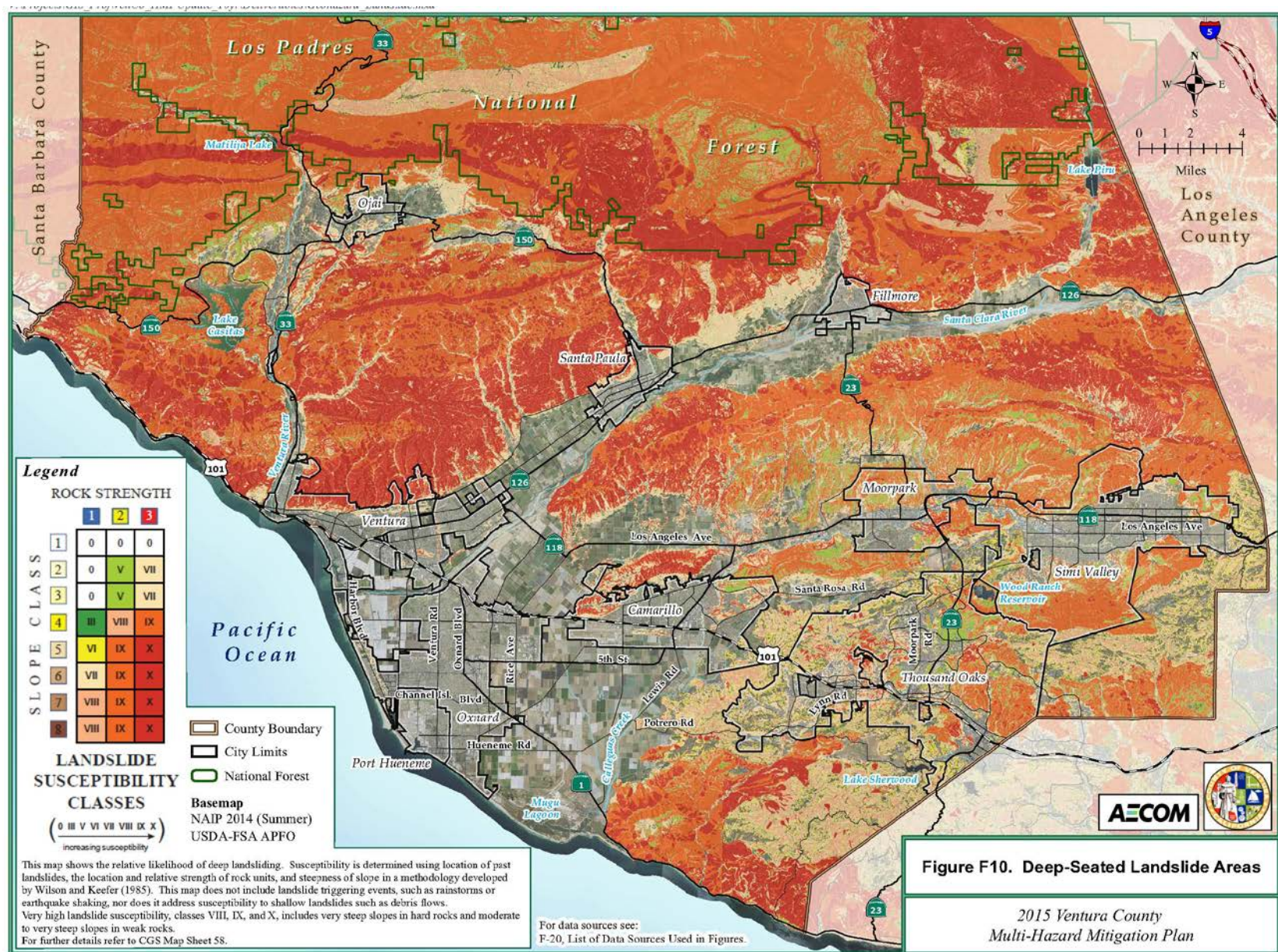




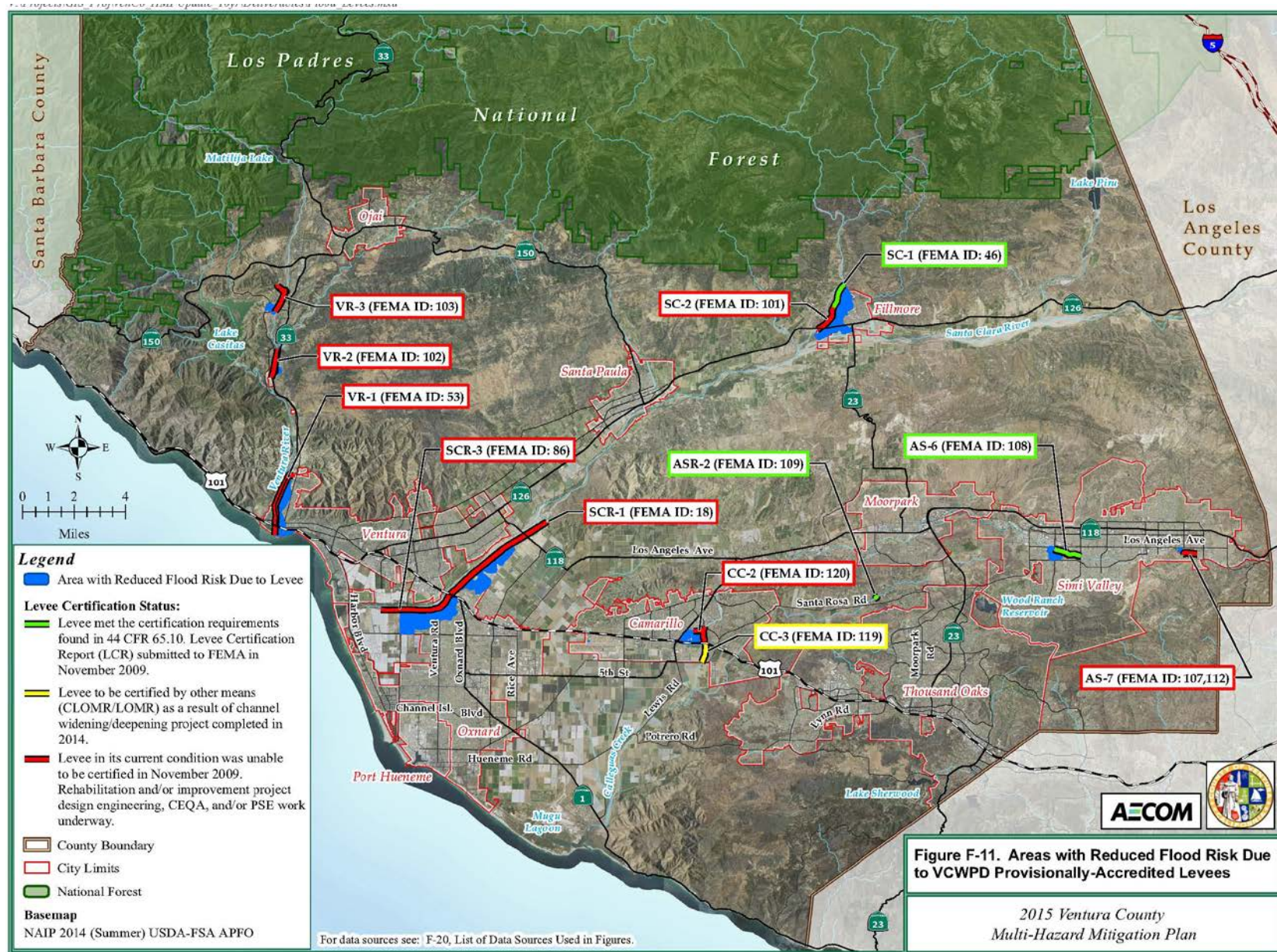
















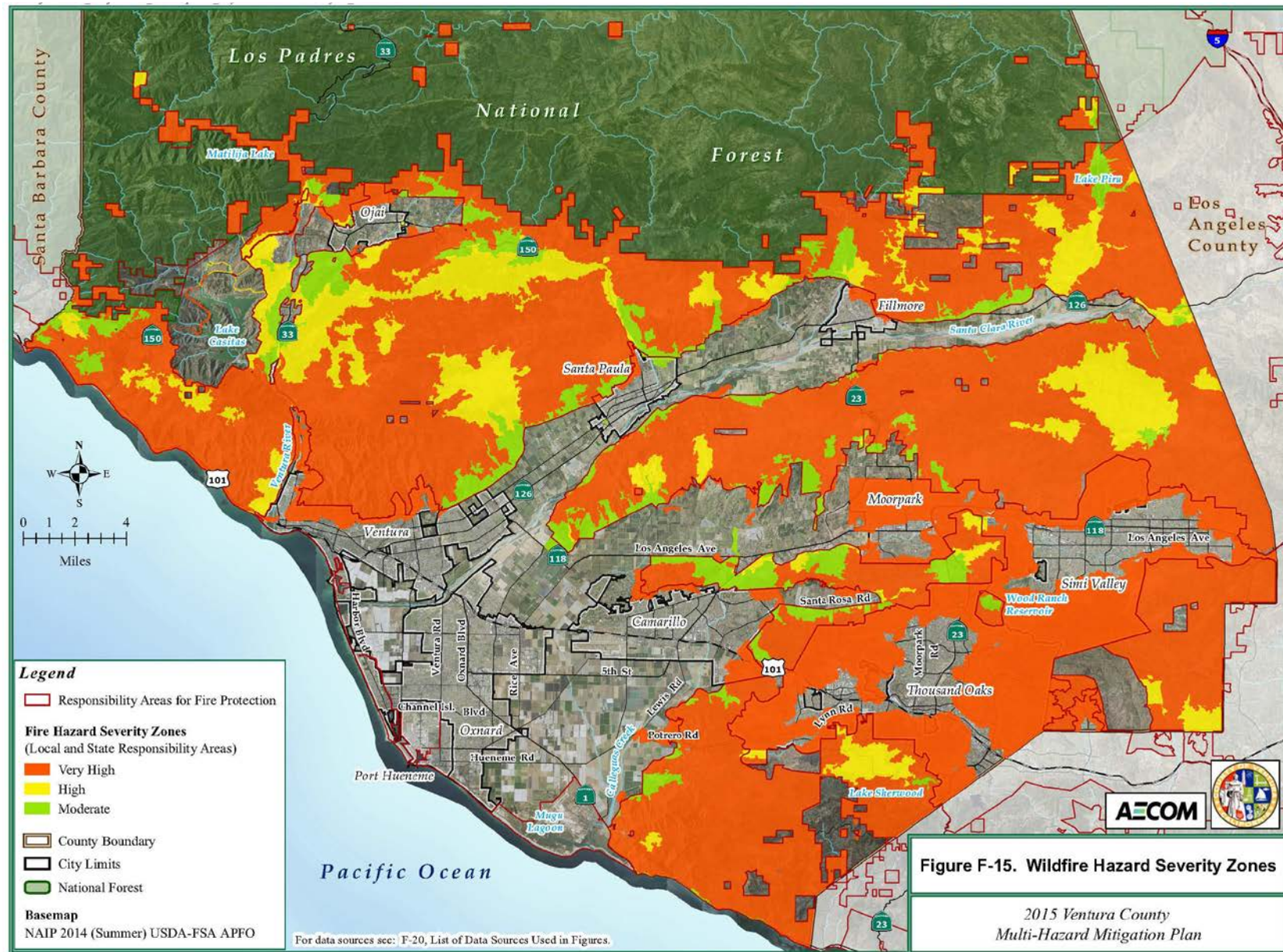




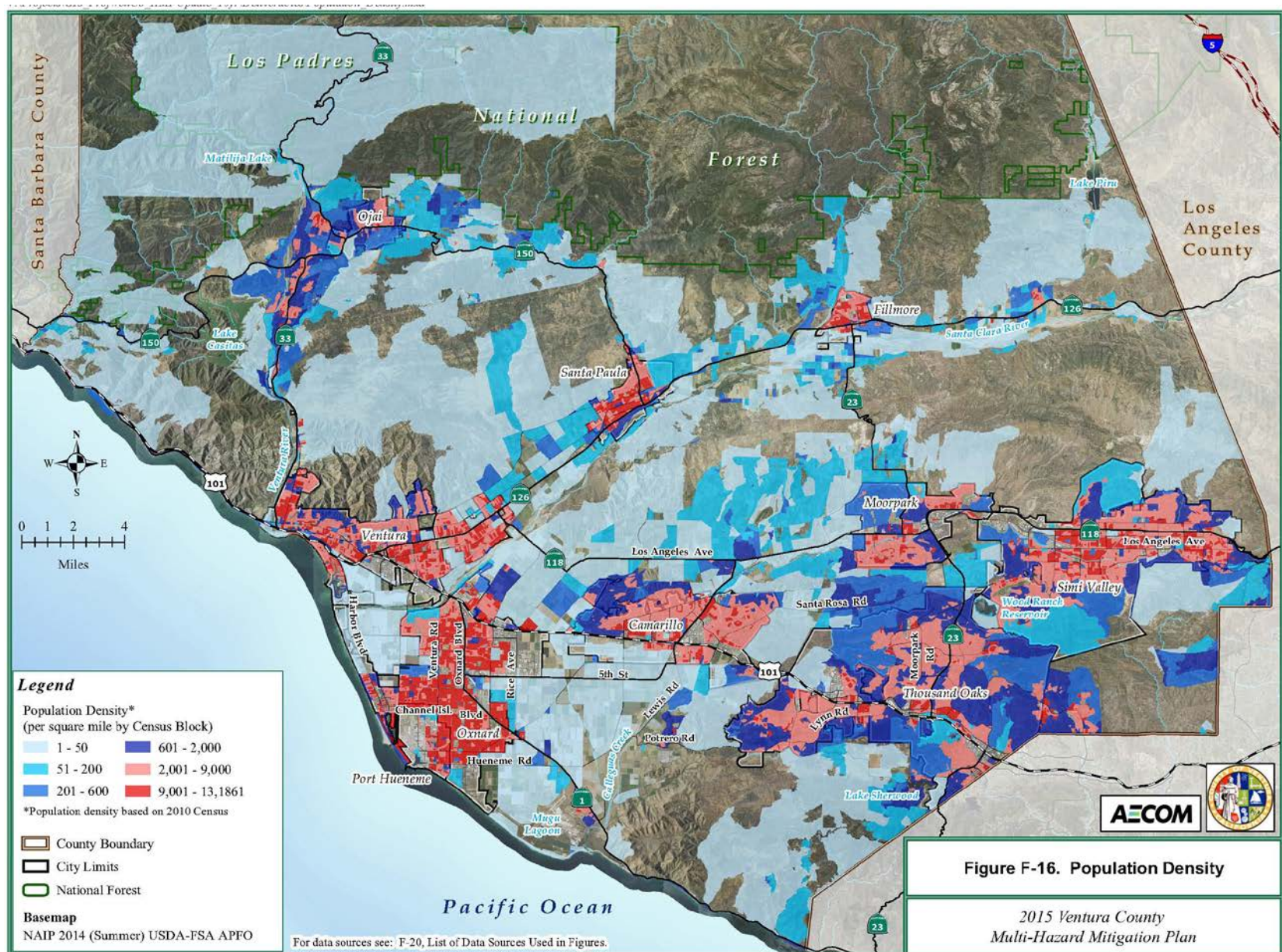




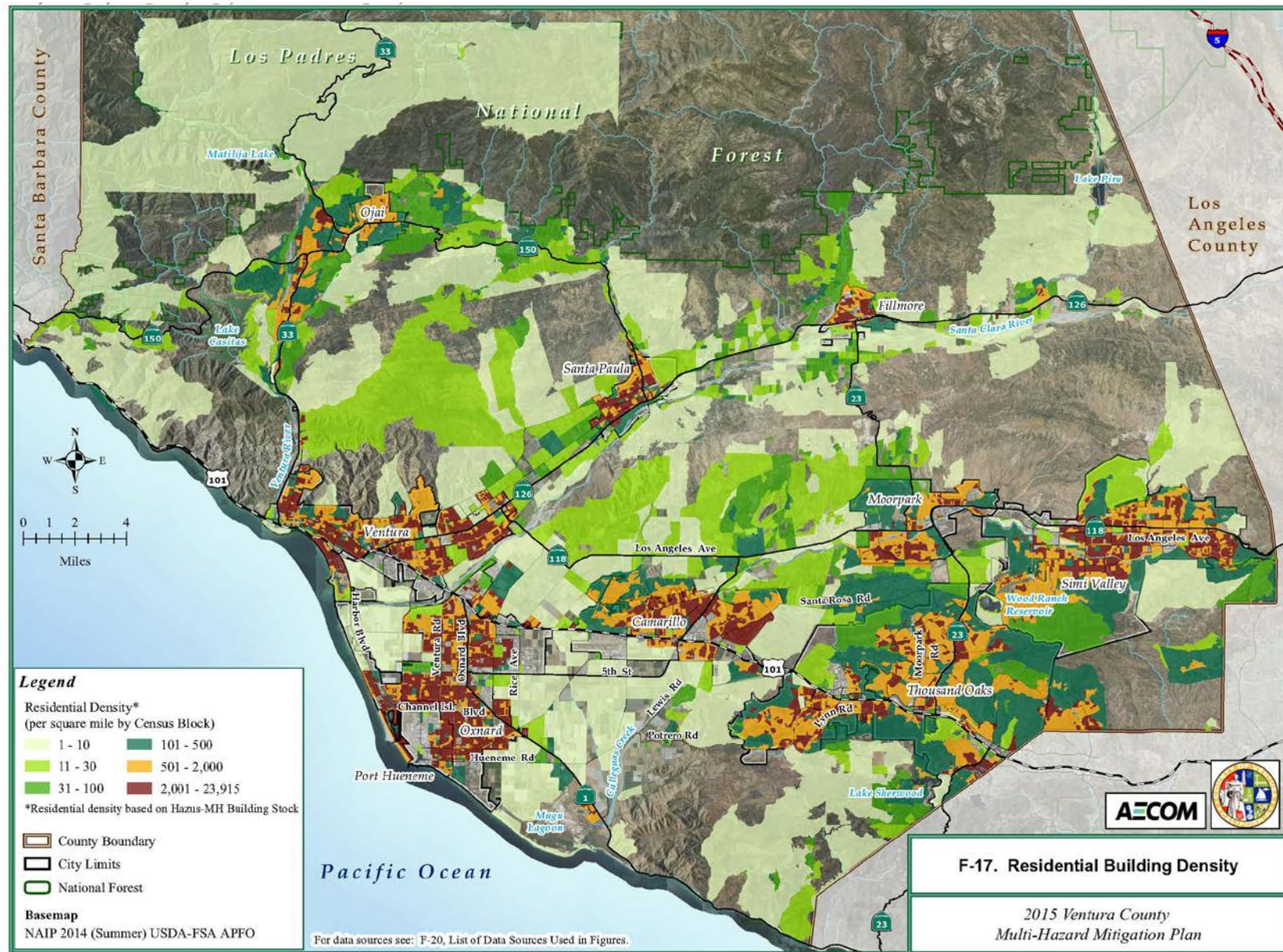




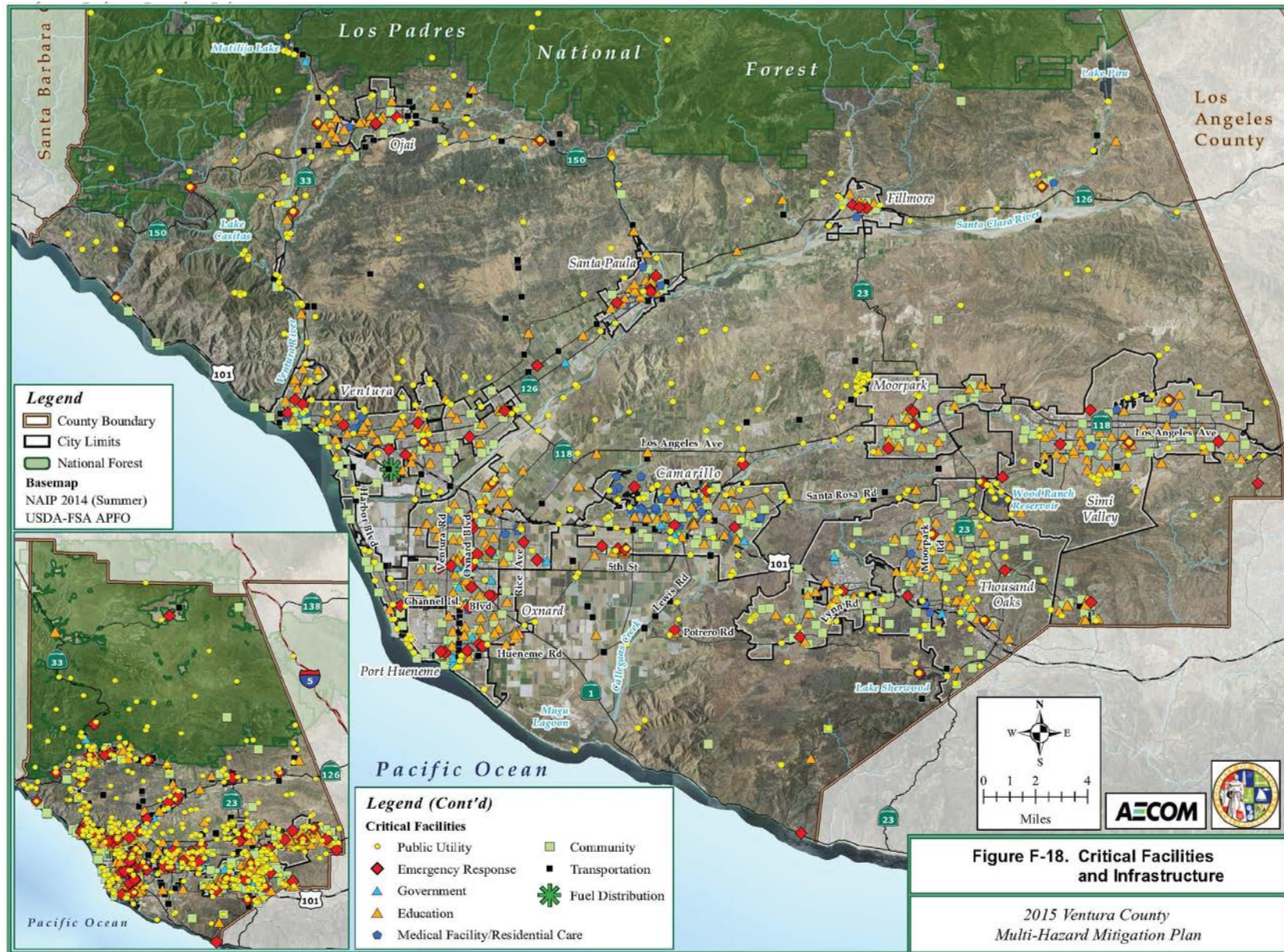


















**F-20. List of Data Sources Used in Figures**

Basemap Layers (common to all figures)	Data Source/Additional Information
Basemap Layers	Interstates, US and State Highways, and Railroads: HAZUS MH. Supplemented by arterial roads: Ventura County GIS Centerline data. County and City Boundaries: Ventura County GIS. Waterways: U.S. Geological Survey (USGS) National Hydrography Dataset (NHD) High Resolution, HUCs 1806 and 1807, version 220; select stream types. U.S. Forest Service Boundary: Bureau of Land Management (BLM). Aerial: United States Department of Agriculture (USDA), Farm Service Agency (FSA), Aerial Photography Field Office (APFO), National Agriculture Imagery Program (NAIP), Summer 2014 - ArcGIS Server: <a href="http://gis.apfo.usda.gov/arcgis/services">http://gis.apfo.usda.gov/arcgis/services</a> . Hillshade Underlay: U.S. Geological Survey (USGS) National Elevation Dataset (NED), 1 arc-second resolution (approximately 30 meters).
<b>Hazard Sources by Figure</b>	
F-1. Diversity and Location of Major Crops Produced in Ventura County	Ventura County Agricultural Commissioner's Office. Layer: CropType, 2014. Obtained June 23, 2015.
F-2. Rising Tide Inundation Areas	The Nature Conservancy, Coastal Resilience, Coastal Hazards Mapping, July 2014. For further detail: <a href="http://maps.coastalresilience.org/california/#">http://maps.coastalresilience.org/california/#</a>
F-3. Combined Coastal Storm Flood Hazards	The Nature Conservancy, Coastal Resilience, Coastal Hazards Mapping, July 2014. For further detail: <a href="http://maps.coastalresilience.org/california/#">http://maps.coastalresilience.org/california/#</a>
F-4a and 4b. Dam Failure Inundation Areas	California Office of Emergency Services (Cal OES). Dam Inundation Distribution DVD, Version 11-3. Obtained May 6, 2015.
F-5. Liquefaction Areas	California Geological Survey (CGS), Seismic Hazard Zones, July 2003 For further detail: <a href="http://www.conservation.ca.gov/cgs/shzp/Documents/SHZ_FactSheet.pdf">http://www.conservation.ca.gov/cgs/shzp/Documents/SHZ_FactSheet.pdf</a>
F-6. Regional Faults and Historical Earthquakes	Earthquake Epicenters are comprised of two sources with overlapping events removed: 1. Southern California Earthquake Data Center (SCEDC), Southern California Seismic Network (SCSN) Catalog Search (1932 – Present). 2. California Geological Survey magnitude 4 and greater Earthquakes (1769 – 2000). Fault Lines: California Geological Survey (CGS), Digital Database of Quaternary and Younger Faults, Version 2.0
F-7. Local Faults and Earthquake Groundshaking Potential	Groundshaking: California Geological Survey (CGS), Earthquake Shaking Potential for California, Map Sheet 48 (Revised 2008). For further detail: <a href="http://www.consrv.ca.gov/cgs/information/publications/ms/Documents/MS48_revised.pdf">http://www.consrv.ca.gov/cgs/information/publications/ms/Documents/MS48_revised.pdf</a> Fault Lines: California Geological Survey (CGS), Digital Database of Quaternary and Younger Faults, Version 2.0 Alquist-Priolo Earthquake Fault Zones and Faults: California Geological Survey (CGS), Update for Ventura County, Release of Official Maps of New and Revised Earthquake Fault Zones, September 21, 2012.

**F-20. List of Data Sources Used in Figures**

Hazard Sources by Figure	
F-8. Regional Faults and Earthquake Groundshaking Potential	Groundshaking: California Geological Survey (CGS), Earthquake Shaking Potential for California, Map Sheet 48 (Revised 2008). For further detail: <a href="http://www.consrv.ca.gov/cgs/information/publications/ms/Documents/MS48_revised.pdf">http://www.consrv.ca.gov/cgs/information/publications/ms/Documents/MS48_revised.pdf</a> Fault Lines: California Geological Survey (CGS), Digital Database of Quaternary and Younger Faults, Version 2.0
F-9. Special Flood Hazard Areas	Federal Emergency Management Agency (FEMA), Region IX. Ventura County Digital Flood Insurance Rate Map (DFIRM), Version 20150319.
F-10. Deep-Seated Landslide Areas	California Geological Survey (CGS), Susceptibility to Deep-Seated Landslides in California, Map Sheet 58, 2011. For further details: <a href="http://www.conservation.ca.gov/cgs/information/publications/ms/documents/ms58.pdf">http://www.conservation.ca.gov/cgs/information/publications/ms/documents/ms58.pdf</a>
F-11. Areas with Reduced Flood Risk Due to Levees	Federal Emergency Management Agency (FEMA), Region IX. Ventura County Digital Flood Insurance Rate Map (DFIRM), Version 20150319.
F-12. Recent Wildfire Perimeters of Concern	Ventura County Fire Protection District, Fire History Geodatabase, Obtained June 3, 2015
F-13. Tsunami Evacuation Areas	Tsunami Emergency Response Playbooks, July 2014. California Geological Survey (CGS) and California Office of Emergency Services (Cal OES).
F-14. Historical Wildfires, 1965 – 2015	Ventura County Fire Protection District, Fire History Geodatabase, Obtained June 3, 2015
F-15. Wildfire Hazard Severity Zones	California Department of Forestry and Fire Protection (CAL FIRE), Fire and Resource Assessment Program (FRAP). Ventura County Fire Hazard Severity Zone (FHSZ) Maps. Fire Hazard Severity Zones within State Responsibility Areas (SRA), and Local Responsibility Areas (LRA). SRA: Adopted 11/2007. LRA: Recommended 10/2010.
F-16. Population Density	Federal Emergency Management Agency (FEMA), Hazus-MH 2.2, January 12, 2015. Census Block, 2010 Census Population Count.
F-17. Residential Building Density	Federal Emergency Management Agency (FEMA), Hazus-MH 2.2, January 12, 2015. Census Block, General Building Stock with Residential Updates using 2010 Census.
F-18. Critical Facilities and Infrastructure	Critical Facilities were compiled from multiple sources: Federal Emergency Management Agency (FEMA), Hazus-MH 2.2, January 12, 2015, Critical Facilities Inventory. Jurisdictions and special districts participating in the 2015 Ventura County Multi-Hazard Mitigation Plan
F-19. Repetitive Loss Properties	Federal Emergency Management Agency (FEMA), Region IX.



Appendix G  
Unincorporated Ventura County

*This page intentionally left blank*

**Table G-1. Unincorporated Ventura County, Total Population and Residential Buildings**

Population <sup>1</sup>	Residential Buildings <sup>2</sup>
93,770	31,670

<sup>1</sup> 2010 census data, <sup>2</sup> Hazus 2.2 data (2010)

**Table G-2. Unincorporated Ventura County, Total Critical Facilities and Infrastructure**

Category	Name	Address	Value
Community	Albert H. Soliz Library	2820 Jourdan St., Oxnard, CA 93036	Unknown
Community	Avenue Library	606 N. Ventura Ave., Ventura, CA 93001	Unknown
Community	Camp Comfort Park	Latitude and Longitude Coordinates	Unknown
Community	Circle X Ranch	Latitude and Longitude Coordinates	Unknown
Community	Condor Observation Tower	Latitude and Longitude Coordinates	Unknown
Community	Dennison Park	Latitude and Longitude Coordinates	Unknown
Community	E.P. Foster Library	651 E. Main St., Ventura, CA 93001	Unknown
Community	Fillmore Library	502 Second St., Fillmore, CA 93035	Unknown
Community	Hobson County Park	Latitude and Longitude Coordinates	Unknown
Community	Hopper Mountain Wildlife Refuge	Latitude and Longitude Coordinates	Unknown
Community	Kenney Grove Park	Latitude and Longitude Coordinates	Unknown
Community	Lake Sherwood 765 Dam	Latitude and Longitude Coordinates	Unknown
Community	Lion Canyon Reservoir	Latitude and Longitude Coordinates	Unknown
Community	Mandalay County Park	Latitude and Longitude Coordinates	Unknown
Community	Meiners Oaks 768 Dam	Latitude and Longitude Coordinates	Unknown
Community	Meiner's Oaks Library	114 N. Padre Juan, Ojai, CA 93023	Unknown
Community	Museum of Ventura County Research Library	100 E. Main St., Ventura CA 93001	Unknown
Community	Oak Park	Latitude and Longitude Coordinates	Unknown

**Table G-2. Unincorporated Ventura County, Total Critical Facilities and Infrastructure**

Category	Name	Address	Value
Community	Oak Park Library	899 N. Kanan Rd., Oak Park, CA 91377	Unknown
Community	Oak View Library	555 Mahoney Ave., Oak View, CA 93002	Unknown
Community	Ojai Library	111 E. Ojai Ave., Ojai, CA 93023	Unknown
Community	Piru Library	3811 Center St., Piru, CA 93040	Unknown
Community	Pleasant Valley Rec & Park District	1030 Temple Ave., Camarillo, CA 93010	Unknown
Community	Ray D. Prueter Library	510 Park Ave., Port Hueneme, CA 93041	Unknown
Community	Runkle 86-003 Dam	Latitude and Longitude Coordinates	Unknown
Community	Santa Clara Valley Hospital	Latitude and Longitude Coordinates	Unknown
Community	Santa Susana County Park	Latitude and Longitude Coordinates	Unknown
Community	Saticoy Library	11426 Violeta St., Ventura, CA 93004	Unknown
Community	Senior Canyon 1761 Dam	Latitude and Longitude Coordinates	Unknown
Community	Sespe Condor Sanctuary	Latitude and Longitude Coordinates	Unknown
Community	Sespe Park	Latitude and Longitude Coordinates	Unknown
Community	Simi Valley Library	2969 Tapo Canyon, Simi Valley, CA 93063	Unknown
Community	Sinaloa Lake 1760 Dam	Latitude and Longitude Coordinates	Unknown
Community	Soule County Park	Latitude and Longitude Coordinates	Unknown
Community	Soule Recreation Area	Latitude and Longitude Coordinates	Unknown
Community	Steckel Park	Latitude and Longitude Coordinates	Unknown
Community	Taylor Number 2 763-003 Dam	Latitude and Longitude Coordinates	Unknown
Community	The Juvenile Justice Complex	4333 Vineyard Avenue, Oxnard, CA 93036	Unknown
Community	VC Community Foundation	4001 Mission Oaks Blvd, Camarillo, CA 93012	Unknown
Community	Ventura County Fair Grounds	Harbor Blvd. & Figueroa St., Ventura, CA 93001	Unknown
Community	Warring Park	Latitude and Longitude Coordinates	Unknown
Education	VC Education Service Center	5100 Adolfo Rd., Camarillo, CA 93012	Unknown
Emergency Response	Sheriff's Dept-Civil Court Svc	800 S Victoria Ave # 101, Ventura, CA 93009-0001	\$1,652,000



**Table G-2. Unincorporated Ventura County, Total Critical Facilities and Infrastructure**

Category	Name	Address	Value
Emergency Response	VCSD Camarillo Station	3701 Las Posas Rd., Camarillo, CA 93010	\$1,652,000
Emergency Response	VCSD East Valley Station	2101 E. Olsen Rd., Thousand Oaks, CA 91362	\$1,652,000
Emergency Response	VCSD Fillmore Station	524 Sespe Ave., Fillmore , CA 93015	\$1,652,000
Emergency Response	VCSD Lockwood Valley Station	15031 Lockwood Valley Rd., Frazier Park, CA 93225	\$1,652,000
Emergency Response	VCSD Ojai Station	402 S. Ventura Ave., Ojai, CA 93001	\$1,652,000
Emergency Response	Ventura CO Criminal Justice	425 Durley Ave, Camarillo, CA 93010-9100	\$1,652,000
Government	County Government Center	800 S. Victoria Ave., Ventura, CA 93009	Unknown
Government	The Saticoy Operations Yard	800 South Victoria Avenue, Ventura, CA 93004	Unknown
Government	Todd Road Jail	600 S. Todd Road, Santa Paula, CA 93060	Unknown
Government	Ventura County Honor Farm (Jail)	S. Rice Rd., Ojai, CA 93023	Unknown
Medical Facility/ Residential Care	Adult Diabetes Clinic	3291 Loma Vista Rd., Ventura, CA 93003	Unknown
Medical Facility/ Residential Care	Anacapa Surgical Associates	3170 Loma Vista Rd., Ventura 93003	Unknown
Medical Facility/ Residential Care	Box Canyon Fire Station	Latitude and Longitude Coordinates	Unknown
Medical Facility/ Residential Care	Brownstone Reservoir	Latitude and Longitude Coordinates	Unknown
Medical Facility/ Residential Care	Cardiology Clinic	3291 Loma Vista Rd., Ventura, CA 93003	Unknown
Medical Facility/ Residential Care	Casitas Fire Station	Latitude and Longitude Coordinates	Unknown
Medical Facility/ Residential Care	Casitas Saddle Dike Dam	Latitude and Longitude Coordinates	Unknown
Medical Facility/ Residential Care	Conejo Valley Family Medical Group	223 E. T.O. Blvd., Thousand Oaks, CA 91360	Unknown
Medical Facility/ Residential Care	Employee Health Services	800 S. Victoria Ave., Ventura, CA 93009	Unknown

**Table G-2. Unincorporated Ventura County, Total Critical Facilities and Infrastructure**

Category	Name	Address	Value
Medical Facility/ Residential Care	Faculty Medical Group	133 W. Santa Clara St., Ventura 93001	Unknown
Medical Facility/ Residential Care	Family Care Center	3291 Loma Vista Rd., Ventura, CA 93003	Unknown
Medical Facility/ Residential Care	Fillmore Family Medical Group	828 Ventura St., Fillmore, CA 93015	Unknown
Medical Facility/ Residential Care	Hematology-Oncology Clinic	3291 Loma Vista Rd., Ventura, CA 93003	Unknown
Medical Facility/ Residential Care	Immunology Clinic	3147 Loma Vista Rd., Ventura, CA 93003	Unknown
Medical Facility/ Residential Care	John K. Flynn Community Clinic	3100 N. Rose Ave., Oxnard, CA 93036	Unknown
Medical Facility/ Residential Care	Lake Casitas Recreation Area	Latitude and Longitude Coordinates	Unknown
Medical Facility/ Residential Care	Las Islas Family Medical Group	2400 S. C St., Oxnard, CA 93033	Unknown
Medical Facility/ Residential Care	Las Islas Urgent Care	325 W. Channel Islands Bl., Oxnard, CA 93033	Unknown
Medical Facility/ Residential Care	Las Islas Women's Health Clinic (Las Islas North)	2400 S. C St., Oxnard, CA 93033	Unknown
Medical Facility/ Residential Care	Las Posas Family Medical Group	3801 Las Posas Rd., Camarillo 93010	Unknown
Medical Facility/ Residential Care	Magnolia Family Medical Clinic/Magnolia Urgent Care Center (Ventura County Public Health)	2240 E. Gonzales Rd., Oxnard, CA 93036	Unknown
Medical Facility/ Residential Care	Mandalay Bay Women & Children's Med Gp.	2000 Outlet Center Dr. #110, Oxnard, CA 93036	Unknown
Medical Facility/ Residential Care	Medicine Specialty Center West	133 W. Santa Clara St., Ventura 93001	Unknown

**Table G-2. Unincorporated Ventura County, Total Critical Facilities and Infrastructure**

Category	Name	Address	Value
Medical Facility/ Residential Care	Moorpark Family Medical Clinic	35 W. Los Angeles Ave., Moorpark 93021	Unknown
Medical Facility/ Residential Care	Ophthalmology Clinic	3085 Loma Vista Rd., Ventura, CA 93003	Unknown
Medical Facility/ Residential Care	Orthopedic Clinic	325 W. Channel Islands Bl., Oxnard, CA 93033	Unknown
Medical Facility/ Residential Care	Orthopedic Clinic (WCMC)	3291 Loma Vista Rd., Ventura, CA 93003	Unknown
Medical Facility/ Residential Care	Pediatric Diagnostic Center	3160 Loma Vista Rd., Ventura, CA 93003	Unknown
Medical Facility/ Residential Care	Pediatric Hematology-Oncology Clinic	3291 Loma Vista Rd., Ventura, CA 93003	Unknown
Medical Facility/ Residential Care	Piru Family Medical Center	4061 Center St., Piru, CA 93040	Unknown
Medical Facility/ Residential Care	Santa Paula Hospital	825 N. Tenth St., Santa Paula, CA 93061	\$4,130,000
Medical Facility/ Residential Care	Santa Paula Medical Clinic	1334 E. Main St., Santa Paula, CA 93060	Unknown
Medical Facility/ Residential Care	Santa Paula West	254 W. Harvard Blvd., Santa Paula, CA 93060	Unknown
Medical Facility/ Residential Care	Sierra Vista Family Medical Clinic	1227 E. Los Angeles Ave., Simi Valley 93060	Unknown
Medical Facility/ Residential Care	Urology Clinic	133 W. Santa Clara St., Ventura 93001	Unknown
Medical Facility/ Residential Care	Ventura County Emergency Medical Services	2220 E Gonzales Rd, Suite 200, Oxnard, CA 93036	Unknown
Medical Facility/ Residential Care	West Ventura Medical Clinic	133 W. Santa Clara St., Ventura 93001	Unknown
Medical Facility/ Residential Care	Women's Health Center	133 W. Santa Clara St., Ventura 93001	Unknown

**Table G-2. Unincorporated Ventura County, Total Critical Facilities and Infrastructure**

Category	Name	Address	Value
Public Utility	Anola 762 Dam	Latitude and Longitude Coordinates	Unknown
Public Utility	Bard Lake	Latitude and Longitude Coordinates	Unknown
Public Utility	Debris Dam	Latitude and Longitude Coordinates	Unknown
Public Utility	Faria County Park	Latitude and Longitude Coordinates	Unknown
Public Utility	Feraud Park	Latitude and Longitude Coordinates	Unknown
Public Utility	Foster Park	Latitude and Longitude Coordinates	Unknown
Public Utility	Happy Camp Canyon Regional Park	Latitude and Longitude Coordinates	Unknown
Public Utility	Ventura County Water Works - Well #2	4990 Bradley, Somis, CA 93066	Unknown
Public Utility	Ventura County Water Works - Well #3	5250 E. Kingsgrove, Somis, CA 93066	Unknown
Public Utility	Ventura County Water Works Well #95	7100 Maria Dr., Moorpark, CA 93021	Unknown
Public Utility	Ventura County Water Works Well #96	7100 Maria Dr., Moorpark, CA 93021	Unknown
Public Utility	Ventura County Water Works Well #97	9220 Stockton Rd., Moorpark, CA 93021	Unknown
Public Utility	Ventura County Water Works Well #98	9210 Stockton Rd., Moorpark, CA 93021	Unknown
Public Utility	Ventura County Water Works Yard	7150 Walnut Canyon Rd., Moorpark, CA 93021	Unknown
Public Utility	Wheeler Gorge Fire Station	Latitude and Longitude Coordinates	Unknown
Transportation	Aliso Cyn Rd Bridge (113, 52C-0163)	Latitude and Longitude Coordinates	Unknown
Transportation	Ave. De La Vereda Bridge (333, 52C-0272)	Latitude and Longitude Coordinates	Unknown
Transportation	Avenida Del Recreo Bridge (334, 52C-0199)	Latitude and Longitude Coordinates	Unknown
Transportation	Balcom Cyn Rd Bridge (208, 52C-0035)	Latitude and Longitude Coordinates	Unknown
Transportation	Boardman Rd Bridge (335, 52C-0196)	Latitude and Longitude Coordinates	Unknown
Transportation	Bridge Road Bridge (442, 52C-0053)	Latitude and Longitude Coordinates	Unknown
Transportation	Broadway Rd Bridge (213, 52C-0178)	Latitude and Longitude Coordinates	Unknown
Transportation	Camino Cielo Bridge (320, 52C-0200)	Latitude and Longitude Coordinates	Unknown
Transportation	Canada Larga Rd Bridge (301, 52C-0152)	Latitude and Longitude Coordinates	Unknown
Transportation	Canada Larga Rd Bridge (302, 52C-0153)	Latitude and Longitude Coordinates	Unknown



**Table G-2. Unincorporated Ventura County, Total Critical Facilities and Infrastructure**

Category	Name	Address	Value
Transportation	Canada Larga Rd Bridge (305, 52C-0050)	Latitude and Longitude Coordinates	Unknown
Transportation	Carlisle Rd Bridge (228, 52C-0294)	Latitude and Longitude Coordinates	Unknown
Transportation	Carne Rd Bridge (330, 52C-0191)	Latitude and Longitude Coordinates	Unknown
Transportation	Casitas Vista Rd Bridge (307, 52C-0002)	Latitude and Longitude Coordinates	Unknown
Transportation	Center School Rd Bridge (230, 52C-0180)	Latitude and Longitude Coordinates	Unknown
Transportation	Center St Bridge (437, 52C-0004)	Latitude and Longitude Coordinates	Unknown
Transportation	Central Ave Bridge (511, 52C-0099)	Latitude and Longitude Coordinates	Unknown
Transportation	Conifer St Bridge (285, 52C-0169)	Latitude and Longitude Coordinates	Unknown
Transportation	Creek Rd Bridge (314, 52C-0195)	Latitude and Longitude Coordinates	Unknown
Transportation	Creek Rd Bridge (315, 52C-0041)	Latitude and Longitude Coordinates	Unknown
Transportation	Faulkner Rd Bridge (146, 52C-0184)	Latitude and Longitude Coordinates	Unknown
Transportation	Fifth St W Bridge (552, 52C-0106)	Latitude and Longitude Coordinates	Unknown
Transportation	Foothill Rd Bridge (101, 52C-0159)	Latitude and Longitude Coordinates	Unknown
Transportation	Gerald Dr Bridge (239, 52C-0167)	Latitude and Longitude Coordinates	Unknown
Transportation	Gorham Rd Bridge (356, 52C-0194)	Latitude and Longitude Coordinates	Unknown
Transportation	Grand Ave Bridge (365, 52C-0192)	Latitude and Longitude Coordinates	Unknown
Transportation	Grimes Canyon Rd Bridge (215, 52C-0176)	Latitude and Longitude Coordinates	Unknown
Transportation	Grimes Canyon Rd Bridge (225, 52C-0177)	Latitude and Longitude Coordinates	Unknown
Transportation	Grimes Cyn Road Bridge (226, 52C-0282)	Latitude and Longitude Coordinates	Unknown
Transportation	Harbor Blvd Bridge (550, 52C-0013)	Latitude and Longitude Coordinates	Unknown
Transportation	Hitch Blvd Bridge (219, 52C-0033)	Latitude and Longitude Coordinates	Unknown
Transportation	Hueneme Rd Bridge (222, 52C-0145)	Latitude and Longitude Coordinates	Unknown
Transportation	Hueneme Road Bridge (280, 52C-0275)	Latitude and Longitude Coordinates	Unknown
Transportation	Jenny Dr Bridge (240, 52C-0168)	Latitude and Longitude Coordinates	Unknown
Transportation	Kingsgrove Drive Bridge (204, 52C-0182)	Latitude and Longitude Coordinates	Unknown
Transportation	Koenigstein Rd Bridge (326, 52C-0185)	Latitude and Longitude Coordinates	Unknown

**Table G-2. Unincorporated Ventura County, Total Critical Facilities and Infrastructure**

Category	Name	Address	Value
Transportation	Koenigstein Road Bridge (336, 52C-0170)	Latitude and Longitude Coordinates	Unknown
Transportation	Laguna Rd Bridge (505, 52C-0146)	Latitude and Longitude Coordinates	Unknown
Transportation	Las Posas Rd Bridge (250, 52C-0172)	Latitude and Longitude Coordinates	Unknown
Transportation	Las Posas Rd Bridge (279, 52C-0005)	Latitude and Longitude Coordinates	Unknown
Transportation	Mcandrew Rd Bridge (329, 52C-0273)	Latitude and Longitude Coordinates	Unknown
Transportation	Mcandrew Rd Bridge (399, 52C-0189)	Latitude and Longitude Coordinates	Unknown
Transportation	Meyer Rd Bridge (317, 52C-0188)	Latitude and Longitude Coordinates	Unknown
Transportation	Moorpark Rd Bridge (255, 52C-0280)	Latitude and Longitude Coordinates	Unknown
Transportation	Mupu Rd Bridge (443, 52C-0165)	Latitude and Longitude Coordinates	Unknown
Transportation	Oak Hills Dr Bridge (286, 52C-0251)	Latitude and Longitude Coordinates	Unknown
Transportation	Oak Hills Dr Bridge (287, 52C-0252)	Latitude and Longitude Coordinates	Unknown
Transportation	Old Baldwin Road Bridge (369, 52C-0087)	Latitude and Longitude Coordinates	Unknown
Transportation	Old Creek Rd Bridge (392, 52C-0281)	Latitude and Longitude Coordinates	Unknown
Transportation	Old Lewis Rd Bridge (256, 52C-0092)	Latitude and Longitude Coordinates	Unknown
Transportation	Old Telegraph Rd Bridge (485, 52C-0012)	Latitude and Longitude Coordinates	Unknown
Transportation	Old Telegraph Rd Bridge (487, 52C-0011)	Latitude and Longitude Coordinates	Unknown
Transportation	Orange Rd Bridge (332, 52C-0193)	Latitude and Longitude Coordinates	Unknown
Transportation	Pedestrian Over-Crossing over Lantana St (52C0241)	Latitude and Longitude Coordinates	Unknown
Transportation	Piru Canyon Rd Bridge (417, 52C-0260)	Latitude and Longitude Coordinates	Unknown
Transportation	Piru Canyon Rd Bridge (421, 52C-0261)	Latitude and Longitude Coordinates	Unknown
Transportation	Pleasant Valley Rd Bridge (502, 52C-0023)	Latitude and Longitude Coordinates	\$932,861
Transportation	Potrero Rd Bridge (234, 52C-0286)	Latitude and Longitude Coordinates	Unknown
Transportation	S Mountain Rd Bridge (448, 52C-0009)	Latitude and Longitude Coordinates	Unknown
Transportation	Santa Ana Blvd Bridge (394, 52C-0051)	Latitude and Longitude Coordinates	Unknown

**Table G-2. Unincorporated Ventura County, Total Critical Facilities and Infrastructure**

Category	Name	Address	Value
Transportation	Santa Ana Blvd Bridge (398, 52C-0149)	Latitude and Longitude Coordinates	Unknown
Transportation	Santa Ana Rd Bridge (311, 52C-0043)	Latitude and Longitude Coordinates	Unknown
Transportation	Santa Ana Rd Bridge (375, 52C-0110)	Latitude and Longitude Coordinates	Unknown
Transportation	Santa Barbara St Bridge (260, 52C-0287)	Latitude and Longitude Coordinates	Unknown
Transportation	Santa Clara Ave Bridge (508, 52C-0107M)	Latitude and Longitude Coordinates	Unknown
Transportation	Santa Rosa Rd Bridge (253, 52C-0104)	Latitude and Longitude Coordinates	Unknown
Transportation	Santa Susana Rd Bridge (271, 52C-0171)	Latitude and Longitude Coordinates	Unknown
Transportation	Sturgis Rd Bridge (507, 52C-0074)	Latitude and Longitude Coordinates	Unknown
Transportation	Sulphur Moutain Rd Bridge (325, 52C-0186)	Latitude and Longitude Coordinates	Unknown
Transportation	Sycamore Rd Bridge (410, 52C-0164)	Latitude and Longitude Coordinates	Unknown
Transportation	Telegraph Rd Bridge (159, 52C-0077)	Latitude and Longitude Coordinates	Unknown
Transportation	Telegraph Rd Bridge (160, 52C-0295)	Latitude and Longitude Coordinates	Unknown
Transportation	Telegraph Rd Bridge (162, 52C-0068)	Latitude and Longitude Coordinates	Unknown
Transportation	Tico Rd Bridge (321, 52C-0187)	Latitude and Longitude Coordinates	Unknown
Transportation	Torrey Rd Bridge (435, 52C-0175)	Latitude and Longitude Coordinates	Unknown
Transportation	Ventura Ave Bridge (300, 52C-0084)	Latitude and Longitude Coordinates	Unknown
Transportation	Ventura County Airport - Camarillo	555 Airport Wy., Camarillo, CA 93010	\$10,651,000
Transportation	Ventura County Airport - Oxnard	2889 W. Fifth St., Oxnard, CA 93030	\$10,651,000
Transportation	Ventura County Harbor Master Mooring	3900 Pelican Way, Oxnard, CA 93035	\$1,997,000
Transportation	Victoria Ave Bridge (121, 52C-0142)	Latitude and Longitude Coordinates	Unknown
Transportation	Wendy Dr Bridge (233, 52C-0166)	Latitude and Longitude Coordinates	Unknown
Transportation	West Fifth St Bridge	Latitude and Longitude Coordinates	\$791,593.60
Transportation	Wheeler Cyn Rd Bridge (107, 52C-0155)	Latitude and Longitude Coordinates	Unknown
Transportation	Wheeler Cyn Rd Bridge (108, 52C-0156)	Latitude and Longitude Coordinates	Unknown
Transportation	Wheeler Cyn Rd Bridge (109, 52C-0157)	Latitude and Longitude Coordinates	Unknown
Transportation	Wheeler Cyn Rd Bridge (110, 52C-0158)	Latitude and Longitude Coordinates	Unknown

**Table G-2. Unincorporated Ventura County, Total Critical Facilities and Infrastructure**

Category	Name	Address	Value
Transportation	Wood Rd Bridge (506, 52C-0147)	Latitude and Longitude Coordinates	Unknown

**Table G-3. Unincorporated Ventura County, Summary of Impacts for Population and Residential Buildings**

Hazard	Population	% of Population	No. of Residential Buildings	% of Residential Buildings
Climate Change - Rising Tide	202	0.22%	152	0.48%
Climate Change - Coastal Storm	2,223	2.37%	1,261	3.98%
Dam Failure Inundation	25,648	27.35%	7,159	22.61%
Earthquake Ground Shaking - Extreme	24,385	26.01%	6,544	20.66%
Earthquake Ground Shaking - Violent	66,500	70.92%	24,148	76.25%
Earthquake Ground Shaking - Severe	2,696	2.88%	810	2.56%
Liquefaction	30,221	32.23%	8,840	27.91%
Flood - 100 Year	6,339	6.76%	2,248	7.10%
Flood - 500 Year	11,352	12.11%	3,359	10.61%
Landslide Susceptibility Class VIII	2,544	2.71%	892	2.82%
Landslide Susceptibility Class IX	6,221	6.63%	2,323	7.33%
Landslide Susceptibility Class X	2,700	2.88%	1,052	3.32%
Reduced Flood Risks Due to Levees	513	0.55%	222	0.70%
Tsunami Evacuation Area - Phase 3	2,813	3.00%	1,455	4.60%
Tsunami Evacuation Area - Max	3,593	3.83%	1,884	5.95%
Wildfire - High	3,652	3.89%	1,400	4.42%
Wildfire - Very High	34,769	37.08%	11,820	37.32%



**Table G-4. Unincorporated Ventura County, Summary of Impacts for Critical Facilities and Infrastructure**

Hazard	No. of Critical Facilities and Infrastructure	% of Critical Facilities and Infrastructure
Climate Change - Rising Tide	3	1.54%
Climate Change - Coastal Storm	8	4.10%
Dam Failure Inundation	85	43.59%
Earthquake Ground Shaking - Extreme	98	50.26%
Earthquake Ground Shaking - Violent	97	49.74%
Earthquake Ground Shaking - Severe	0	0.00%
Liquefaction	118	60.51%
Flood - 100 Year	84	43.08%
Flood - 500 Year	15	7.69%
Landslide Susceptibility Class VIII	1	0.51%
Landslide Susceptibility Class IX	10	5.13%
Landslide Susceptibility Class X	6	3.08%
Reduced Flood Risks Due to Levees	9	4.62%
Tsunami Evacuation Area - Phase 3	3	1.54%
Tsunami Evacuation Area - Max	6	3.08%
Wildfire - High	9	4.62%
Wildfire - Very High	41	21.03%

**Table G-5. Unincorporated Ventura County, Human and Technical Resources for Hazard Mitigation**

Staff/Personnel Resources	Department or Agency	Principal Activities Related to Hazard Mitigation
Planner(s), engineer(s) and technical staff with knowledge of land development, land management practices, and human-caused and natural hazards.	Resource Management Agency (RMA)/Planning Division, Public Works Agency (PWA)	<p>Develops and maintains the General Plan, including the Safety Element.</p> <p>Develops area plans based on the General Plan, to provide more specific guidance for the development of more specific areas.</p> <p>Reviews private development projects and proposed capital improvements projects and other physical projects involving property for consistency and conformity with the General Plan.</p> <p>Anticipates and acts on the need for new plans, policies, and Code changes.</p> <p>Applies the approved plans, policies, code provisions, and other regulations to proposed land uses.</p>
Engineer(s), Building Inspectors/Code Enforcement Officers or other professional(s) and technical staff trained in construction requirements and practices related to existing and new buildings.	RMA/Building & Safety, PWA	Oversees the effective, efficient, fair, and safe enforcement of the California Building Code
Engineers, construction project managers, and supporting technical staff.	PWA/Engineering Services Department	Provides direct or contract civil, structural, and mechanical engineering services, including contract, project, and construction management.
Engineer(s), project manager(s), technical staff, equipment operators, and maintenance and construction staff.	PWA/Water & Sanitation	Maintains and operates a wide range of local equipment and facilities as well as providing assistance to members of the public. These include providing sufficient clean fresh water, reliable sewer services, street maintenance, storm drainage systems, street cleaning, street lights and traffic signals.
Floodplain Administrator	PWA/WD	Reviews and ensures that new development proposals do not increase flood risk; and that development and redevelopment projects are mitigated for flood protection to the 1% annual chance (100-year) flood elevation plus a 1-foot freeboard elevation (County of Ventura Floodplain Management Ordinance).

**Table G-5. Unincorporated Ventura County, Human and Technical Resources for Hazard Mitigation**

Staff/Personnel Resources	Department or Agency	Principal Activities Related to Hazard Mitigation
Emergency Manager, Safety Officer	Sheriff's Office of Emergency Services/PWA	Maintains and updates the Emergency Operations Plan for the local jurisdiction. In addition, coordinates local response and relief activities within the Emergency Operation Center, and works closely with County, state, and federal partners to support planning and training and to provide information and coordinate assistance.
Procurement Services Manager	GSA	Provides a full range of municipal financial services, administers several licensing measures, and functions as the local jurisdiction's Procurement Services Manager.
Public Information Officers	Sheriff's Office, Fire Protection District, Health Care Agency, County Executive Office	The communications coordinators or spokesperson for the organization. Provides information to the media and public.

**Table G-6. Unincorporated Ventura County, Financial Resources for Hazard Mitigation**

Type	Subtype	Administrator	Purpose	Amount
<b>Local</b>	General Fund WPD/Property Tax, Land Development fees	WPD Director	Program operations and specific projects, Integrated Watershed Protection Plan, Capital Improvement Plan.	Variable.
<b>Federal</b>	Hazard Mitigation Grant Program (HMGP)	Federal Emergency Management Agency (FEMA)	Supports pre- and post-disaster mitigation plans and projects.	Available to California communities after a Presidentially declared disaster has occurred in California. Grant award based on specific projects as they are identified by eligible applicants.
	Pre-Disaster Mitigation (PDM) grant program	FEMA	Supports pre-disaster mitigation plans and projects.	Available on an annual basis as a nationally competitive grant. Grant award based on specific projects as they are identified (no more than \$3M federal share for projects).
	Flood Mitigation Assistance (FMA) grant program	FEMA	Mitigates repetitively flooded structures and infrastructure.	Available on an annual basis, distributed to California communities by the California Governor's Office of Emergency Services (Cal OES). Grant award based on specific projects as they are identified.
	Assistance to Firefighters Grant (AFG) Program	FEMA/USFA (U.S. Fire Administration)	Provides equipment, protective gear, emergency vehicles, training, and other resources needed to protect the public and emergency personnel from fire and related hazards.	Available to fire departments and nonaffiliated emergency medical services providers. Grant awards based on specific projects as they are identified.



**Table G-6. Unincorporated Ventura County, Financial Resources for Hazard Mitigation**

Type	Subtype	Administrator	Purpose	Amount
<b>Federal (cont.)</b>	Community Development Block Grant Program Entitlement Communities Grants	U.S. HUD (U.S. Department of Housing and Urban Development)	Acquisition of real property, relocation and demolition, rehabilitation of residential and non-residential structures, construction of public facilities and improvements, such as water and sewer facilities, streets, neighborhood centers, and the conversion of school buildings for eligible purposes.	Available to entitled cities. Grant award based on specific projects as they are identified.
	Community Action for a Renewed Environment (CARE)	U.S. Environmental Protection Agency (EPA)	Through financial and technical assistance offers an innovative way for a community to organize and take action to reduce toxic pollution (i.e., stormwater) in its local environment. Through CARE, a community creates a partnership that implements solutions to reduce releases of toxic pollutants and minimize people's exposure to them.	Competitive grant program. Grant award based on specific projects as they are identified.
	Clean Water State Revolving Fund (CWSRF)	EPA	The CWSRF is a loan program that provides low-cost financing to eligible entities within state and tribal lands for water quality projects, including all types of non-point source, watershed protection or restoration, estuary management projects, and more traditional municipal wastewater treatment projects.	CWSRF programs provided more than \$5 billion annually to fund water quality protection projects for wastewater treatment, non-point source pollution control, and watershed and estuary management.
	Public Health Emergency Preparedness (PHEP) Cooperative Agreement.	Department of Health and Human Services' (HHS') Centers for Disease Control and Prevention (CDC)	Funds are intended to upgrade state and local public health jurisdictions' preparedness and response to bioterrorism, outbreaks of infectious diseases, and other public health threats and emergencies.	Competitive grant program. Grant award based on specific projects as they are identified.
	Homeland Security Preparedness Technical Assistance Program (HSPTAP)	FEMA/DHS	Build and sustain preparedness technical assistance activities in support of the four homeland security mission areas (prevention, protection, response, recovery) and homeland security program management.	Technical assistance services developed and delivered to state and local homeland security personnel. Grant award based on specific projects as they are identified.

**Table G-7. Unincorporated Ventura County, Legal and Regulatory Resources for Hazard Mitigation**

<b>Regulatory Tool</b>	<b>Name</b>	<b>Description (Effect on Hazard Mitigation)</b>	<b>Hazards Addressed</b>	<b>Mitigation, Preparedness, Response, or Recovery</b>	<b>Affects Development in Hazard Areas?</b>
<b>Plans</b>	General Plan: Hazards Appendix (2013)	Describes hazard areas and regulates current and future development based on known hazard areas.	Fault Rupture, Ground Shaking, Liquefaction, Seiche, Tsunami, Landslides/Mudslides, Subsidence, Expansive Soils, Floods, Inundation from Dam Failure, Coastal Wave and Beach Erosion, Fire Hazards, Transportation Related Hazards, Hazardous Materials and Waste, Noise and Civil Disturbance	Mitigation & Preparedness	Yes
	Emergency Operations Plan (2012)	Describes what the local jurisdiction's actions will be during a response to an emergency. Includes annexes that describe in more detail the actions required of the local jurisdiction's departments/agencies. Further, this plan describes the role of the Emergency Operation Center (EOC) and the coordination that occurs between the EOC and the local jurisdiction's departments and other response agencies. Finally, this plan describes how the EOC serves as the focal point among local, state, and federal governments in times of disaster.	Varied	Response	No

**Table G-7. Unincorporated Ventura County, Legal and Regulatory Resources for Hazard Mitigation**

<b>Regulatory Tool</b>	<b>Name</b>	<b>Description (Effect on Hazard Mitigation)</b>	<b>Hazards Addressed</b>	<b>Mitigation, Preparedness, Response, or Recovery</b>	<b>Affects Development in Hazard Areas?</b>
<b>Plans (cont.)</b>	Area Housing Authority Organizational Emergency Response Plan	Enhances the Area Housing Authority's ability to effectively respond to emergencies by establishing procedures and assigning responsibilities	Seismic events, wildfire, floods and mudslides, train derailment, dam failure, hazardous spills, terrorism, transportation accidents, plan crashes	Preparedness, Response and Recovery	No
<b>Programs</b>	Stormwater Quality Management Program (SWQMP)	Describes measures that the local jurisdiction will take to minimize stormwater pollution. The SWQMP is required by the National Pollutant Discharge Elimination System Phase II regulations, which became effective in March 2003.	Stormwater	Mitigation & Preparedness	Yes
	National Flood Insurance Program (NFIP)	Makes affordable flood insurance available to homeowners, business owners, and renters in participating communities. In exchange, those communities must adopt and enforce minimum floodplain management regulations to reduce the risk of damage from future floods. Ventura County joined the NFIP in 1985.	Flood	Mitigation, Preparedness & Recovery	Yes
<b>Policies (Municipal Code)</b>	Division 3. – Building Regulations, Chapter 2. Facilities Fees, Article 2. – Fire Protection Facilities	Building standards and building permit requirements respecting buildings and structures in the unincorporated territory of the County are set forth in the Ventura County Building Code.	Fire	Mitigation & Preparedness	Yes

**Table G-7. Unincorporated Ventura County, Legal and Regulatory Resources for Hazard Mitigation**

<b>Regulatory Tool</b>	<b>Name</b>	<b>Description (Effect on Hazard Mitigation)</b>	<b>Hazards Addressed</b>	<b>Mitigation, Preparedness, Response, or Recovery</b>	<b>Affects Development in Hazard Areas?</b>
	Division 5. – Safety, Chapter 3. – Public Emergency	To provide for the preparation and carrying out of plans for the protection of persons and property within this County in the event of an emergency; the direction of the emergency organization; and the coordination of the emergency functions of this County with all other public agencies, corporations, organizations, and affected private persons.	All	Mitigation, Preparedness, Response & Recovery	No
	Division 8. – Planning and Development, Chapter 1 Zoning, Article 9. – Standards for Specific Zones and Zone Types	Factors that may be considered in establishing permit conditions and in determining appropriate intensity of development, including residential densities, for the site of a proposed project.	Geologic hazards, Floods, Fire, Hazardous Materials	Mitigation & Preparedness	Yes
	Division 8. – Planning and Development, Chapter 1.1 Zoning (coastal), Article 8. – General Development Standards/Conditions – Resource Protection	To provide development standards and conditions necessary for the protection of environmental and other resources in the Coastal Zone.	Geologic hazards, Floods, Fire	Mitigation & Preparedness	Yes
	Division 8. – Planning and Development, Chapter 7. – Protection of Flood Control Facilities	Protection of flood control facilities	Flood	Mitigation & Preparedness	No



**Table G-8. Unincorporated Ventura County, Current and Completed Hazard Mitigation Projects and Programs**

Status (Current or Complete)	Project / Program Name	Description	Year(s)
Complete	GIS-based Pre-application Program	Create a GIS-based (Accella) pre-application review for new construction and major remodels in hazard areas, such levee break, high and/or very high wildfire areas.	2012
Current	Integration of the 2010 HMP into other planning	Integrate the 2010 HMP, in particular the hazard analysis and mitigation strategy sections, into local planning documents, including general plans, emergency operations plans, and capital improvement plans.	2020
Current	Seismic Retrofitting	Seismic structural retrofit or replace County local bridges that are categorized as structurally deficient by Caltrans Bridge Inspection Report, located in an extreme ground shaking, and/or are necessary for first responders to use during an emergency. Currently in Design Phase: Bridge Road Bridge Replacement (#442)	2015-2017
Current	Landslide Stabilization	Stabilize landslide-prone areas through stability improvement measures, including interceptor drains, in situ soil piles, drained earth buttresses, subdrains, removal of slide areas, and dewatering ground. Currently in Design Phase	2017

**Table G-8. Unincorporated Ventura County, Current and Completed Hazard Mitigation Projects and Programs**

Status (Current or Complete)	Project / Program Name	Description	Year(s)
Current	Road, Bridge and Drainage Facility Reinforcements	<p>Reinforce and maintain County local roads, bridges, ditches and culverts from flooding through protection activities/measures.</p> <p><u>Annual Maintenance Programs:</u> Culvert Repair and Rehabilitation at various locations; maintenance of existing ditches and catch basins.</p> <p><u>Currently in Design Phase for the following:</u></p> <ul style="list-style-type: none"> <li>• Mupu Road Bridge (#443) Improvements</li> <li>• Wheeler Canyon Road Bridge (#109) Improvements</li> <li>• Hueneme Road @ Arnold Road Drainage Improvement</li> </ul>	2015-2017
Current	Address Floodplain Management Issues	Work with FEMA Region IX to address any floodplain management issues that may have arisen/arise from the countywide DFIRM, Community Assessment Visits, and/or DWR.	2010- Ongoing
Complete	CRS Participation	Increase participation in the NFIP by entering the Community Rating System program which through enhanced floodplain management activities would allow property owners to receive a discount on their flood insurance.	2010- Ongoing
Complete	Tsunami Ready Program	Participate in the NOAA Tsunami Ready Program.	2010- Ongoing
Current	Fuel Reduction Program	Implement a fuel reduction program, such as the collection and disposal of dead fuel, within open spaces and around critical facilities and residential structures located within a SRA or LRA high or very high wildfire zone.	2010- Ongoing

**Table G-8. Unincorporated Ventura County, Current and Completed Hazard Mitigation Projects and Programs**

Status (Current or Complete)	Project / Program Name	Description	Year(s)
Current	Vegetation Management Program	Create a vegetation management program that provides vegetation management services to elderly, disabled, or low-income property owners who lack the resources to remove flammable vegetation around their homes.	2010- Ongoing
Current	Post-Fire Debris Flow Treatments	Implement post-fire debris flow hillslope and channel treatments, such as seeding, mulching, check dams, and debris racks, as needed.	2010- Ongoing
Current	Fuel Modification Program	Implement a fuel modification program, which also includes residential maintenance requirements and enforcement, plan submittal and approval process, guidelines for planting, and a listing of undesirable plant species. Require builders and developers to submit their plans, complete with proposed fuel modification zones, to the local fire department for review and approval prior to beginning construction.	2010- Ongoing
Complete	Levee Rehabilitation	A channel widening/deepening project was completed allowing Levee CC-3 to be certified by a Letter of Map Revision (LORM).	2014
Complete	Habitat Improvements	Work with the Cooperating Agencies of the Ventura River Multi-Species Habitat Conservation Plan to continue to implement proposed mitigation measures identified in the plan, such as improving habitat and/or access to habitat.	2010 - 2014

**Table G-8. Unincorporated Ventura County, Current and Completed Hazard Mitigation Projects and Programs**

Status (Current or Complete)	Project / Program Name	Description	Year(s)
Current	After Action Report and Improvement Plan Development	After every exercise or event an After Action Report should be completed. The After Action Review has two components: an After Action Report which captures observations and recommendations based on incident objectives associated with the capabilities and tasks and an Improvement Plan, which identifies corrective actions, assigns them to responsible parties, and establishes targets for their completion.	2010- Ongoing
Current	Life/Safety Warning/Evacuation Systems	Implement appropriate life/safety warning/evacuation systems in Ventura County, including the Emergency Alert System, Flood Threat Recognition System, Reverse 911 System, and Tsunami Watch and Warning messages during an event or disaster.	2010- Ongoing

**Table G-9. Unincorporated Ventura County, Potential Mitigation Actions**

No.	Description	Hazard	Mitigation Category	New or Existing Construction
OA 1	Integrate the hazard analysis and mitigation strategy with the General Plan's Safety Element.	All	Local Plans and Regulations	Not Applicable
OA 2	Ensure that existing monitoring capabilities at the state and County level are integrated to provide an early warning of increased or new infestations.*	Agricultural (Insect Pests/Invasive Species)	Natural Systems Protection	Not Applicable
OA 3	Implement an infestation public awareness and educational campaign.	Agricultural (Insect Pests/Invasive Species)	Education and Awareness	Not Applicable



**Table G-9. Unincorporated Ventura County, Potential Mitigation Actions**

No.	Description	Hazard	Mitigation Category	New or Existing Construction
OA 4*	Relocate or reinforce bike trails, parking lots and other beach access amenities away from the shoreline to restore the beach/shoreline in sea-level rise/coastal erosion areas.	Climate Change	Natural Systems Protection	Existing
OA 5*	Restore habitat and improve flood protection for low-lying areas by employing innovative techniques such as constructing levees coupled with gently sloping tidal marshes to help protect from storm wave action and tidal surge.	Climate Change	Natural Systems Protection	New/Existing
OA 6	Develop a public outreach program that informs property owners located in the dam and levee failure inundation areas about voluntary flood insurance.	Dam and Levee Failure Inundation	Education and Awareness	Existing
OA 7	Develop a water conservation public outreach program to increase awareness about the drought, fines and penalties for overuse and solutions for conserving water.	Drought	Education and Awareness	New/Existing
OA 8	Adopt emergency water conservation measures and/or water conservation ordinance to limit irrigation.	Drought	Local Plans and Regulations	New/Existing
OA 9	Identify potentially vulnerable public and private utility systems including electric, gas, oil, water, sewer and communication. Upgrade vulnerable systems to ensure the operation and timely restoration of essential systems to reasonable levels of service.	All	Structure and Infrastructure Projects	New/Existing
OA 10	Seismically retrofit or upgrade seismically deficient government facilities and pre-identified shelter facilities.	Earthquake	Structure and Infrastructure Projects	Existing
OA 11	Develop and implement plans to increase the building owner's general knowledge of and appreciation for the value of seismic upgrading of the building's structural and nonstructural elements.	Earthquake	Local Plans and Regulations & Awareness and Education	Existing
OA 12	Increase participation in the NFIP by remaining in the Community Rating System program which through enhanced floodplain management activities would allow property owners to receive a discount on their flood insurance.	Flood	All	New/Existing (Residential structures and critical facilities which are located within the 100-year floodplain)

**Table G-9. Unincorporated Ventura County, Potential Mitigation Actions**

No.	Description	Hazard	Mitigation Category	New or Existing Construction
OA 13*	Reinforce roads/bridges from flooding through protection activities, including elevating the roads/bridges and installing/widening culverts beneath the roads/bridges or upgrading storm drains.	Flood	Structure and Infrastructure Projects	Existing
OA 14*	Acquire, relocate, or elevate residential structures, in particular those that have been identified as RL properties, within the 100-year floodplain.	Flood	Structure and Infrastructure Projects	Existing
OA 15	Work with FEMA Region 9 to address any floodplain management issues that may have arisen/arise from the countywide DFIRM, Community Assessment Visits, and/or DWR.	Flood	Local Plans and Regulations	Not Applicable
OA 16*	Implement landslide stabilization and/or protection measures. Stabilization measures include grading the unstable portion of the slope to a lower gradient, construction of rock buttresses and retaining walls, and drainage improvements. Protection measures include containment and/or diversion of the moving debris, such as walls, berms, ditches and catchment basins.	Landslide	Structure and Infrastructure Projects, Natural Systems Protection	New/Existing
OA 17	Implement post-fire debris flow hillslope and channel treatments, such as seeding, mulching, check dams, and debris racks, as needed.	Post-Fire Debris Flow	Natural Systems Protection	New/Existing
OA 18*	Continue to participate in the NWS TsunamiReady Program through continued implementation of Guideline 4: Community Preparedness measures, including public outreach material and curriculum.	Tsunami	Awareness and Education	Not Applicable
OA 19	Maintain vegetation management program that provides vegetation management services to elderly, disabled, or low-income property owners who lack the resources to remove flammable vegetation from around their homes.	Wildfire	Awareness and Education, Natural Systems Protection	Existing (Residential buildings in high wildfire severity zones)

**Table G-9. Unincorporated Ventura County, Potential Mitigation Actions**

No.	Description	Hazard	Mitigation Category	New or Existing Construction
OA 20	Implement a fuel modification program for new construction by requiring builders and developers to submit their plans, complete with proposed fuel modification zones, to the local fire department for review and approval prior to beginning construction.	Wildfire	Local Plans and Regulations	New (Residential and non-residential buildings located within high wildfire severity zones)
OA 21*	Maintain hazards fuel treatment program for areas that have been identified with overgrown/dead brush/trees to reduce the potential for tree-to-tree ignition. Ensure that a “maintenance now” component to provide continued fire resistance is part of the program.	Wildfire	Natural Systems Protection	New/Existing
OA 22	Develop a vegetation management program in areas within and adjacent to rights-of-way and in close proximity to critical facilities to reduce the risk of tree failure and property damage and avoid creation of wind acceleration corridors within vegetated areas.	Winter Storm	Awareness and Education, Natural Systems Protection	New/Existing
UVC 1	Continue to participate in the Nation Weather Service’s (NWS) StormReady Program.	Flood and Winter Storm	Awareness and Education	Not Applicable
UVC 2	Develop a plan to identify funding to replace the Operational Area Emergency Operations Center (EOC).	All	Structure and Infrastructure Project	New
UVC 3	Update Seismic Standards for Communications Facilities (Building Code).	Earthquake	Structure and Infrastructure Project	Existing
UVC 4	Reinforce and maintain County roads, bridges, ditches and culverts from flooding through various flood proofing measures.	Flood	Structure and Infrastructure Project	Existing

\* Recent/current FEMA, NWS and California Coastal Conservancy grant projects (nationwide)

OA = Overarching

UC = Unincorporated Ventura County

**Table G-10. Unincorporated Ventura County, Mitigation Action Plan**

No.	Description	Facility to be Mitigated (if Known and/or Applicable)	Funding Source	Department or Agency	Timeframe (0-5 Years)
OA 11	Develop and implement plans to increase the building owner's general knowledge of and appreciation for the value of seismic upgrading of the building's structural and nonstructural elements.	Countywide	HMGP or PDM	RMA/Planning	1-3 years
OA 19	Maintain vegetation management program that provides vegetation management services to elderly, disabled, or low-income property owners who lack the resources to remove flammable vegetation from around their homes.	Countywide	HMGP or PDM	Sheriff's Office of Emergency Services, Fire Protection District	Ongoing
OA 21*	Maintain hazards fuel treatment program for areas that have been identified with overgrown/dead brush/trees to reduce the potential for tree-to-tree ignition. Ensure that a "maintenance now" component to provide continued fire resistance is part of the program.	Countywide	HMGP or PDM	Sheriff's Office of Emergency Services, Fire Protection District	Ongoing
UVC 1	Continue to participate in the Nation Weather Service's (NWS) StormReady Program.	Not Applicable	HMGP or PDM	Sheriff's Office of Emergency Services	Ongoing
UVC 2	Develop a plan to identify funding to replace the Operational Area Emergency Operations Center (EOC).	Not Applicable	General Fund	Sheriff's Office of Emergency Services,	3-5 years
UVC 3	Update Seismic Standards for Communications Facilities (Building Code).	Cell Towers	General Fund	RMA/Planning	2 years



**Table G-10. Unincorporated Ventura County, Mitigation Action Plan**

No.	Description	Facility to be Mitigated (if Known and/or Applicable)	Funding Source	Department or Agency	Timeframe (0-5 Years)
UVC 4	Reinforce and maintain County roads, bridges, ditches and culverts from flooding through various flood proofing measures.	Countywide	HMGP or PDM	PWA	1-3 years

HMGP = Hazard Mitigation Grant Program

PDM = Pre-Disaster Mitigation grant program

The Hazard Mitigation Assistance (HMA) Program requirements were used to guide choice of mitigation actions:

- Mitigation Planning
- Technical Feasibility and Effectiveness
- Floodplain Management and Protection of Wetlands
- Environmental Planning and Historic Review and Compliance
- Cost Effectiveness
- Cost Review
- General Program Requirements

*This page intentionally left blank*

Appendix H  
City of Camarillo

*This page intentionally left blank*



**Table H-1. City of Camarillo, Total Population and Residential Buildings**

Population <sup>1</sup>	Residential Buildings <sup>2</sup>
65,235	21,980

<sup>1</sup> 2010 census data, <sup>2</sup> Hazus 2.2 data (2010)

**Table H-2. City of Camarillo, Total Critical Facilities and Infrastructure**

Category	Name	Address	Value
Community	Camarillo Boys & Girls Club	1500 Temple Ave, Camarillo, CA 93010	Unknown
Community	Camarillo Community Center	1605 E. Burnley St., Camarillo, CA 93010	Unknown
Community	Camarillo Community Church	1322 Las Posas Drive, Camarillo, CA 93010	Unknown
Community	Camarillo Family YMCA	3111 Village at the Park Dr., Camarillo, CA 93012	Unknown
Community	Camarillo Health Care District	3639 Las Posas Rd., Camarillo, CA 93012	Unknown
Community	Camarillo House County Landmark	Latitude and Longitude Coordinates	Unknown
Community	Camarillo Library (shelter)	4101 Las Posas Road, Camarillo, CA 93012	Unknown
Community	Camarillo Promenade	740 Ventura Blvd, Camarillo, CA 93010	Unknown
Community	Center for Spiritual Living	340 Mobil Ave., Camarillo, CA 93010	Unknown
Community	Church of the Nazarene	2280 Antonio Ave., Camarillo, CA 93010	Unknown
Community	Community Center Park, Camarillo	Latitude and Longitude Coordinates	Unknown
Community	Constitution Park	Latitude and Longitude Coordinates	Unknown
Community	Corby Residential Care	3355 Corby Av, Camarillo, CA	Unknown
Community	Crestview Park	Latitude and Longitude Coordinates	Unknown
Community	Crossroads Community Church	161 Plaza Vista, Camarillo, CA 93010	Unknown
Community	Dizdar Park	Latitude and Longitude Coordinates	Unknown
Community	Dos Caminos Park	Latitude and Longitude Coordinates	Unknown
Community	Evangelical Free Church	2315 Ventura Blvd., Camarillo, CA 93010	Unknown

**Table H-2. City of Camarillo, Total Critical Facilities and Infrastructure**

Category	Name	Address	Value
Community	Freedom Center	515 Eubanks St., Camarillo, CA 93010	Unknown
Community	Greek Orthodox Church	5575 Santa Rosa Road, Camarillo, CA 93010	Unknown
Community	Hickory House & Pine Cottage	50 Oak St, Camarillo, CA	Unknown
Community	KBEH TV Station (Spanish)	950 Flynn Rd., Camarillo, CA 93012	Unknown
Community	KMRO-FM (Camarillo)	Latitude and Longitude Coordinates	Unknown
Community	KZTR-FM (Camarillo)	Latitude and Longitude Coordinates	Unknown
Community	Laurelwood Park	Latitude and Longitude Coordinates	Unknown
Community	Leisure Village Community Center	1200 Leisure Village Dr., Camarillo, CA 93012	Unknown
Community	Mali's Place, Inc II	52 Camino Castenada, Camarillo, CA	Unknown
Community	Mali's Place, Inc III	8 Camino Castenada, Camarillo, CA	Unknown
Community	Mission Manor	89 Mission Dr, Camarillo, CA	Unknown
Community	Mission Oaks Community Park	Latitude and Longitude Coordinates	Unknown
Community	Mission Verde Park	Latitude and Longitude Coordinates	Unknown
Community	Mom's Place I	4 Mansfield Ln, Camarillo, CA	Unknown
Community	Mom's Place III	975 Valley Vista Dr, Camarillo, CA	Unknown
Community	Ocean Breeze Estates	1132 Blue Oak St	Unknown
Community	Ocean Breeze Estates At Beechwood	1190 Beechwood St, Camarillo CA	Unknown
Community	Ocean Breeze Estates At Spanish Hills	17 Bradford Av, Camarillo CA	Unknown
Community	Pleasant Valley Bible Church	1101 Ponderosa Dr., Camarillo, CA 93010	Unknown
Community	Pleasant Valley Fields	152 Westpark Court, Camarillo, CA 93012	Unknown
Community	Pleasant Valley Park, Camarillo	Latitude and Longitude Coordinates	Unknown
Community	Quito Park	Latitude and Longitude Coordinates	Unknown
Community	Royal Gardens Of Camarillo	903 Carmen Dr, Camarillo, CA	Unknown
Community	Skyway Playhouse (shelter)	333 Skyway Dr., Camarillo, CA 93010	Unknown
Community	Spanish Hills Park	Latitude and Longitude Coordinates	Unknown
Community	St. JohnÆs Seminary (shelter)	5012 Seminary Road, Camarillo, CA 93012	Unknown

**Table H-2. City of Camarillo, Total Critical Facilities and Infrastructure**

Category	Name	Address	Value
Community	St. Mary Magdalen Church (shelter)	25 Las Posas Rd., Camarillo, CA 93010	Unknown
Community	Studio Channel Is. Art Ctr. (shelter)	2222 Ventura Blvd, Camarillo, CA 93010	Unknown
Community	Summer House	510 Marissa Ln, Camarillo, CA	Unknown
Community	Sunrise Park	Latitude and Longitude Coordinates	Unknown
Community	Trailside Park	Latitude and Longitude Coordinates	Unknown
Community	Trinity Presb. Church (shelter)	2304 Antonio Dr., Camarillo, CA 93012	Unknown
Community	United Methodist Church (shelter)	291 Anacapa Dr., Camarillo, CA 93010	Unknown
Community	US Healthworks Medical Group PC	4934 Verdugo Way, Camarillo, CA	Unknown
Community	Valle Lindo Park	Latitude and Longitude Coordinates	Unknown
Community	Via Esmeralda LLC	3521 Elma St, Camarillo, CA	Unknown
Community	Waverly Place	2853 Waverly Av, Camarillo, CA	Unknown
Emergency Response	Camarillo Police Dept	3701 Las Posas Rd, Camarillo, CA 93010-1408	\$1,652,000
Government	Camarillo City Hall	601 N. Carmen Dr., Camarillo, CA 93010	Unknown
Government	Camarillo Corporation Yard	283 S. Glenn Drive, Camarillo, CA 93010	Unknown
Government	City Annex Building	2220 Ventura Blvd, Camarillo, CA 93010	Unknown
Government	ICE Facility	321 Cortez Circle, Camarillo, CA 93012	Unknown
Medical Facility/ Residential Care	Ashley's Manor	1013 Skeel Dr, Camarillo, CA	Unknown
Medical Facility/ Residential Care	Camarillo Oak Grove County Park	Latitude and Longitude Coordinates	Unknown
Medical Facility/ Residential Care	Camarillo Sanitary Plant	Latitude and Longitude Coordinates	Unknown
Medical Facility/ Residential Care	Camarillo State Mental Hospital (Historical)	Latitude and Longitude Coordinates	Unknown
Medical Facility/ Residential Care	Center Family Health-CMH Urgent	422 N Arneill Rd, Camarillo, CA	Unknown

**Table H-2. City of Camarillo, Total Critical Facilities and Infrastructure**

Category	Name	Address	Value
Medical Facility/ Residential Care	Charter Oak Park	Latitude and Longitude Coordinates	Unknown
Medical Facility/ Residential Care	Mali's Place, Inc I	68 Camino Castenada, Camarillo, CA	Unknown
Medical Facility/ Residential Care	Rose House	1982 Lathan Av, Camarillo, CA	Unknown
Medical Facility/ Residential Care	Sally's Residential Care Home - 928 Carissa	928 Carissa Ct, Camarillo, CA	Unknown
Medical Facility/ Residential Care	Sally's Residential Care Home - 940 Carissa	940 Carissa Ct, Camarillo, CA	Unknown
Medical Facility/ Residential Care	Sally's Residential Care Home - 953 Andante	953 Andante Ct, Camarillo, CA	Unknown
Medical Facility/ Residential Care	Wood Creek Park	Latitude and Longitude Coordinates	Unknown
Medical Facility/ Residential Care	Woodside Park	Latitude and Longitude Coordinates	Unknown
Public Utility	Advanced Care Home	144 La Crescenta, Camarillo, CA	Unknown
Public Utility	Airport Well #3	Willis Avenue/Eubanks Street, Camarillo, CA 93010	Unknown
Public Utility	Almavia of Camarillo	2500 N Ponderosa Dr, Camarillo, CA	Unknown
Public Utility	Arneill Ranch Park	Latitude and Longitude Coordinates	Unknown
Public Utility	Atria Las Posas	24 Las Posas Rd, Camarillo, CA	Unknown
Public Utility	Camarillo City Water Well A-1	3901 E. Las Posas , Camarillo, CA 93010	Unknown
Public Utility	Camarillo City Water Well B-2	2303 Antonio Ave., Camarillo, CA 93010	Unknown
Public Utility	Camarillo Well D	217 W. Daily Drive, Camarillo, CA 93010	Unknown
Public Utility	Camsan Pump Station #2	2895 Pleasant Valley Road, Camarillo, CA 93010	Unknown
Public Utility	Camsan Pump Station #3	93 Pleasant Valley Road, Camarillo, CA 93010	Unknown
Public Utility	Camsan Pump Station #4	Springville/PV Road, Camarillo, CA 93010	Unknown
Public Utility	Camsan Pump Station #5	91 Wood Road, Camarillo, CA 93010	Unknown



**Table H-2. City of Camarillo, Total Critical Facilities and Infrastructure**

Category	Name	Address	Value
Public Utility	Edna's Residential Care I	3868 Senan St, Camarillo, CA	Unknown
Public Utility	Edna's Residential Care II	1955 Weston Cr, Camarillo, CA	Unknown
Public Utility	Emeritus At Camarillo	6000 Santa Rosa Rd, Camarillo, CA	Unknown
Public Utility	Encanto Park	Latitude and Longitude Coordinates	Unknown
Public Utility	Foothill Park, Camarillo	Latitude and Longitude Coordinates	Unknown
Public Utility	Freedom Park	Latitude and Longitude Coordinates	Unknown
Public Utility	Fresas Park	Latitude and Longitude Coordinates	Unknown
Public Utility	Golden Horizon	2221 Briarfield St, Camarillo, CA	Unknown
Public Utility	Golden Years Care	1325 Lantana St, Camarillo, CA	Unknown
Public Utility	Heritage Park	Latitude and Longitude Coordinates	Unknown
Public Utility	Hill Canyon Wastewater Treatment Plant (Includes all individual plant buildings, equipment, onsite storage tanks, and processes)	9600 Santa Rosa Rd., Camarillo, CA 93010	\$90,818,780
Public Utility	KZTR-FM (Camarillo)	Latitude and Longitude Coordinates	Unknown
Public Utility	Mission Oaks Drain Area Retention Dam	Latitude and Longitude Coordinates	Unknown
Public Utility	Mom's Place II	30 La Patera Ct, Camarillo, CA	Unknown
Public Utility	Reservoir #1	1853 Calle Alberca, Camarillo, CA 93010	Unknown
Public Utility	Reservoir #2	2895 Pleasant Valley Road, Camarillo, CA 93012	Unknown
Public Utility	Reservoir #3	281 S. Glenn Road, Camarillo, CA 93010	Unknown
Public Utility	Reservoir #4	2011 Grandview Drive, Camarillo, CA 93010	Unknown
Public Utility	Reservoir #5	601 Via Zamora, Camarillo, CA 93010	Unknown
Public Utility	Reservoir #6	5805 Worth Way, Camarillo, CA 93012	Unknown
Public Utility	Sanitary Plant	150 Howard Road, Camarillo, CA 93012	Unknown
Transportation	Adolfo Rd Bridge over Calleguas Creek (52C0222)	Latitude and Longitude Coordinates	\$3,105,203
Transportation	Camarillo Bridge	555 Airport Way, Camarillo, CA 93010	\$10,651
Transportation	Camarillo Hills Drain at Lantana Street (52C0240)	Latitude and Longitude Coordinates	\$330,324.50

**Table H-2. City of Camarillo, Total Critical Facilities and Infrastructure**

Category	Name	Address	Value
Transportation	Camarillo Hills Drain at Rosewood Avenue (52C0114)	Latitude and Longitude Coordinates	\$341,029.40
Transportation	Las Posas Rd Bridge	Latitude and Longitude Coordinates	\$559,143
Transportation	Metrolink Station	30 Lewis Road, Camarillo, CA 93010	\$2,663,000
Transportation	Mission Oaks Blvd Bridge over Calleguas Creek (52C0279)	Latitude and Longitude Coordinates	\$792,167
Transportation	Pleasant Valley Rd Bridge over Calleguas Creek (52C0022)	Latitude and Longitude Coordinates	\$782,226.70
Transportation	Ridgeview St Bridge over Conejo Creek (52C0270)	Latitude and Longitude Coordinates	\$1,491,048
Transportation	Springville Interchange	Along US Hwy 101, between Las Posas Rd & Central Ave	Unknown
Transportation	Upland Rd Bridge over Calleguas Creek (52C0266)	Latitude and Longitude Coordinates	\$4,757,972.40

**Table H-3. City of Camarillo, Summary of Impacts for Population and Residential Buildings**

<b>Hazard</b>	<b>Population</b>	<b>% of Population</b>	<b>No. of Residential Buildings</b>	<b>% of Residential Buildings</b>
Climate Change - Rising Tide	0	0.00%	0	0.00%
Climate Change - Coastal Storm	0	0.00%	0	0.00%
Dam Failure Inundation	24,150	37.02%	7,119	32.39%
Earthquake Ground Shaking - Extreme	1,697	2.60%	691	3.14%
Earthquake Ground Shaking - Violent	63,538	97.40%	21,289	96.86%
Earthquake Ground Shaking - Severe	0	0.00%	0	0.00%
Liquefaction	15,072	23.10%	5,433	24.72%
Flood - 100 Year	5,437	8.33%	2,311	10.51%
Flood - 500 Year	18,668	28.62%	5,927	26.97%
Landslide Susceptibility Class VIII	327	0.50%	114	0.52%
Landslide Susceptibility Class IX	1,628	2.50%	573	2.61%
Landslide Susceptibility Class X	1,091	1.67%	387	1.76%
Reduced Flood Risks Due to Levees	0	0.00%	0	0.00%
Tsunami Evacuation Area - Phase 3	0	0.00%	0	0.00%
Tsunami Evacuation Area - Max	0	0.00%	0	0.00%
Wildfire - High	0	0.00%	0	0.00%
Wildfire - Very High	3,253	4.99%	1,551	7.06%

**Table H-4. City of Camarillo, Summary of Impacts for Critical Facilities and Infrastructure**

<b>Hazard</b>	<b>No. of Critical Facilities and Infrastructure</b>	<b>% of Critical Facilities and Infrastructure</b>
Climate Change - Rising Tide	0	0.00%
Climate Change - Coastal Storm	0	0.00%
Dam Failure Inundation	47	39.50%
Earthquake Ground Shaking - Extreme	4	3.36%
Earthquake Ground Shaking - Violent	112	94.12%
Earthquake Ground Shaking - Severe	0	0.00%
Liquefaction	36	30.25%
Flood - 100 Year	13	10.92%
Flood - 500 Year	36	30.25%
Landslide Susceptibility Class VIII	0	0.00%
Landslide Susceptibility Class IX	4	3.36%
Landslide Susceptibility Class X	4	3.36%
Reduced Flood Risks Due to Levees	0	0.00%
Tsunami Evacuation Area - Phase 3	0	0.00%
Tsunami Evacuation Area - Max	0	0.00%
Wildfire - High	1	0.84%
Wildfire - Very High	7	5.88%



**Table H-5. City of Camarillo, Human and Technical Resources for Hazard Mitigation**

Staff/Personnel Resources	Department or Agency	Principal Activities Related to Hazard Mitigation
Planner(s), engineer(s) and technical staff with knowledge of land development, land management practices, and human-caused and natural hazards.	Community Development	<p>Develops and maintains the General Plan, including the Safety Element.</p> <p>Develops area plans based on the General Plan, to provide more specific guidance for the development of more specific areas.</p> <p>Reviews private development projects and proposed capital improvements projects and other physical projects involving property for consistency and conformity with the General Plan.</p> <p>Anticipates and acts on the need for new plans, policies, and Code changes.</p> <p>Applies the approved plans, policies, code provisions, and other regulations to proposed land uses.</p>
Engineer(s), Building Inspectors/Code Enforcement Officers or other professional(s) and technical staff trained in construction requirements and practices related to existing and new buildings.	Public Works, Community Development, Abbott & Associates (building/safety contract provider)	Oversees the effective, efficient, fair, and safe enforcement of the California Building Code
Engineers, construction project managers, and supporting technical staff.	Public Works	Provides direct or contract civil, structural, and mechanical engineering services, including contract, project, and construction management.
Engineer(s), project manager(s), technical staff, equipment operators, and maintenance and construction staff.	Public Works	Maintains and operates of a wide range of local equipment and facilities as well as providing assistance to members of the public. These include providing sufficient clean fresh water, reliable sewer services, street maintenance, storm drainage systems, street cleaning, street lights and traffic signals.

**Table H-5. City of Camarillo, Human and Technical Resources for Hazard Mitigation**

Staff/Personnel Resources	Department or Agency	Principal Activities Related to Hazard Mitigation
Floodplain Administrator	Public Works	Reviews and ensures that new development proposals do not increase flood risk, and that new developments are not located below the 100 year flood level. In addition, the Floodplain Administrator is responsible for planning and managing flood risk reduction projects throughout the local jurisdiction.
Emergency Manager	Office of the City Manager	Maintains and updates the Emergency Operations Plan for the local jurisdiction. In addition, coordinates local response and relief activities within the Emergency Operation Center, and works closely with County, state, and federal partners to support planning and training and to provide information and coordinate assistance.
Procurement Services Manager	Finance	Provides a full range of municipal financial services, administers several licensing measures, and functions as the local jurisdiction's Procurement Services Manager.
Any other information that is requested for the purposes of our hazard mitigation assessment.	Office of the City Manager	EOC Coordinator and PIO – responsible for all information pertaining to emergency management and preparedness, as well as demographic data.

**Table H-6. City of Camarillo, Financial Resources for Hazard Mitigation**

Type	Subtype	Administrator	Purpose	Amount
<b>Local</b>	General Fund	Finance	Program operations and specific projects.	Variable.
	General Obligation (GO) Bonds	Finance	GO Bonds are appropriately used for the construction and/or acquisition of improvements to real property broadly available to residents and visitors. Such facilities include, but are not limited to, libraries, hospitals, parks, public safety facilities, and cultural and educational facilities.	Variable.
<b>Local (cont.)</b>	Lease Revenue Bonds	Finance	Lease revenue bonds are used to finance capital projects that (1) have an identified budgetary stream for repayment (e.g., specified fees, tax receipts, etc.), (2) generate project revenue but rely on a broader pledge of general fund revenues to reduce borrowing costs, or (3) finance the acquisition and installation of equipment for the local jurisdiction's general governmental purposes.	Variable.
	Public-Private Partnerships	Camarillo Chamber of Commerce Also: EDC-VC, CALED, Workforce Development Board	Includes the use of local professionals, business owners, residents, and civic groups and trade associations, generally for the study of issues and the development of guidance and recommendations.	Project-specific.
<b>Federal</b>	Hazard Mitigation Grant Program (HMGP)	Federal Emergency Management Agency (FEMA)	Supports pre- and post-disaster mitigation plans and projects.	Available to California communities after a Presidentially declared disaster has occurred in California. Grant award based on specific projects as they are identified by eligible applicants.

**Table H-6. City of Camarillo, Financial Resources for Hazard Mitigation**

Type	Subtype	Administrator	Purpose	Amount
<b>Federal (cont.)</b>	Pre-Disaster Mitigation (PDM) grant program	FEMA	Supports pre-disaster mitigation plans and projects.	Available on an annual basis as a nationally competitive grant. Grant award based on specific projects as they are identified (no more than \$3M federal share for projects).
	Flood Mitigation Assistance (FMA) grant program	FEMA	Mitigates repetitively flooded structures and infrastructure.	Available on an annual basis, distributed to California communities by the California Governor's Office of Emergency Services (Cal OES). Grant award based on specific projects as they are identified.
	Assistance to Firefighters Grant (AFG) Program	FEMA/USFA (U.S. Fire Administration)	Provides equipment, protective gear, emergency vehicles, training, and other resources needed to protect the public and emergency personnel from fire and related hazards.	Available to fire departments and nonaffiliated emergency medical services providers. Grant awards based on specific projects as they are identified.
	Community Development Block Grant Program Entitlement Communities Grants	U.S. HUD (U.S. Department of Housing and Urban Development)	Acquisition of real property, relocation and demolition, rehabilitation of residential and non-residential structures, construction of public facilities and improvements, such as water and sewer facilities, streets, neighborhood centers, and the conversion of school buildings for eligible purposes.	Available to entitled cities. Grant award based on specific projects as they are identified.
	Community Action for a Renewed Environment (CARE)	U.S. Environmental Protection Agency (EPA)	Through financial and technical assistance offers an innovative way for a community to organize and take action to reduce toxic pollution (i.e., stormwater) in its local environment. Through CARE, a community creates a partnership that implements solutions to reduce releases of toxic pollutants and minimize people's exposure to them.	Competitive grant program. Grant award based on specific projects as they are identified.



**Table H-6. City of Camarillo, Financial Resources for Hazard Mitigation**

Type	Subtype	Administrator	Purpose	Amount
<b>Federal (cont.)</b>	Clean Water State Revolving Fund (CWSRF)	EPA	The CWSRF is a loan program that provides low-cost financing to eligible entities within state and tribal lands for water quality projects, including all types of non-point source, watershed protection or restoration, estuary management projects, and more traditional municipal wastewater treatment projects.	CWSRF programs provided more than \$5 billion annually to fund water quality protection projects for wastewater treatment, non-point source pollution control, and watershed and estuary management.
	Public Health Emergency Preparedness (PHEP) Cooperative Agreement.	Department of Health and Human Services' (HHS') Centers for Disease Control and Prevention (CDC)	Funds are intended to upgrade state and local public health jurisdictions' preparedness and response to bioterrorism, outbreaks of infectious diseases, and other public health threats and emergencies.	Competitive grant program. Grant award based on specific projects as they are identified. Madera would participate through the County's Public Health Department.
	Homeland Security Preparedness Technical Assistance Program (HSPTAP)	FEMA/DHS	Build and sustain preparedness technical assistance activities in support of the four homeland security mission areas (prevention, protection, response, recovery) and homeland security program management.	Technical assistance services developed and delivered to state and local homeland security personnel. Grant award based on specific projects as they are identified.

**Table H-7. City of Camarillo, Legal and Regulatory Resources for Hazard Mitigation**

<b>Regulatory Tool</b>	<b>Name</b>	<b>Description (Effect on Hazard Mitigation)</b>	<b>Hazards Addressed</b>	<b>Mitigation, Preparedness, Response, or Recovery</b>	<b>Affects Development in Hazard Areas?</b>
<b>Plans</b>	General Plan: Safety Element was last updated in 2013	Describes hazard areas and regulates current and future development based on known hazard areas.	Earthquake, Liquefaction, Flooding, Landslide, Wildfire, and other hazards not addressed in this HMP.	Mitigation & Preparedness	Yes
	Emergency Operations Plan (EOP) was last updated in 2010; and is currently being updated.	Describes what the local jurisdiction's actions will be during a response to an emergency. Includes annexes that describe in more detail the actions required of the local jurisdiction's departments/agencies. Further, this plan describes the role of the Emergency Operation Center (EOC) and the coordination that occurs between the EOC and the local jurisdiction's departments and other response agencies. Finally, this plan describes how the EOC serves as the focal point among local, state, and federal governments in times of disaster.	Hazardous materials spill, Flooding, Wildfire, Earthquake, Liquefaction, Bard Reservoir Failure (flooding), Landslide, Tsunami, and other hazards not addressed in this HMP.	Response	No
	National Pollutant Discharge Elimination System (NPDES) permit (1994). Camarillo is part of the overall County project and is a Phase I	The NPDES Permit Program controls water pollution by regulating point sources that discharge pollutants into waters of the United States. Permits are written to ensure the receiving waters will achieve their Water Quality Standards.	Stormwater	Mitigation & Preparedness	Yes

**Table H-7. City of Camarillo, Legal and Regulatory Resources for Hazard Mitigation**

<b>Regulatory Tool</b>	<b>Name</b>	<b>Description (Effect on Hazard Mitigation)</b>	<b>Hazards Addressed</b>	<b>Mitigation, Preparedness, Response, or Recovery</b>	<b>Affects Development in Hazard Areas?</b>
<b>Programs</b>	National Flood Insurance Program (NFIP)	Makes affordable flood insurance available to homeowners, business owners, and renters in participating communities. In exchange, those communities must adopt and enforce minimum floodplain management regulations to reduce the risk of damage from future floods. Camarillo joined the NFIP in 1986.	Flood	Mitigation, Preparedness & Recovery	Yes
<b>Policies (Municipal Code)</b>	Title 2 Administration and Personnel Chapter 2.32 – Emergency Management systems	To provide for the preparation for, response to, and recovery from emergencies in accordance with the California Emergency Services Act (Government Code Section 8550 and following) and its implementing regulations.	Multiple	Mitigation, Preparedness, Response and Recovery	No
	Title 16 Building and Construction Chapter 16.04 – Uniform Building Codes Adopted by Reference	The city adopts the most current edition of the following codes by reference and all subsequent amendments to such codes.	Multiple	Mitigation & Preparedness	Yes
	Title 16 Building and Construction Chapter 16.04, Section 903 – Disaster Repair and Reconstruction	Establishes standards and regulations for the expeditious repair and reconstruction of structures damaged as a result of a disaster for which a local emergency has been declared (including criteria for unreinforced masonry structures).	Multiple	Recovery	Yes
	Title 16 Building and Construction Chapter 16.34 – Flood Damage Protection	To promote the public health, safety and general welfare, and to minimize public and private losses due to flood conditions in specific area.	Flood	Mitigation & Preparedness	Yes
	Title 16 Building and Construction Chapter 16.50 – Fire Protection Facilities Fee	Imposes on new construction within the city, and to transfer to the fire district, a fee in an amount sufficient to reimburse the fire district for that new construction's estimated pro rata share of the cost to the fire district of providing the additional or enlarged fire stations.	Fire	Mitigation & Preparedness	Yes

**Table H-7. City of Camarillo, Legal and Regulatory Resources for Hazard Mitigation**

Regulatory Tool	Name	Description (Effect on Hazard Mitigation)	Hazards Addressed	Mitigation, Preparedness, Response, or Recovery	Affects Development in Hazard Areas?
<b>Policies (Municipal Code cont.)</b>	Title 19 - Zoning Section 19.54.085 - Hazardous material and hazardous waste management—Siting criteria.	Businesses which generate, treat, recycle, store, utilize, dispose of, or otherwise manage hazardous materials or hazardous waste on site shall be reviewed by the Director and developed in accordance with the siting criteria set forth in this section.	Hazardous Materials	Mitigation & Preparedness	Yes

**Table H-8. City of Camarillo, Current and Completed Hazard Mitigation Projects and Programs**

Status (Current or Complete)	Project / Program Name	Description	Year(s)
Current	CERT Program	Training of new participants, as well as monthly refresher classes, and bi-monthly training for CERT graduates.	Ongoing (Since 2006)
Current - Annual	EOC and City Hall Emergency Exercises	Tabletop EOC exercises in the fall, and City Hall drop-cover-hold drill occurs on the same date as the annual Great California Shakeout.	Ongoing (10+ years)
Current	Community Outreach	Promotion of the website <a href="http://www.ReadyVenturaCounty.org">www.ReadyVenturaCounty.org</a> , and of registering for the VC Alert auto-notification system. Staff participation in community events Distribution of City's emergency preparedness DVD ( <i>Educating Jill</i> ), the streamed version is also available on the City's website.	Ongoing (10+ years)



**Table H-8. City of Camarillo, Current and Completed Hazard Mitigation Projects and Programs**

Status (Current or Complete)	Project / Program Name	Description	Year(s)
Current	Compliance with FEMA Community Rating System for flood management	Dissemination of the warning to the general public; implementation of specific tasks to reduce or prevent threats to health, safety, and property, such as controlling evacuation routes, restricting access to flooded areas, and maintaining vital services; and coordination of flood warning and response activities with operators of critical facilities, such as hospitals and hazardous materials companies.	In Progress
Completed	Address Floodplain Management Issues	Work with FEMA Region IX to address any floodplain management issues that may have arisen/arise from the countywide DFIRM, Community Assessment Visits, and/or DWR.	Unknown
Completed	Calleguas Creek Widening	Widen the creek from Pleasant Valley Road north to US Highway 101. This will provide improved flood protection, and will remove 500 homes from the 100-year floodplain.	Unknown
Completed	Camarillo Airport Looped Water System	This system extends a water line to create a second connection from the airport water system to the city water system. In the event of an emergency, this will ensure water is not interrupted to the airport.	Unknown

**Table H-9. City of Camarillo, Potential Mitigation Actions**

No.	Description	Hazard	Mitigation Category	New or Existing Construction
OA 1	Integrate the hazard analysis and mitigation strategy into the General Plan's Safety Element.	All	Local Plans and Regulations	Not Applicable

**Table H-9. City of Camarillo, Potential Mitigation Actions**

No.	Description	Hazard	Mitigation Category	New or Existing Construction
OA 2	Ensure that existing monitoring capabilities at the state and County level are integrated to provide an early warning of increased or new infestations.*	Agricultural (Insect Pests/Invasive Species)	Natural Systems Protection	Not Applicable
OA 3	Implement an infestation public awareness and educational campaign.	Agricultural (Insect Pests/Invasive Species)	Education and Awareness	Not Applicable
OA 4*	Relocate or reinforce bike trails, parking lots and other beach access amenities away from the shoreline to restore the beach/shoreline in sea-level rise/coastal erosion areas.	Climate Change	Natural Systems Protection	Existing
OA 5*	Restore habitat and improve flood protection for low-lying areas by employing innovative techniques such as constructing levees coupled with gently sloping tidal marshes to help protect from storm wave action and tidal surge.	Climate Change	Natural Systems Protection	New/Existing
OA 6	Develop a public outreach program that informs property owners located in the dam and levee failure inundation areas about voluntary flood insurance.	Dam and Levee Failure Inundation	Education and Awareness	Existing
OA 7	Develop a water conservation public outreach program to increase awareness about the drought, fines and penalties for overuse and solutions for conserving water.	Drought	Education and Awareness	New/Existing
OA 8	Adopt emergency water conservation measures and/or water conservation ordinance to limit irrigation.	Drought	Local Plans and Regulations	New/Existing
OA 9	Identify potentially vulnerable public and private utility systems including electric, gas, oil, water, sewer and communication. Upgrade vulnerable systems to ensure the operation and timely restoration of essential systems to reasonable levels of service.	Earthquake	Structure and Infrastructure Projects	New/Existing
OA 10	Seismically retrofit or upgrade seismically deficient government facilities and pre-identified shelter facilities.	Earthquake	Structure and Infrastructure Projects	Existing
OA 11	Develop and implement plans to increase the building owner's general knowledge of and appreciation for the value of seismic upgrading of the building's structural and nonstructural elements.	Earthquake	Local Plans and Regulations & Awareness and Education	Existing

**Table H-9. City of Camarillo, Potential Mitigation Actions**

No.	Description	Hazard	Mitigation Category	New or Existing Construction
OA 12	Increase participation in the NFIP by entering the Community Rating System program which through enhanced floodplain management activities would allow property owners to receive a discount on their flood insurance.	Flood	All	New/Existing (Residential structures and critical facilities which are located within the 100-year floodplain)
OA 13*	Reinforce roads/bridges from flooding through protection activities, including elevating the roads/bridges and installing/widening culverts beneath the roads/bridges or upgrading storm drains.	Flood	Structure and Infrastructure Projects	Existing
OA 14*	Acquire, relocate, or elevate residential structures, in particular those that have been identified as RL properties, within the 100-year floodplain.	Flood	Structure and Infrastructure Projects	Existing
OA 15	Work with FEMA Region 9 to address any floodplain management issues that may have arisen/arise from the countywide DFIRM, Community Assessment Visits, and/or DWR.	Flood	Local Plans and Regulations	Not Applicable
OA 16*	Implement landslide stabilization and/or protection measures. Stabilization measures include grading the unstable portion of the slope to a lower gradient, construction of rock buttresses and retaining walls, and drainage improvements. Protection measures include containment and/or diversion of the moving debris, such as walls, berms, ditches and catchment basins.	Landslide	Structure and Infrastructure Projects, Natural Systems Protection	New/Existing
OA 17	Implement post-fire debris flow hillslope and channel treatments, such as seeding, mulching, check dams, and debris racks, as needed.	Post-Fire Debris Flow	Natural Systems Protection	New/Existing

**Table H-9. City of Camarillo, Potential Mitigation Actions**

No.	Description	Hazard	Mitigation Category	New or Existing Construction
OA 18*	Continue to participate in the NWS TsunamiReady Program through continued implementation of Guideline 4: Community Preparedness measures, including public outreach material and curriculum.	Tsunami	Awareness and Education	Not Applicable
OA 19	Create a new vegetation management program that provides vegetation management services to elderly, disabled, or low-income property owners who lack the resources to remove flammable vegetation from around their homes.	Wildfire	Awareness and Education, Natural Systems Protection	Existing (Residential buildings in high wildfire severity zones)
OA 20	Implement a fuel modification program for new construction by requiring builders and developers to submit their plans, complete with proposed fuel modification zones, to the local fire department for review and approval prior to beginning construction.	Wildfire	Local Plans and Regulations	New (Residential and non-residential buildings located within high wildfire severity zones)
OA 21*	Develop a hazards fuel treatment program for areas that have been identified with overgrown/dead brush/trees to reduce the potential for tree-to-tree ignition. Ensure that a “maintenance now” component to provide continued fire resistance is part of the program.	Wildfire	Natural Systems Protection	New/Existing
OA 22	Develop a vegetation management program in areas within and adjacent to rights-of-way and in close proximity to critical facilities to reduce the risk of tree failure and property damage and avoid creation of wind acceleration corridors within vegetated areas.	Winter Storm	Awareness and Education, Natural Systems Protection	New/Existing
CA 1	Broaden outreach efforts to get as many residents as possible registered with the VC Alert system.	All	Awareness and Education	Not Applicable
CA 2	Develop a vegetation restoration/enhancement program for areas that have shown to be susceptible to landslides.	Landslide	Natural Systems Protection	New/Existing

\* Recent/current FEMA, NWS and California Coastal Conservancy grant projects (nationwide)

OA = Overarching

CA = Camarillo (potential mitigation action is specific to Camarillo)



**Table H-10. City of Camarillo, Mitigation Action Plan**

No.	Description	Facility to be Mitigated (if Known and/or Applicable)	Funding Source	Department or Agency	Timeframe (0-5 Years)
CA 1	Broaden outreach efforts to get as many residents as possible registered with the VC Alert system.	Citywide	General Fund	Office of the City Manager	1-2 years
CA 2	Develop a vegetation restoration/enhancement program for areas that have shown to be susceptible to landslides.	Citywide	HMGP or PDM	Public Works	2-3 years
OA 7	Develop a water conservation public outreach program to increase awareness about the drought, fines and penalties for overuse and solutions for conserving water.	Citywide	General Fund	Community Development	2-3 years
OA 11	Develop and implement plans to increase the building owner's general knowledge of and appreciation for the value of seismic upgrading of the building's structural and nonstructural elements.	Citywide	HMGP or PDM	Community Development and Public Works	1-2 years
OA 13*	Reinforce roads/bridges from flooding through protection activities, including elevating the roads/bridges and installing/widening culverts beneath the roads/bridges or upgrading storm drains.	Not Known	HMGP or PDM	Public Works	3-5 years

\* Recent/current FEMA, NWS and California Coastal Conservancy grant projects (nationwide)

HMGP = Hazard Mitigation Grant Program

PDM = Pre-Disaster Mitigation grant program

The Hazard Mitigation Assistance (HMA) Program requirements were used to guide choice of mitigation actions:

- Mitigation Planning
- Technical Feasibility and Effectiveness
- Floodplain Management and Protection of Wetlands
- Environmental Planning and Historic Review and Compliance
- Cost Effectiveness
- Cost Review
- General Program Requirements

*This page intentionally left blank*

Appendix I  
City of Fillmore

*This page intentionally left blank*

**Table I-1. City of Fillmore, Total Population and Residential Buildings**

Population <sup>1</sup>	Residential Buildings <sup>2</sup>
15,002	3,959

<sup>1</sup> 2010 census data, <sup>2</sup> Hazus 2.2 data (2010)

**Table I-2. City of Fillmore, Total Critical Facilities and Infrastructure**

Category	Name	Address	Value
Community	City Government Office	250 Central Avenue, Fillmore, CA 93015	Unknown
Community	Delores Day Park	Goodeough Rd and 4th Street, Fillmore, CA 93015	Unknown
Community	Fillmore Historical Museum	350 Main St, Fillmore, CA 93015	Unknown
Community	Fillmore Library	502 2nd St, Fillmore, CA 93015	Unknown
Community	Main Street Park	Main Street and Market Street, Fillmore, CA 93015	Unknown
Community	Meadowlark Park	1st Street and Medowlark Drive, Fillmore, CA 90315	Unknown
Community	Shiell Park	649 C St, Fillmore, CA 93015	Unknown
Community	Two Rivers Park	River St, Fillmore, CA 93015	Unknown
Emergency Response	Fillmore City Fire Department Station 91	711 Sespe Ave, Fillmore, CA 93015	Unknown
Emergency Response	Fillmore Police Department	524 Sespe Avenue, Fillmore, CA 93015	Unknown



**Table I-3. City of Fillmore, Summary of Impacts for Population and Residential Buildings**

<b>Hazard</b>	<b>Population</b>	<b>% of Population</b>	<b>No. of Residential Buildings</b>	<b>% of Residential Buildings</b>
Climate Change - Rising Tide	0	0.00%	0	0.00%
Climate Change - Coastal Storm	0	0.00%	0	0.00%
Dam Failure Inundation	12,895	85.95%	3,331	84.13%
Earthquake Ground Shaking - Extreme	15,002	100.00%	3,959	100.00%
Earthquake Ground Shaking - Violent	0	0.00%	0	0.00%
Earthquake Ground Shaking - Severe	0	0.00%	0	0.00%
Liquefaction	14,673	97.81%	3,850	97.24%
Flood - 100 Year	410	2.73%	172	4.34%
Flood - 500 Year	2	0.02%	1	0.02%
Landslide Susceptibility Class VIII	34	0.23%	11	0.29%
Landslide Susceptibility Class IX	161	1.07%	54	1.35%
Landslide Susceptibility Class X	156	1.04%	52	1.33%
Reduced Flood Risks Due to Levees	7,109	47.39%	1,656	41.83%
Tsunami Evacuation Area - Phase 3	0	0.00%	0	0.00%
Tsunami Evacuation Area - Max	0	0.00%	0	0.00%
Wildfire - High	2	0.01%	1	0.01%
Wildfire - Very High	1,461	9.74%	476	12.03%

**Table I-4. City of Fillmore, Summary of Impacts for Critical Facilities and Infrastructure**

<b>Hazard</b>	<b>No. of Critical Facilities and Infrastructure</b>	<b>% of Critical Facilities and Infrastructure</b>
Climate Change - Rising Tide	0	0.00%
Climate Change - Coastal Storm	0	0.00%
Dam Failure Inundation	10	100.00%
Earthquake Ground Shaking - Extreme	10	100.00%
Earthquake Ground Shaking - Violent	0	0.00%
Earthquake Ground Shaking - Severe	0	0.00%
Liquefaction	10	100.00%
Flood - 100 Year	1	10.00%
Flood - 500 Year	0	0.00%
Landslide Susceptibility Class VIII	0	0.00%
Landslide Susceptibility Class IX	0	0.00%
Landslide Susceptibility Class X	0	0.00%
Reduced Flood Risks Due to Levees	3	30.00%
Tsunami Evacuation Area - Phase 3	0	0.00%
Tsunami Evacuation Area - Max	0	0.00%
Wildfire - High	0	0.00%
Wildfire - Very High	0	0.00%

**Table I-5. City of Fillmore, Human and Technical Resources for Hazard Mitigation**

Staff/Personnel Resources	Department or Agency	Principal Activities Related to Hazard Mitigation
Planner(s), engineer(s) and technical staff with knowledge of land development, land management practices, and human-caused and natural hazards.	Planning Department	<p>Develops and maintains the General Plan, including the Safety Element.</p> <p>Develops area plans based on the General Plan, to provide more specific guidance for the development of more specific areas.</p> <p>Reviews private development projects and proposed capital improvements projects and other physical projects involving property for consistency and conformity with the General Plan.</p> <p>Anticipates and acts on the need for new plans, policies, and Code changes.</p> <p>Applies the approved plans, policies, code provisions, and other regulations to proposed land uses.</p>
Engineer(s), Building Inspectors/Code Enforcement Officers or other professional(s) and technical staff trained in construction requirements and practices related to existing and new buildings.	Building & Safety Department	Oversees the effective, efficient, fair, and safe enforcement of the California Building Code
Engineers, construction project managers, and supporting technical staff.	Building & Safety Department	Provides direct or contract civil, structural, and mechanical engineering services, including contract, project, and construction management.
Engineer(s), project manager(s), technical staff, equipment operators, and maintenance and construction staff.	Building & Safety Department	Maintains and operates of a wide range of local equipment and facilities as well as providing assistance to members of the public. These include providing sufficient clean fresh water, reliable sewer services, street maintenance, storm drainage systems, street cleaning, street lights and traffic signals.
Floodplain Administrator	Engineering Department	Reviews and ensures that new development proposals do not increase flood risk, and that new developments are not located below the 100 year flood level. In addition, the Floodplain Administrator is responsible for planning and managing flood risk reduction projects throughout the local jurisdiction.

**Table I-5. City of Fillmore, Human and Technical Resources for Hazard Mitigation**

Staff/Personnel Resources	Department or Agency	Principal Activities Related to Hazard Mitigation
Emergency Manager	Fire Department, City Manager	Maintains and updates the Emergency Operations Plan for the local jurisdiction. In addition, coordinates local response and relief activities within the Emergency Operation Center, and works closely with County, state, and federal partners to support planning and training and to provide information and coordinate assistance.
Procurement Services Manager	Assistant City Manager	Provides a full range of municipal financial services, administers several licensing measures, and functions as the local jurisdiction's Procurement Services Manager.

**Table I-6. City of Fillmore, Financial Resources for Hazard Mitigation**

Type	Subtype	Administrator	Purpose	Amount
<b>Local</b>	General Fund	Finance Director	Program operations and specific projects.	Variable.
	General Obligation (GO) Bonds	Finance Department	GO Bonds are appropriately used for the construction and/or acquisition of improvements to real property broadly available to residents and visitors. Such facilities include, but are not limited to, libraries, hospitals, parks, public safety facilities, and cultural and educational facilities.	Variable.

**Table I-6. City of Fillmore, Financial Resources for Hazard Mitigation**

Type	Subtype	Administrator	Purpose	Amount
	Lease Revenue Bonds	Finance Department	Lease revenue bonds are used to finance capital projects that (1) have an identified budgetary stream for repayment (e.g., specified fees, tax receipts, etc.), (2) generate project revenue but rely on a broader pledge of general fund revenues to reduce borrowing costs, or (3) finance the acquisition and installation of equipment for the local jurisdiction's general governmental purposes.	Variable.
	Public-Private Partnerships	City Manager and Fire Department	Includes the use of local professionals, business owners, residents, and civic groups and trade associations, generally for the study of issues and the development of guidance and recommendations.	Project-specific.
	Fire Mitigation Fees	Fire Department	Finance future fire protection facilities and fire capital expenditures required because of new development within Special Districts.	Variable.
<b>Federal</b>	Hazard Mitigation Grant Program (HMGP)	Federal Emergency Management Agency (FEMA)	Supports pre- and post-disaster mitigation plans and projects.	Available to California communities after a Presidentially declared disaster has occurred in California. Grant award based on specific projects as they are identified by eligible applicants.
	Pre-Disaster Mitigation (PDM) grant program	FEMA	Supports pre-disaster mitigation plans and projects.	Available on an annual basis as a nationally competitive grant. Grant award based on specific projects as they are identified (no more than \$3M federal share for projects).
	Flood Mitigation Assistance (FMA) grant program	FEMA	Mitigates repetitively flooded structures and infrastructure.	Available on an annual basis, distributed to California communities by the California Governor's Office of Emergency Services (Cal OES). Grant award based on specific projects as they are identified.



**Table I-6. City of Fillmore, Financial Resources for Hazard Mitigation**

Type	Subtype	Administrator	Purpose	Amount
	Assistance to Firefighters Grant (AFG) Program	FEMA/USFA (U.S. Fire Administration)	Provides equipment, protective gear, emergency vehicles, training, and other resources needed to protect the public and emergency personnel from fire and related hazards.	Available to fire departments and nonaffiliated emergency medical services providers. Grant awards based on specific projects as they are identified.
	Community Development Block Grant Program Entitlement Communities Grants	U.S. HUD (U.S. Department of Housing and Urban Development)	Acquisition of real property, relocation and demolition, rehabilitation of residential and non-residential structures, construction of public facilities and improvements, such as water and sewer facilities, streets, neighborhood centers, and the conversion of school buildings for eligible purposes.	Available to entitled cities. Grant award based on specific projects as they are identified.
<b>Federal (cont.)</b>	Community Action for a Renewed Environment (CARE)	U.S. Environmental Protection Agency (EPA)	Through financial and technical assistance offers an innovative way for a community to organize and take action to reduce toxic pollution (i.e., stormwater) in its local environment. Through CARE, a community creates a partnership that implements solutions to reduce releases of toxic pollutants and minimize people's exposure to them.	Competitive grant program. Grant award based on specific projects as they are identified.
	Clean Water State Revolving Fund (CWSRF)	EPA	The CWSRF is a loan program that provides low-cost financing to eligible entities within state and tribal lands for water quality projects, including all types of non-point source, watershed protection or restoration, estuary management projects, and more traditional municipal wastewater treatment projects.	CWSRF programs provided more than \$5 billion annually to fund water quality protection projects for wastewater treatment, non-point source pollution control, and watershed and estuary management.

**Table I-6. City of Fillmore, Financial Resources for Hazard Mitigation**

Type	Subtype	Administrator	Purpose	Amount
	Public Health Emergency Preparedness (PHEP) Cooperative Agreement.	Department of Health and Human Services' (HHS') Centers for Disease Control and Prevention (CDC)	Funds are intended to upgrade state and local public health jurisdictions' preparedness and response to bioterrorism, outbreaks of infectious diseases, and other public health threats and emergencies.	Competitive grant program. Grant award based on specific projects as they are identified.
	Homeland Security Preparedness Technical Assistance Program (HSPTAP)	FEMA/DHS	Build and sustain preparedness technical assistance activities in support of the four homeland security mission areas (prevention, protection, response, recovery) and homeland security program management.	Technical assistance services developed and delivered to state and local homeland security personnel. Grant award based on specific projects as they are identified.

**Table I-7. City of Fillmore, Legal and Regulatory Resources for Hazard Mitigation**

<b>Regulatory Tool</b>	<b>Name</b>	<b>Description (Effect on Hazard Mitigation)</b>	<b>Hazards Addressed</b>	<b>Mitigation, Preparedness, Response, or Recovery</b>	<b>Affects Development in Hazard Areas?</b>
<b>Plans</b>	General Plan: Safety Element 1988-2010	Describes hazard areas and regulates current and future development based on known hazard areas.	Seismic setting and earthquake hazards, liquefaction, erosion, 100-year flood, levee failure, dam failure, fire hazards, and toxic materials release	Mitigation & Preparedness	Yes
	Emergency Operations Plan 2013	Describes what the local jurisdiction's actions will be during a response to an emergency. Includes annexes that describe in more detail the actions required of the local jurisdiction's departments/agencies. Further, this plan describes the role of the Emergency Operation Center (EOC) and the coordination that occurs between the EOC and the local jurisdiction's departments and other response agencies. Finally, this plan describes how the EOC serves as the focal point among local, state, and federal governments in times of disaster.	Seismic setting and earthquake hazards, liquefaction, erosion, 100-year flood, levee failure, dam failure, fire hazards, and toxic materials release	Response	No
<b>Programs</b>	Stormwater Quality Management Program (SWQMP) (2010 - City of Fillmore participates through the Countywide Program)	Describes measures that the local jurisdiction will take to minimize stormwater pollution. The SWQMP is required by the National Pollutant Discharge Elimination System Phase II regulations, which became effective in March 2003.	Stormwater	Mitigation & Preparedness	Yes
	National Flood Insurance Program (NFIP)	Makes affordable flood insurance available to homeowners, business owners, and renters in participating communities. In exchange, those communities must adopt and enforce minimum floodplain management regulations to reduce the risk of damage from future floods. The City of Fillmore joined the NFIP in 1986.	Flood	Mitigation, Preparedness & Recovery	Yes

**Table I-7. City of Fillmore, Legal and Regulatory Resources for Hazard Mitigation**

<b>Regulatory Tool</b>	<b>Name</b>	<b>Description (Effect on Hazard Mitigation)</b>	<b>Hazards Addressed</b>	<b>Mitigation, Preparedness, Response, or Recovery</b>	<b>Affects Development in Hazard Areas?</b>
<b>Policies (Municipal Code)</b>	Title 5 – Buildings and Construction; Chapter 5.01 – Adoption of Construction and Fire Prevention Codes	Adoption of Fire and Prevention Code	Fire	Mitigation and Preparedness	Yes
	Title 5 – Buildings and Construction; 5.04.080 - California Existing Building Code	Adoption of the California Existing Building Code	Earthquake	Mitigation and Preparedness	Yes
	Title 6 – Land Development and Use; Chapter 6.16 – Flood Damage Prevention	To promote the public health, safety and general welfare, and to minimize public and private losses due to flood conditions in specific areas.	Floods	Mitigation and Preparedness	Yes
	Title 15 – Peace, Safety and Morals; Chapter 15.04 – Civil Defense and Disasters	To provide for the preparation and carrying out of plans for the protection of persons and property within the city in the event of an emergency, the direction of the emergency organization, and the coordination of the emergency functions of the city with all persons and all other public agencies.	Various	Mitigation, Preparedness, Response and Recovery	No
	Ordinance List and Disposition Table	Rebuilding earthquake-damaged buildings	Earthquake	Recovery	Yes

**Table I-8. City of Fillmore, Current and Completed Hazard Mitigation Projects and Programs**

Status (Current or Complete)	Project / Program Name	Description	Year(s)
Current	Heritage Valley Parks Specific Plan (HVPSP)	The HVPSP was adopted in 2002. 1-1/2 miles of soil cement levees were constructed, a large debris basin and storm drain system incorporated to protect proposed 750 residential project. The import of soil addressed liquefaction.	On-going
Current	Staff Review Committee	All development Projects are reviewed by department heads	On-going
Current	Identify Potential Funding Sources for Property Owners	Work with county, state, and Federal government to identify potential funding sources for economic and noneconomic incentives for property owners to implement mitigation strategies to eliminate or reduce damage to unreinforced structures, mobile and modular structures due to seismic events.	On-going
Current	Voluntary Flood Insurance Public Outreach Program	Develop a public outreach program that informs property owners located in the dam and levee failure inundation areas about voluntary flood insurance.	Ongoing
Current	Site-specific Studies	Require site-specific studies to evaluate specific hazards in hazard-prone areas and identify alternative site design criteria to mitigate hazards to the maximum extent possible.	On-going for every development project
Complete	Demolition of Dilapidated Buildings or Seismically Retrofit	Following the 1994 Northridge Earthquake every un-reinforced building in the City of Fillmore was seismically retro-fitted or demolished.	2009
Complete	Business Park Master Plan Levee	Business Park Master Plan adopted in 2008. This included construction of a solid cement levee to protect the Sewer Plant that was constructed in 2009.	2009



**Table I-8. City of Fillmore, Current and Completed Hazard Mitigation Projects and Programs**

Status (Current or Complete)	Project / Program Name	Description	Year(s)
Not Completed	General Plan Update, Safety Element Improvements	Update Fillmore's General Plan periodically and recommend improvements to the Safety Element. The Safety Element was completed in 1988 and needs to be updated.	Not Completed

**Table I-9. City of Fillmore, Potential Mitigation Actions**

No.	Description	Hazard	Mitigation Category	New or Existing Construction
OA 1	Integrate the hazard analysis and mitigation strategy into the General Plan's Safety Element.	All	Local Plans and Regulations	Not Applicable
OA 2	Ensure that existing monitoring capabilities at the state and County level are integrated to provide an early warning of increased or new infestations.*	Agricultural (Insect Pests/Invasive Species)	Natural Systems Protection	Not Applicable
OA 3	Implement an infestation public awareness and educational campaign.	Agricultural (Insect Pests/Invasive Species)	Education and Awareness	Not Applicable
OA 4*	Relocate or reinforce bike trails, parking lots and other beach access amenities away from the shoreline to restore the beach/shoreline in sea-level rise/coastal erosion areas.	Climate Change	Natural Systems Protection	Existing
OA 5*	Restore habitat and improve flood protection for low-lying areas by employing innovative techniques such as constructing levees coupled with gently sloping tidal marshes to help protect from storm wave action and tidal surge.	Climate Change	Natural Systems Protection	New/Existing
OA 6	Develop a public outreach program that informs property owners located in the dam and levee failure inundation areas about voluntary flood insurance.	Dam and Levee Failure Inundation	Education and Awareness	Existing
OA 7	Develop a water conservation public outreach program to increase awareness about the drought, fines and penalties for overuse and solutions for conserving water.	Drought	Education and Awareness	New/Existing
OA 8	Adopt emergency water conservation measures and/or water conservation ordinance to limit irrigation.	Drought	Local Plans and Regulations	New/Existing
OA 9	Identify potentially vulnerable public and private utility systems including electric, gas, oil, water, sewer and communication. Upgrade vulnerable systems to ensure the operation and timely restoration of essential systems to reasonable levels of service.	Earthquake	Structure and Infrastructure Projects	New/Existing
OA 10	Seismically retrofit or upgrade seismically deficient government facilities and pre-identified shelter facilities.	Earthquake	Structure and Infrastructure Projects	Existing

**Table I-9. City of Fillmore, Potential Mitigation Actions**

No.	Description	Hazard	Mitigation Category	New or Existing Construction
OA 11	Develop and implement plans to increase the building owner's general knowledge of and appreciation for the value of seismic upgrading of the building's structural and nonstructural elements.	Earthquake	Local Plans and Regulations & Awareness and Education	Existing
OA 12	Increase participation in the NFIP by entering the Community Rating System program which through enhanced floodplain management activities would allow property owners to receive a discount on their flood insurance.	Flood	All	New/Existing (Residential structures and critical facilities which are located within the 100-year floodplain)
OA 13*	Reinforce roads/bridges from flooding through protection activities, including elevating the roads/bridges and installing/widening culverts beneath the roads/bridges or upgrading storm drains.	Flood	Structure and Infrastructure Projects	Existing
OA 14*	Acquire, relocate, or elevate residential structures, in particular those that have been identified as RL properties, within the 100-year floodplain.	Flood	Structure and Infrastructure Projects	Existing
OA 15	Work with FEMA Region 9 to address any floodplain management issues that may have arisen/arise from the countywide DFIRM, Community Assessment Visits, and/or DWR.	Flood	Local Plans and Regulations	Not Applicable
OA 16*	Implement landslide stabilization and/or protection measures. Stabilization measures include grading the unstable portion of the slope to a lower gradient, construction of rock buttresses and retaining walls, and drainage improvements. Protection measures include containment and/or diversion of the moving debris, such as walls, berms, ditches and catchment basins.	Landslide	Structure and Infrastructure Projects, Natural Systems Protection	New/Existing
OA 17	Implement post-fire debris flow hillslope and channel treatments, such as seeding, mulching, check dams, and debris racks, as needed.	Post-Fire Debris Flow	Natural Systems Protection	New/Existing

**Table I-9. City of Fillmore, Potential Mitigation Actions**

No.	Description	Hazard	Mitigation Category	New or Existing Construction
OA 18*	Continue to participate in the NWS TsunamiReady Program through continued implementation of Guideline 4: Community Preparedness measures, including public outreach material and curriculum.	Tsunami	Awareness and Education	Not Applicable
OA 19	Create a new vegetation management program that provides vegetation management services to elderly, disabled, or low-income property owners who lack the resources to remove flammable vegetation from around their homes.	Wildfire	Awareness and Education, Natural Systems Protection	Existing (Residential buildings in high wildfire severity zones)
OA 20	Implement a fuel modification program for new construction by requiring builders and developers to submit their plans, complete with proposed fuel modification zones, to the local fire department for review and approval prior to beginning construction.	Wildfire	Local Plans and Regulations	New (Residential and non-residential buildings located within high wildfire severity zones)
OA 21*	Develop a hazards fuel treatment program for areas that have been identified with overgrown/dead brush/trees to reduce the potential for tree-to-tree ignition. Ensure that a “maintenance now” component to provide continued fire resistance is part of the program.	Wildfire	Natural Systems Protection	New/Existing
OA 22	Develop a vegetation management program in areas within and adjacent to rights-of-way and in close proximity to critical facilities to reduce the risk of tree failure and property damage and avoid creation of wind acceleration corridors within vegetated areas.	Winter Storm	Awareness and Education, Natural Systems Protection	New/Existing
F 1	Construction of Pole Creek Debris Basin. The basin is awaiting Ventura County Watershed District approval for improvements to Final and to accept construction. The Basin will accept mud and debris flow from the Pole Creek watershed in a 100 year rain event and protect all future homes in the Heritage Valley Parks Specific Plan consisting of 750 residential units. The debris basin project includes levees, basin maintenance roads and water flow to the Santa Clara River. The Basin is proposed to be owned and operated by Ventura County Water Shed Protection District.	Flood	Structure and Infrastructure Projects	New

**Table I-9. City of Fillmore, Potential Mitigation Actions**

No.	Description	Hazard	Mitigation Category	New or Existing Construction
F 2	Completion of the Heritage Valley Parks Levees. Over 1.5 miles of soil cement levee was constructed for protection of a 100 year storm and water flow from the Santa Clara River. Parks and streets about the levee in order to avoid any emergency conflict with proposed residential units. The Levee system protects the 750 proposed residential units in the Heritage Valley Parks Specific Plan and a proposed 110 condominium project proposed by KB Homes.	Flood	Structure and Infrastructure Projects	New
F 3	Completion of the Lower Sespe Creek Levee. A ½ mile in length soil cement levee was constructed south of Hwy 23 to protect the newly constructed Water Recycling Plant and protect the future Business Park Master Plan.	Flood	Structure and Infrastructure Projects	New
F 4	Completion of the Central Avenue Storm Drain. A large storm drain was installed in Central Ave to protect the Central Business District from floods that historically threatened downtown.	Flood	Structure and Infrastructure Projects	New/Existing
F 5	Continue to monitor the need to demolish abandoned and dilapidated buildings.	Wildfire and Winter Storm	Structure and Infrastructure Projects	Not Applicable

\* Recent/current FEMA, NWS and California Coastal Conservancy grant projects (nationwide)

OA = Overarching

F = City of Fillmore



**Table I-10. City of Fillmore, Mitigation Action Plan**

No.	Description	Facility to be Mitigated (if Known and/or Applicable)	Funding Source	Department or Agency	Timeframe (0-5 Years)
F 1	Construction of Pole Creek Debris Basin. The basin is awaiting Ventura County Watershed District approval for improvements to Final and to accept construction. The Basin will accept mud and debris flow from the Pole Creek watershed in a 100 year rain event and protect all future homes in the Heritage Valley Parks Specific Plan consisting of 750 residential units. The debris basin project includes levees, basin maintenance roads and water flow to the Santa Clara River. The Basin is proposed to be owned and operated by Ventura County Water Shed Protection District.	Pole Creek Debris Basin	HMGP or PDM	Building & Safety Department	3-5 years
F 2	Completion of the Heritage Valley Parks Levees. Over 1.5 miles of soil cement levee was constructed for protection of a 100 year storm and water flow from the Santa Clara River. Parks and streets about the levee in order to avoid any emergency conflict with proposed residential units. The Levee system protects the 750 proposed residential units in the Heritage Valley Parks Specific Plan and a proposed 110 condominium project proposed by KB Homes.	Heritage Valley Parks Levees	General Fund	Building & Safety Department	1-3 years
F 3	Completion of the Lower Sespe Creek Levee. A ½ mile in length soil cement levee was constructed south of Hwy 23 to protect the newly constructed Water Recycling Plant and protect the future Business Park Master Plan.	Lower Sespe Creek Levee	General Fund	Building & Safety Department	1-3 years
F 4	Completion of the Central Avenue Storm Drain. A large storm drain was installed in Central Ave to protect the Central Business District from floods that historically threatened downtown.	Central Avenue Storm Drain	General Fund	Building & Safety Department	1-3 years

**Table I-10. City of Fillmore, Mitigation Action Plan**

No.	Description	Facility to be Mitigated (if Known and/or Applicable)	Funding Source	Department or Agency	Timeframe (0-5 Years)
F 5	Continue to monitor the need to demolish abandoned and dilapidated buildings.	Citywide	General Fund	Building & Safety Department	Ongoing

HMGP = Hazard Mitigation Grant Program

PDM = Pre-Disaster Mitigation grant program

The Hazard Mitigation Assistance (HMA) Program requirements were used to guide choice of mitigation actions:

- Mitigation Planning
- Technical Feasibility and Effectiveness
- Floodplain Management and Protection of Wetlands
- Environmental Planning and Historic Review and Compliance
- Cost Effectiveness
- Cost Review
- General Program Requirements

Appendix J  
City of Moorpark

*This page intentionally left blank*

**Table J-1. City of Moorpark, Total Population and Residential Buildings**

Population <sup>1</sup>	Residential Buildings <sup>2</sup>
34,421	9,393

<sup>1</sup> 2010 census data, <sup>2</sup> Hazus 2.2 data (2010)

**Table J-2. City of Moorpark, Total Critical Facilities and Infrastructure**

Category	Name	Address	Value
Community	Arroyo Vista Community Park	4550 Tierra Rajada Rd., Moorpark, CA 93021	Unknown
Community	Arroyo Vista Recreation Center (includes gym)	4550 Tierra Rejada Road, Moorpark, CA 93021	\$3,999,204
Community	Campus Canyon Park (restrooms)	6970 Campus Cyn Dr., Moorpark, CA 93021	\$41,656
Community	Campus Park (restrooms)	6400 Harvard St., Moorpark, CA 93021	\$31,691
Community	College View Park (restrooms)	15400 Campus Park Dr., Moorpark, CA 93021	\$71,032
Community	Community Center Park	799 Moorpark Ave., Moorpark, CA 93021	\$42,807
Community	County Trail Park	11701 Mountain Trail Street, Moorpark, CA 93021	\$33,615
Community	Glenwood Park (restrooms)	11800 Harvester St., Moorpark, CA 93021	\$260,046
Community	High Street Arts Center	45 High St., Moorpark, CA 93021	\$1,699,817
Community	Library	699 Moorpark Ave., Moorpark, CA 93021	\$2,592,107
Community	Magnolia Park	296 Charles St, Moorpark, CA 93021	\$55,986
Community	Mammoth Highlands Park (restrooms)	7000 Elk Run Loop, Moorpark, CA 93021	\$97,962
Community	Miller Park (restrooms)	4530 Miller Parkway, Moorpark, CA 93021	\$99,722
Community	Monte Vista Nature Park	4201 Spring Road, Moorpark, CA 93021	Unknown
Community	Mountain Meadows Park (restrooms)	4350 Mountain Meadow Dr., Moorpark, CA 93021	\$40,491
Community	Peach Hill Park (restrooms)	13200 Peach Hill Rd., Moorpark, CA 93021	\$186,832
Community	Poindexter Park (restrooms)	500 Poindexter Ave., Moorpark, CA 93021	\$124,822
Community	Post Office Parking Lot	100 High St., Moorpark, CA 93021	Unknown



**Table J-2. City of Moorpark, Total Critical Facilities and Infrastructure**

Category	Name	Address	Value
Community	Ruben Castro Human Services Center	612 Spring Rd., Moorpark, CA 93021	\$10,607,850
Community	Tierra Rejada Park (restrooms)	11900 Mountain Trail, Moorpark, CA 93021	\$70,158
Community	Veterans Memorial Park	608 Spring Road, Moorpark, CA 93021	\$81,636
Community	Villa Campesina Park	4074 Leta Yancy Rd, Moorpark, CA 93021	\$30,262
Community	Virginia Colony Park	14507 Condor Dr., Moorpark, CA 9302	\$32,605
Emergency Response	Police Services Center	610 Springs Rd, Moorpark, CA 93021-1815	\$10,378,427
Government	Moorpark City Hall, Community Center, Active Adult Center	799 Moorpark Ave., Moorpark, CA 93021	\$6,155,693
Government	Moorpark Public Services Facility, Office, Maintenance Yard & Storage	627 Fitch Ave., Moorpark, CA 93021	\$9,242,484
Transportation	Moorpark Metrolink/Amtrak Station Park & Ride	300 High Street, Moorpark, CA 93021	Unknown
Transportation	Spring Rd Bridge	Latitude and Longitude Coordinates	Unknown

**Table J-3. City of Moorpark, Summary of Impacts for Population and Residential Buildings**

<b>Hazard</b>	<b>Population</b>	<b>% of Population</b>	<b>No. of Residential Buildings</b>	<b>% of Residential Buildings</b>
Climate Change - Rising Tide	0	0.00%	0	0.00%
Climate Change - Coastal Storm	0	0.00%	0	0.00%
Dam Failure Inundation	13,747	39.94%	2,985	31.78%
Earthquake Ground Shaking - Extreme	3,725	10.82%	1,138	12.12%
Earthquake Ground Shaking - Violent	30,696	89.18%	8,255	87.88%
Earthquake Ground Shaking - Severe	0	0.00%	0	0.00%
Liquefaction	16,741	48.64%	3,827	40.74%
Flood - 100 Year	2,048	5.95%	472	5.02%
Flood - 500 Year	8,396	24.39%	1,435	15.28%
Landslide Susceptibility Class VIII	1,566	4.55%	483	5.14%
Landslide Susceptibility Class IX	2,288	6.65%	703	7.49%
Landslide Susceptibility Class X	519	1.51%	154	1.64%
Reduced Flood Risks Due to Levees	0	0.00%	0	0.00%
Tsunami Evacuation Area - Phase 3	0	0.00%	0	0.00%
Tsunami Evacuation Area - Max	0	0.00%	0	0.00%
Wildfire - High	10	0.03%	3	0.03%
Wildfire - Very High	15,145	44.00%	4,580	48.76%

**Table J-4. City of Moorpark, Summary of Impacts for Critical Facilities and Infrastructure**

Hazard	No. of Critical Facilities and Infrastructure	% of Critical Facilities and Infrastructure
Climate Change - Rising Tide	0	0.00%
Climate Change - Coastal Storm	0	0.00%
Dam Failure Inundation	21	75.00%
Earthquake Ground Shaking - Extreme	1	3.57%
Earthquake Ground Shaking - Violent	27	96.43%
Earthquake Ground Shaking - Severe	0	0.00%
Liquefaction	23	82.14%
Flood - 100 Year	4	14.29%
Flood - 500 Year	10	35.71%
Landslide Susceptibility Class VIII	1	3.57%
Landslide Susceptibility Class IX	0	0.00%
Landslide Susceptibility Class X	1	3.57%
Reduced Flood Risks Due to Levees	3	10.71%
Tsunami Evacuation Area - Phase 3	0	0.00%
Tsunami Evacuation Area - Max	0	0.00%
Wildfire - High	0	0.00%
Wildfire - Very High	16	57.14%

**Table J-5. City of Moorpark, Human and Technical Resources for Hazard Mitigation**

Staff/Personnel Resources	Department or Agency	Principal Activities Related to Hazard Mitigation
Planner(s), engineer(s) and technical staff with knowledge of land development, land management practices, and human-caused and natural hazards. Community Development Director, Planning Manager, City Engineer/Public Works Director, Assistant City Manager, Emergency Coordinator (Senior Management Analyst)	Community Development Department (CDD), City Engineer/Public Works Department (PWD), Administrative Services Department (ASD)	<p>Develops and maintains the General Plan, including the Safety Element.</p> <p>Develops area plans based on the General Plan, to provide more specific guidance for the development of more specific areas.</p> <p>Reviews private development projects and proposed capital improvements projects and other physical projects involving property for consistency and conformity with the General Plan.</p> <p>Anticipates and acts on the need for new plans, policies, and Code changes.</p> <p>Applies the approved plans, policies, code provisions, and other regulations to proposed land uses.</p>
Engineer(s), Building Inspectors/Code Enforcement Officers or other professional(s) and technical staff trained in construction requirements and practices related to existing and new buildings. Community Development Director, Planning Manager, City Engineer/Public Works Director, Contract Building Official, Contract Building Inspectors, Code Compliance Technician	CDD, PWD	Oversees the effective, efficient, fair, and safe enforcement of the California Building Code
Engineers, construction project managers, and supporting technical staff. City Engineer/Public Works Director, Public Works Superintendent/Inspector, and Contract Engineering Inspectors	PWD	Provides direct or contract civil, structural, and mechanical engineering services, including contract, project, and construction management.
Engineer(s), project manager(s), technical staff, equipment operators, and maintenance and construction staff. City Engineer/Public Works Director, Public Works Superintendent/Inspector, Parks and Recreation Director, Landscape/Parks Maintenance Superintendent, Maintenance Workers	PWD and Parks, Recreation and Community Services (PRCS)	Maintains and operates a wide range of local equipment and facilities as well as providing assistance to members of the public. These include providing sufficient clean fresh water, reliable sewer services, street maintenance, storm drainage systems, street cleaning, street lights and traffic signals.

**Table J-5. City of Moorpark, Human and Technical Resources for Hazard Mitigation**

Staff/Personnel Resources	Department or Agency	Principal Activities Related to Hazard Mitigation
Floodplain Administrator City Engineer/Public Works Director	PWD	Reviews and ensures that new development proposals do not increase flood risk, and that new developments are not located below the 100 year flood level. In addition, the Floodplain Administrator is responsible for planning and managing flood risk reduction projects throughout the local jurisdiction.
Emergency Manager Assistant City Manager, Emergency Coordinator (Senior Management Analyst)	ASD	Maintains and updates the Emergency Operations Plan for the local jurisdiction. In addition, coordinates local response and relief activities within the Emergency Operation Center, and works closely with County, state, and federal partners to support planning and training and to provide information and coordinate assistance.
Procurement Services Manager Finance Director	Finance Department (FIN)	Provides a full range of municipal financial services, administers several licensing measures, and functions as the local jurisdiction's Procurement Services Manager.



**Table J-6. City of Moorpark, Financial Resources for Hazard Mitigation**

Type	Subtype	Administrator	Purpose	Amount
<b>Local</b>	General Fund	City Manager	Program operations and specific projects.	Variable.
	General Obligation (GO) Bonds	City Manager	GO Bonds are appropriately used for the construction and/or acquisition of improvements to real property broadly available to residents and visitors. Such facilities include, but are not limited to, libraries, hospitals, parks, public safety facilities, and cultural and educational facilities.	Variable
<b>Local (cont.)</b>	Lease Revenue Bonds	City Manager	Lease revenue bonds are used to finance capital projects that (1) have an identified budgetary stream for repayment (e.g., specified fees, tax receipts, etc.), (2) generate project revenue but rely on a broader pledge of general fund revenues to reduce borrowing costs, or (3) finance the acquisition and installation of equipment for the local jurisdiction's general governmental purposes.	Variable
	Public-Private Partnerships	City Manager	Includes the use of local professionals, business owners, residents, and civic groups and trade associations, generally for the study of issues and the development of guidance and recommendations.	Project-specific.
<b>Federal</b>	Hazard Mitigation Grant Program (HMGP)	Federal Emergency Management Agency (FEMA)	Supports pre- and post-disaster mitigation plans and projects.	Available to California communities after a Presidentially declared disaster has occurred in California. Grant award based on specific projects as they are identified by eligible applicants.
	Pre-Disaster Mitigation (PDM) grant program	FEMA	Supports pre-disaster mitigation plans and projects.	Available on an annual basis as a nationally competitive grant. Grant award based on specific projects as they are identified (no more than \$3M federal share for projects).

**Table J-6. City of Moorpark, Financial Resources for Hazard Mitigation**

Type	Subtype	Administrator	Purpose	Amount
<b>Federal (cont.)</b>	Flood Mitigation Assistance (FMA) grant program	FEMA	Mitigates repetitively flooded structures and infrastructure.	Available on an annual basis, distributed to California communities by the California Governor's Office of Emergency Services (Cal OES). Grant award based on specific projects as they are identified.
	Assistance to Firefighters Grant (AFG) Program	FEMA/USFA (U.S. Fire Administration)	Provides equipment, protective gear, emergency vehicles, training, and other resources needed to protect the public and emergency personnel from fire and related hazards.	Available to fire departments and nonaffiliated emergency medical services providers. Grant awards based on specific projects as they are identified.
	Community Development Block Grant Program Entitlement Communities Grants	U.S. HUD (U.S. Department of Housing and Urban Development)	Acquisition of real property, relocation and demolition, rehabilitation of residential and non-residential structures, construction of public facilities and improvements, such as water and sewer facilities, streets, neighborhood centers, and the conversion of school buildings for eligible purposes.	Available to entitled cities. Grant award based on specific projects as they are identified.
	Community Action for a Renewed Environment (CARE)	U.S. Environmental Protection Agency (EPA)	Through financial and technical assistance offers an innovative way for a community to organize and take action to reduce toxic pollution (i.e., stormwater) in its local environment. Through CARE, a community creates a partnership that implements solutions to reduce releases of toxic pollutants and minimize people's exposure to them.	Competitive grant program. Grant award based on specific projects as they are identified.
	Clean Water State Revolving Fund (CWSRF)	EPA	The CWSRF is a loan program that provides low-cost financing to eligible entities within state and tribal lands for water quality projects, including all types of non-point source, watershed protection or restoration, estuary management projects, and more traditional municipal wastewater treatment projects.	CWSRF programs provided more than \$5 billion annually to fund water quality protection projects for wastewater treatment, non-point source pollution control, and watershed and estuary management.

**Table J-6. City of Moorpark, Financial Resources for Hazard Mitigation**

Type	Subtype	Administrator	Purpose	Amount
<b>Federal (cont.)</b>	Public Health Emergency Preparedness (PHEP) Cooperative Agreement.	Department of Health and Human Services' (HHS') Centers for Disease Control and Prevention (CDC)	Funds are intended to upgrade state and local public health jurisdictions' preparedness and response to bioterrorism, outbreaks of infectious diseases, and other public health threats and emergencies.	Competitive grant program. Grant award based on specific projects as they are identified. Moorpark would participate through the County's Public Health Department.
	Homeland Security Preparedness Technical Assistance Program (HSPTAP)	FEMA/DHS	Build and sustain preparedness technical assistance activities in support of the four homeland security mission areas (prevention, protection, response, recovery) and homeland security program management.	Technical assistance services developed and delivered to state and local homeland security personnel. Grant award based on specific projects as they are identified.

**Table J-7. City of Moorpark, Legal and Regulatory Resources for Hazard Mitigation**

<b>Regulatory Tool</b>	<b>Name</b>	<b>Description (Effect on Hazard Mitigation)</b>	<b>Hazards Addressed</b>	<b>Mitigation, Preparedness, Response, or Recovery</b>	<b>Affects Development in Hazard Areas?</b>
<b>Plans</b>	General Plan	Describes hazard areas and regulates current and future development based on known hazard areas.	Multiple	Mitigation & Preparedness	Yes
	Emergency Operation Plan (2014)	Describes what the local jurisdiction's actions will be during a response to an emergency. Includes annexes that describe in more detail the actions required of the local jurisdiction's departments/agencies. Further, this plan describes the role of the Emergency Operation Center (EOC) and the coordination that occurs between the EOC and the local jurisdiction's departments and other response agencies. Finally, this plan describes how the EOC serves as the focal point among local, state, and federal governments in times of disaster.	Multiple	Response	No
	Area Housing Authority Organizational Emergency Response Plan	Enhances the Area Housing Authority's ability to effectively respond to emergencies by establishing procedures and assigning responsibilities	Seismic events, wildfire, floods and mudslides, train derailment, dam failure, hazardous spills, terrorism, transportation accidents, plan crashes	Preparedness, Response and Recovery	No
<b>Programs</b>	Stormwater Quality Management Program (SWQMP) (9)	Describes measures that the local jurisdiction will take to minimize stormwater pollution. The SWQMP is required by the National Pollutant Discharge Elimination System Phase II regulations, which became effective in March 2003.	Stormwater	Mitigation & Preparedness	Yes

**Table J-7. City of Moorpark, Legal and Regulatory Resources for Hazard Mitigation**

<b>Regulatory Tool</b>	<b>Name</b>	<b>Description (Effect on Hazard Mitigation)</b>	<b>Hazards Addressed</b>	<b>Mitigation, Preparedness, Response, or Recovery</b>	<b>Affects Development in Hazard Areas?</b>
<b>Programs (cont.)</b>	National Flood Insurance Program (NFIP)	Makes affordable flood insurance available to homeowners, business owners, and renters in participating communities. In exchange, those communities must adopt and enforce minimum floodplain management regulations to reduce the risk of damage from future floods. The City of Moorpark joined the NFIP in 1986.	Flood	Mitigation, Preparedness & Recovery	Yes
<b>Policies (Municipal Code)</b>	Title 2 Administration and Personnel Chapter 2.48 Emergency Preparedness	For the preparation and carrying out of plans for the protection of persons and property within the city in the event of an emergency; the direction of this emergency organization; and the coordination of the emergency functions of this city with all other public agencies, corporations and organizations and affected private persons.	NA	Mitigation, Preparedness, Response & Recovery	No
	Title 3 Revenue and Finance Chapter 3.36, Article I. Fire Protection Facilities Fee	Within the incorporated city limits any service area for which the existing fire station or group of fire stations is overextended, a fire protection facilities fee computed pursuant to this article shall be imposed upon the issuance of any building permit for new construction	Fire	Mitigation, Preparedness & Response	Yes
	Title 8 Health and Safety Chapter 8.36 Solid Waste	Provides a uniform procedure, regulation and control for the collection and transportation of solid waste, discards, and recyclable commodities to a city designated disposal site, and to provide for the regulation and control of the collection and diversion of solid waste from disposal at landfills through recycling, composting, or transformation of recyclables, and related provisions, in order to protect the public peace, health, safety, and general welfare of the people of the city	Hazardous Materials	Mitigation, Preparedness & Response	No



**Table J-7. City of Moorpark, Legal and Regulatory Resources for Hazard Mitigation**

Regulatory Tool	Name	Description (Effect on Hazard Mitigation)	Hazards Addressed	Mitigation, Preparedness, Response, or Recovery	Affects Development in Hazard Areas?
<b>Policies (Municipal Code cont.)</b>	Title 15 Buildings and Construction Chapter 15.08.060 Fire hazard zone requirements	Provide a minimum standard for the fire protection of buildings and structures hereafter erected in proximity to areas of the city where concentrations of highly flammable brush, grass, or other combustible growth combined with periods of hot, dry winds create a high fire hazard and where lives and property may thereby be endangered.	Fire	Mitigation & Preparedness	Yes
	Title 15 Buildings and Construction Chapter 15.24 Floodplain Management	To promote the public health, safety, and general welfare, and to minimize public and private losses due to flood conditions in specific areas.	Flood	Mitigation & Preparedness	Yes
	Title 15 Building and Construction: Chapter 15.28 Earthquake Damage Repairs	Damaged structures of all occupancies which have been damaged as a result of an earthquake, and its aftershocks, shall be repaired in accordance with established criteria (addresses unreinforced masonry)	Earthquake	Recovery	Yes
	Title 15 Building and Construction: Chapter 15.32 Earthquake Hazard Reduction in Existing Buildings	To promote public safety and welfare by reducing the risk of death or injury that may result from the effects of earthquakes on existing unreinforced masonry bearing wall buildings. Establishes minimum standards for structural seismic resistance established primarily to reduce the risk of life loss or injury.	Earthquake	Mitigation & Preparedness	Yes
	Title 17 Zoning Chapter 17.24 Development Requirements	Sets forth specific development requirements for all zones in the city in order to provide adequate separation for light, air, safety, and open space as well as to provide an aesthetically pleasing environment in which to live, work and recreate.	Flood	Mitigation & Preparedness	Yes
	Title 17 Zoning Chapter 17.36 Standards for specific zones and zone types	General standards for open space, agricultural and residential zones.	Multiple	Mitigation & Preparedness	Yes

**Table J-8. City of Moorpark, Current and Completed Hazard Mitigation Projects and Programs**

Status (Current or Complete)	Project / Program Name	Description	Year(s)
Completed	Address Floodplain Management Issues	Work with FEMA Region IX to address any floodplain management issues that may have arisen/arise from the countywide DFIRM, Community Assessment Visits, and/or DWR.	2008-2013
Completed	Update 2004 Multihazard Functional Plan with an Emergency Operation Plan (EOP)	The EOP describes the City's emergency organization, its means of coordination with other jurisdictions, and its approach to protecting people and property from disasters and emergencies.	2014
Current	Seismic Retrofit	Seismic non-structural and structural retrofit of critical facilities and infrastructure	Ongoing (until 2020)
Current	Fuel Reduction Program	Implement a fuel reduction program, such as the collection and disposal of dead fuel, within open spaces and around critical facilities and residential structures located within a SRA or LRA high or very high wildfire zone	Ongoing (until 2020)
Current	Permitting Process	Continue to work with FEMA and developers to ensure National Flood Insurance Program compliance	Ongoing for perpetuity
Current	Generator Purchase for Critical Facilities	Purchase and install electrical generators to serve the Active Adult Center, Arroyo Vista Recreation Center Offices, and the Public Services Facility. (Council Objective and CIP 7710)	2017-2020
Current	Community Emergency Response Team (CERT) Training	Coordinate with County fire to provide national standard training to community members	Ongoing (since 2006)
Current	Distribute emergency preparedness information	Provide Emergency Guides (English and Spanish beginning 2015) and other emergency information using various media	Ongoing (since 2010)
Current	Fire Sprinkler System	Community Center Fire Sprinkler System (CIP)	2020 anticipated completion

**Table J-8. City of Moorpark, Current and Completed Hazard Mitigation Projects and Programs**

Status (Current or Complete)	Project / Program Name	Description	Year(s)
Current	SEMS/NIMS Training for City employees	SEMS/NIMS is the model tool for command, control, and coordination of a response and provides a means to coordinate the efforts of individual agencies working toward common goals when stabilizing incidents.	Ongoing (since 2006)
Current	Los Angeles Avenue Widening at Shasta	Los Angeles Avenue widening at Spring Road will provide more (six) travel lanes (CIP 8058)	2017 anticipated completion
Current	Railroad Crossing Improvements at Spring Road	Construction of median gates and street widening – Metrolink is partial funding (CIP 8039)	2017 anticipated completion
Current	Los Angeles Avenue Widening at Spring Road to Moorpark Avenue	Widening and addition to travel lanes (creating an emergency lane)m sidewalk on south side, storm drain construction, traffic signal installation (CIP 8013)	2018 anticipated completion
Current	Princeton Avenue Widening	Widening, realignment, and reconstruction between Spring Road and Condor Drive – old state route 118 (CIP 8012)	2020 anticipated completion
Current	Moorpark Avenue Widening	Widening to add a southbound lane on west side from Casey to Third; street realignment at First and Poindexter and rail crossing improvements (CIP 8040)	2020 anticipated completion
Current	Route 23 North Alignment	Construction of a roadway north of Princeton to connect to Broadway (CIP 8045)	2020 anticipated completion
Current	Metrolink North Parking Lot Expansion	Convert vacant lot west of Metrolink North Parking Lot into a formal parking lot adding 55 stalls (CIP 8063)	2018 anticipated completion
Current	Moorpark Avenue Left Turn Lane	Construction of a dedicated left turn lane on northbound Moorpark at High Street (CIP 8087)	2018 anticipated completion
Current	Master Drainage Study Update	Update to the 1995 Citywide Master Drainage Study (CIP 8088)	2020 anticipated completion

**Table J-9. City of Moorpark, Potential Mitigation Actions**

No.	Description	Hazard	Mitigation Category	New or Existing Construction
OA 1	Integrate the hazard analysis and mitigation strategy into the General Plan's Safety Element.	All	Local Plans and Regulations	Not Applicable
OA 2	Ensure that existing monitoring capabilities at the state and County level are integrated to provide an early warning of increased or new infestations.*	Agricultural (Insect Pests/Invasive Species)	Natural Systems Protection	Not Applicable
OA 3	Implement an infestation public awareness and educational campaign.	Agricultural (Insect Pests/Invasive Species)	Education and Awareness	Not Applicable
OA 4*	Relocate or reinforce bike trails, parking lots and other beach access amenities away from the shoreline to restore the beach/shoreline in sea-level rise/coastal erosion areas.	Climate Change	Natural Systems Protection	Existing
OA 5*	Restore habitat and improve flood protection for low-lying areas by employing innovative techniques such as constructing levees coupled with gently sloping tidal marshes to help protect from storm wave action and tidal surge.	Climate Change	Natural Systems Protection	New/Existing
OA 6	Develop a public outreach program that informs property owners located in the dam and levee failure inundation areas about voluntary flood insurance.	Dam and Levee Failure Inundation	Education and Awareness	Existing
OA 7	Develop a water conservation public outreach program to increase awareness about the drought, fines and penalties for overuse and solutions for conserving water.	Drought	Education and Awareness	New/Existing
OA 8	Adopt emergency water conservation measures and/or water conservation ordinance to limit irrigation.	Drought	Local Plans and Regulations	New/Existing
OA 9	Identify potentially vulnerable public and private utility systems including electric, gas, oil, water, sewer and communication. Upgrade vulnerable systems to ensure the operation and timely restoration of essential systems to reasonable levels of service.	Earthquake	Structure and Infrastructure Projects	New/Existing
OA 10	Seismically retrofit or upgrade seismically deficient government facilities and pre-identified shelter facilities.	Earthquake	Structure and Infrastructure Projects	Existing

**Table J-9. City of Moorpark, Potential Mitigation Actions**

No.	Description	Hazard	Mitigation Category	New or Existing Construction
OA 11	Develop and implement plans to increase the building owner's general knowledge of and appreciation for the value of seismic upgrading of the building's structural and nonstructural elements.	Earthquake	Local Plans and Regulations & Awareness and Education	Existing
OA 12	Increase participation in the NFIP by entering the Community Rating System program which through enhanced floodplain management activities would allow property owners to receive a discount on their flood insurance.	Flood	All	New/Existing (Residential structures and critical facilities which are located within the 100-year floodplain)
OA 13*	Reinforce roads/bridges from flooding through protection activities, including elevating the roads/bridges and installing/widening culverts beneath the roads/bridges or upgrading storm drains.	Flood	Structure and Infrastructure Projects	Existing
OA 14*	Acquire, relocate, or elevate residential structures, in particular those that have been identified as RL properties, within the 100-year floodplain.	Flood	Structure and Infrastructure Projects	Existing
OA 15	Work with FEMA Region 9 to address any floodplain management issues that may have arisen/arise from the countywide DFIRM, Community Assessment Visits, and/or DWR.	Flood	Local Plans and Regulations	Not Applicable
OA 16*	Implement landslide stabilization and/or protection measures. Stabilization measures include grading the unstable portion of the slope to a lower gradient, construction of rock buttresses and retaining walls, and drainage improvements. Protection measures include containment and/or diversion of the moving debris, such as walls, berms, ditches and catchment basins.	Landslide	Structure and Infrastructure Projects, Natural Systems Protection	New/Existing
OA 17	Implement post-fire debris flow hillslope and channel treatments, such as seeding, mulching, check dams, and debris racks, as needed.	Post-Fire Debris Flow	Natural Systems Protection	New/Existing



**Table J-9. City of Moorpark, Potential Mitigation Actions**

No.	Description	Hazard	Mitigation Category	New or Existing Construction
OA 18*	Continue to participate in the NWS TsunamiReady Program through continued implementation of Guideline 4: Community Preparedness measures, including public outreach material and curriculum.	Tsunami	Awareness and Education	Not Applicable
OA 19	Create a new vegetation management program that provides vegetation management services to elderly, disabled, or low-income property owners who lack the resources to remove flammable vegetation from around their homes.	Wildfire	Awareness and Education, Natural Systems Protection	Existing (Residential buildings in high wildfire severity zones)
OA 20	Implement a fuel modification program for new construction by requiring builders and developers to submit their plans, complete with proposed fuel modification zones, to the local fire department for review and approval prior to beginning construction.	Wildfire	Local Plans and Regulations	New (Residential and non-residential buildings located within high wildfire severity zones)
OA 21*	Develop a hazards fuel treatment program for areas that have been identified with overgrown/dead brush/trees to reduce the potential for tree-to-tree ignition. Ensure that a “maintenance now” component to provide continued fire resistance is part of the program.	Wildfire	Natural Systems Protection	New/Existing
OA 22	Develop a vegetation management program in areas within and adjacent to rights-of-way and in close proximity to critical facilities to reduce the risk of tree failure and property damage and avoid creation of wind acceleration corridors within vegetated areas.	Winter Storm	Awareness and Education, Natural Systems Protection	New/Existing
MP 1	Generators: Purchase and install back-up generators for 3 facilities, one of which is often used by Ventura County Fire and Sheriff as an Incident Command Center and serves as an alternate Emergency Operation Center (EOC) for the City (Capital Improvement Project 7710)	Loss of power caused by various emergency or disaster events	Structure and Infrastructure Projects	Existing Construction: Purchase and install generators for each facility, plus one portable generator purchased and stored for a sewer lift station at a park facility
MP 2	Hazardous Mitigation Planning: Modify current Neighborhood and Business Watch Programs with focus on electronic format including real-time information exchange between law enforcement and the community	All	Awareness and Education	Not Applicable

**Table J-9. City of Moorpark, Potential Mitigation Actions**

No.	Description	Hazard	Mitigation Category	New or Existing Construction
MP 3	Wildfire Mitigation: Work with Ventura County Fire to consider siting/planning for a new fire station by Moorpark College (east end of City)	Multiple	Structure and Infrastructure Projects	New
MP 4	Mitigation Reconstruction: Reconstruct fire sprinkler system for the Community Center facility	Fire, Wildfire, Earthquake	Structure and Infrastructure Projects	Existing

\* Recent/current FEMA, NWS and California Coastal Conservancy grant projects (nationwide)

OA = Overarching

MP = Moorpark (potential mitigation action is specific to Moorpark)

**Table J-10. City of Moorpark, Mitigation Action Plan**

No.	Description	Facility to be Mitigated (if Known and/or Applicable)	Funding Source	Department or Agency	Timeframe (0-5 Years)
MP 1	Purchase and install back-up generators for 3 facilities, one of which is often used by Ventura County Fire and Sheriff as an Incident Command Center and serves as an alternate Emergency Operation Center (EOC) for the City (Capital Improvement Project 7710)	Arroyo Vista Recreation Center, 4550 Tierra Rejada Road; Moorpark Public Services Facility, 627 Fitch Avenue; and Community Center 799 Moorpark Avenue	General Fund; Homeland Security Grant	Parks, Recreation and Community Services	0-2 years
MP 2	Modify current Neighborhood and Business Watch Programs with focus on electronic format including real-time information exchange between law enforcement and the community	Not Applicable	General Fund	Police Department (County Sheriff under contract with City)	0-2 years
MP 3	Work with Ventura County Fire to consider feasibility/siting/planning for a new fire station by Moorpark College (east end of City)	Potential site at the east end of Campus Park Road near the intersection of Campus Road, abutting acres of open space	General Fund	Parks, Recreation and Community Services	0-2 years
MP 4	Reconstruct fire sprinkler system for the Community Center facility	799 Moorpark Avenue	General Fund; HMGP	Parks, Recreation and Community Services	2-5 years

**Table J-10. City of Moorpark, Mitigation Action Plan**

No.	Description	Facility to be Mitigated (if Known and/or Applicable)	Funding Source	Department or Agency	Timeframe (0-5 Years)
OA 1	Integrate the hazard analysis and mitigation strategy into the General Plan's Safety Element.	Not Applicable	General Fund	Community Development	0-2 years
OA 6	Develop a public outreach program that informs property owners located in the dam and levee failure inundation areas about voluntary flood insurance.	Not Applicable	General Fund	City Engineer/Public Works	0-2 years
OA 7	Develop a water conservation public outreach program to increase awareness about the drought, fines and penalties for overuse and solutions for conserving water.	Not Applicable	General Fund	Parks, Recreation and Community Services	0-2 years
OA 8	Adopt emergency water conservation measures and/or water conservation ordinance to limit irrigation.	Not Applicable	General Fund	Parks, Recreation and Community Services	0-2 years
OA 10	Seismically retrofit or upgrade seismically deficient government facilities and pre-identified shelter facilities.	Not Applicable	General Fund	Parks, Recreation and Community Services	0-2 years
OA 19	Create a new vegetation management program that provides vegetation management services to elderly, disabled, or low-income property owners who lack the resources to remove flammable vegetation from around their homes.	Not Applicable	General Fund; HMGP	Parks, Recreation and Community Services	2-5 years

HMGP = Hazard Mitigation Grant Program

The Hazard Mitigation Assistance (HMA) Program requirements were used to guide choice of mitigation actions:

- Mitigation Planning
- Technical Feasibility and Effectiveness
- Floodplain Management and Protection of Wetlands
- Environmental Planning and Historic Review and Compliance
- Cost Effectiveness
- Cost Review
- General Program Requirements

*This page intentionally left blank*

Appendix K  
City of Ojai



*This page intentionally left blank*

**Table K-1. City of Ojai, Total Population and Residential Buildings**

Population <sup>1</sup>	Residential Buildings <sup>2</sup>
7,461	2,885

<sup>1</sup> 2010 census data, <sup>2</sup> Hazus 2.2 data (2010)

**Table K-2. City of Ojai, Total Critical Facilities and Infrastructure**

Category	Name	Address	Value
Community	Daly Ranch Park	Latitude and Longitude Coordinates	Unknown
Community	KKUR-FM (Ojai)	Latitude and Longitude Coordinates	Unknown
Community	Libbey Park	Latitude and Longitude Coordinates	Unknown
Community	Ojai Refuse Transfer Station	Latitude and Longitude Coordinates	Unknown
Community	Ojai Valley Community Hospital	Latitude and Longitude Coordinates	Unknown
Community	Sarzotti Park	Latitude and Longitude Coordinates	Unknown
Emergency Response	Ojai Police Dept	402 S Ventura St, Ojai, CA 93023-3249	\$1,652,000
Government	Ojai City Hall	401 S. Ventura St., Ojai, CA 93023	Unknown
Transportation	Creek Rd Bridge	Latitude and Longitude Coordinates	\$92,330.30
Transportation	San Antonio Creek Bridge	Across San Antonio Creek, Ojai, CA 93023	\$3,508,748

**Table K-3. City of Ojai, Summary of Impacts for Population and Residential Buildings**

Hazard	Population	% of Population	No. of Residential Buildings	% of Residential Buildings
Climate Change - Rising Tide	0	0.00%	0	0.00%
Climate Change - Coastal Storm	0	0.00%	0	0.00%
Dam Failure Inundation	213	2.86%	91	3.16%
Earthquake Ground Shaking - Extreme	0	0.00%	0	0.00%
Earthquake Ground Shaking - Violent	7,461	100.00%	2,885	100.00%
Earthquake Ground Shaking - Severe	0	0.00%	0	0.00%
Liquefaction	856	11.48%	368	12.74%
Flood - 100 Year	242	3.24%	109	3.77%
Flood - 500 Year	2,018	27.05%	707	24.50%
Landslide Susceptibility Class VIII	55	0.74%	28	0.96%
Landslide Susceptibility Class IX	100	1.34%	47	1.62%
Landslide Susceptibility Class X	10	0.13%	5	0.16%
Reduced Flood Risks Due to Levees	0	0.00%	0	0.00%
Tsunami Evacuation Area - Phase 3	0	0.00%	0	0.00%
Tsunami Evacuation Area - Max	0	0.00%	0	0.00%
Wildfire - High	3	0.04%	2	0.06%
Wildfire - Very High	840	11.26%	358	12.41%

**Table K-4. City of Ojai, Summary of Impacts for Critical Facilities and Infrastructure**

<b>Hazard</b>	<b>No. of Critical Facilities and Infrastructure</b>	<b>% of Critical Facilities and Infrastructure</b>
Climate Change - Rising Tide	0	0.00%
Climate Change - Coastal Storm	0	0.00%
Dam Failure Inundation	0	0.00%
Earthquake Ground Shaking - Extreme	0	0.00%
Earthquake Ground Shaking - Violent	10	100.00%
Earthquake Ground Shaking - Severe	0	0.00%
Liquefaction	3	30.00%
Flood - 100 Year	2	20.00%
Flood - 500 Year	0	0.00%
Landslide Susceptibility Class VIII	0	0.00%
Landslide Susceptibility Class IX	0	0.00%
Landslide Susceptibility Class X	0	0.00%
Reduced Flood Risks Due to Levees	0	0.00%
Tsunami Evacuation Area - Phase 3	0	0.00%
Tsunami Evacuation Area - Max	0	0.00%
Wildfire - High	0	0.00%
Wildfire - Very High	2	20.00%

**Table K-5. City of Ojai, Human and Technical Resources for Hazard Mitigation**

Staff/Personnel Resources	Department or Agency	Principal Activities Related to Hazard Mitigation
Planner(s), engineer(s) and technical staff with knowledge of land development, land management practices, and human-caused and natural hazards.	Public Works	<p>Develops and maintains the General Plan, including the Safety Element.</p> <p>Develops area plans based on the General Plan, to provide more specific guidance for the development of more specific areas.</p> <p>Reviews private development projects and proposed capital improvements projects and other physical projects involving property for consistency and conformity with the General Plan.</p> <p>Anticipates and acts on the need for new plans, policies, and Code changes.</p> <p>Applies the approved plans, policies, code provisions, and other regulations to proposed land uses.</p>
Engineer(s), Building Inspectors/Code Enforcement Officers or other professional(s) and technical staff trained in construction requirements and practices related to existing and new buildings.	Community Development	Oversees the effective, efficient, fair, and safe enforcement of the California Building Code
Engineers, construction project managers, and supporting technical staff.	Public Works	Provides direct or contract civil, structural, and mechanical engineering services, including contract, project, and construction management.
Engineer(s), project manager(s), technical staff, equipment operators, and maintenance and construction staff.	Public Works	Maintains and operates of a wide range of local equipment and facilities as well as providing assistance to members of the public. These include providing sufficient clean fresh water, reliable sewer services, street maintenance, storm drainage systems, street cleaning, street lights and traffic signals.
Floodplain Administrator	City Engineer	Reviews and ensures that new development proposals do not increase flood risk, and that new developments are not located below the 100 year flood level. In addition, the Floodplain Administrator is responsible for planning and managing flood risk reduction projects throughout the local jurisdiction.



**Table K-5. City of Ojai, Human and Technical Resources for Hazard Mitigation**

Staff/Personnel Resources	Department or Agency	Principal Activities Related to Hazard Mitigation
Emergency Manager	City Manager's Office	Maintains and updates the Emergency Operations Plan for the local jurisdiction. In addition, coordinates local response and relief activities within the Emergency Operation Center, and works closely with County, state, and federal partners to support planning and training and to provide information and coordinate assistance.
Procurement Services Manager	Finance Department	Provides a full range of municipal financial services, administers several licensing measures, and functions as the local jurisdiction's Procurement Services Manager.

**Table K-6. City of Ojai, Financial Resources for Hazard Mitigation**

Type	Subtype	Administrator	Purpose	Amount
<b>Local</b>	General Fund	Finance	Program operations and specific projects.	Variable.
	General Obligation (GO) Bonds	Finance	GO Bonds are appropriately used for the construction and/or acquisition of improvements to real property broadly available to residents and visitors. Such facilities include, but are not limited to, libraries, hospitals, parks, public safety facilities, and cultural and educational facilities.	Variable.
	Lease Revenue Bonds	Finance	Lease revenue bonds are used to finance capital projects that (1) have an identified budgetary stream for repayment (e.g., specified fees, tax receipts, etc.), (2) generate project revenue but rely on a broader pledge of general fund revenues to reduce borrowing costs, or (3) finance the acquisition and installation of equipment for the local jurisdiction's general governmental purposes.	Variable.
	Public-Private Partnerships	City Manager	Includes the use of local professionals, business owners, residents, and civic groups and trade associations, generally for the study of issues and the development of guidance and recommendations.	Project-specific.
<b>Federal</b>	Hazard Mitigation Grant Program (HMGP)	Federal Emergency Management Agency (FEMA)	Supports pre- and post-disaster mitigation plans and projects.	Available to California communities after a Presidentially declared disaster has occurred in California. Grant award based on specific projects as they are identified by eligible applicants.
	Pre-Disaster Mitigation (PDM) grant program	FEMA	Supports pre-disaster mitigation plans and projects.	Available on an annual basis as a nationally competitive grant. Grant award based on specific projects as they are identified (no more than \$3M federal share for projects).

**Table K-6. City of Ojai, Financial Resources for Hazard Mitigation**

Type	Subtype	Administrator	Purpose	Amount
<b>Federal (cont.)</b>	Flood Mitigation Assistance (FMA) grant program	FEMA	Mitigates repetitively flooded structures and infrastructure.	Available on an annual basis, distributed to California communities by the California Governor's Office of Emergency Services (Cal OES). Grant award based on specific projects as they are identified.
	Assistance to Firefighters Grant (AFG) Program	FEMA/USFA (U.S. Fire Administration)	Provides equipment, protective gear, emergency vehicles, training, and other resources needed to protect the public and emergency personnel from fire and related hazards.	Available to fire departments and nonaffiliated emergency medical services providers. Grant awards based on specific projects as they are identified.
	Community Development Block Grant Program Entitlement Communities Grants	U.S. HUD (U.S. Department of Housing and Urban Development)	Acquisition of real property, relocation and demolition, rehabilitation of residential and non-residential structures, construction of public facilities and improvements, such as water and sewer facilities, streets, neighborhood centers, and the conversion of school buildings for eligible purposes.	Available to entitled cities. Grant award based on specific projects as they are identified.
	Community Action for a Renewed Environment (CARE)	U.S. Environmental Protection Agency (EPA)	Through financial and technical assistance offers an innovative way for a community to organize and take action to reduce toxic pollution (i.e., stormwater) in its local environment. Through CARE, a community creates a partnership that implements solutions to reduce releases of toxic pollutants and minimize people's exposure to them.	Competitive grant program. Grant award based on specific projects as they are identified.
	Clean Water State Revolving Fund (CWSRF)	EPA	The CWSRF is a loan program that provides low-cost financing to eligible entities within state and tribal lands for water quality projects, including all types of non-point source, watershed protection or restoration, estuary management projects, and more traditional municipal wastewater treatment projects.	CWSRF programs provided more than \$5 billion annually to fund water quality protection projects for wastewater treatment, non-point source pollution control, and watershed and estuary management.

**Table K-6. City of Ojai, Financial Resources for Hazard Mitigation**

Type	Subtype	Administrator	Purpose	Amount
<b>Federal (cont.)</b>	Public Health Emergency Preparedness (PHEP) Cooperative Agreement.	Department of Health and Human Services' (HHS') Centers for Disease Control and Prevention (CDC)	Funds are intended to upgrade state and local public health jurisdictions' preparedness and response to bioterrorism, outbreaks of infectious diseases, and other public health threats and emergencies.	Competitive grant program. Grant award based on specific projects as they are identified. Ojai would participate through the County's Public Health Department.
	Homeland Security Preparedness Technical Assistance Program (HSPTAP)	FEMA/DHS	Build and sustain preparedness technical assistance activities in support of the four homeland security mission areas (prevention, protection, response, recovery) and homeland security program management.	Technical assistance services developed and delivered to state and local homeland security personnel. Grant award based on specific projects as they are identified.

**Table K-7. City of Ojai, Legal and Regulatory Resources for Hazard Mitigation**

<b>Regulatory Tool</b>	<b>Name</b>	<b>Description (Effect on Hazard Mitigation)</b>	<b>Hazards Addressed</b>	<b>Mitigation, Preparedness, Response, or Recovery</b>	<b>Affects Development in Hazard Areas?</b>
<b>Plans</b>	General Plan: Safety Element (1991)	Describes hazard areas and regulates current and future development based on known hazard areas.	Earthquake, Flooding, Wildfire, Dam failure, Landslides, and other hazards not included in this HMP.	Mitigation & Preparedness	Yes
	Multi-Hazard / Emergency Operations Plan (updated - 2009)	Describes what the local jurisdiction's actions will be during a response to an emergency. Includes annexes that describe in more detail the actions required of the local jurisdiction's departments/agencies. Further, this plan describes the role of the Emergency Operation Center (EOC) and the coordination that occurs between the EOC and the local jurisdiction's departments and other response agencies. Finally, this plan describes how the EOC serves as the focal point among local, state, and federal governments in times of disaster.	Earthquake, Flooding, Wildfire, Dam Failure, Landslide, and other hazards not included in this HMP.	Response	No
	Stormwater Quality Management Program (SWQMP) (2010)	Describes measures that the local jurisdiction will take to minimize stormwater pollution. The SWQMP is required by the National Pollutant Discharge Elimination System Phase II regulations, which became effective in March 2003.	Stormwater	Mitigation & Preparedness	Yes
<b>Programs</b>	National Flood Insurance Program (NFIP)	Makes affordable flood insurance available to homeowners, business owners, and renters in participating communities. In exchange, those communities must adopt and enforce minimum floodplain management regulations to reduce the risk of damage from future floods. The City of Ojai joined the NFIP in 1978.	Flood	Mitigation, Preparedness & Recovery	Yes



**Table K-7. City of Ojai, Legal and Regulatory Resources for Hazard Mitigation**

<b>Regulatory Tool</b>	<b>Name</b>	<b>Description (Effect on Hazard Mitigation)</b>	<b>Hazards Addressed</b>	<b>Mitigation, Preparedness, Response, or Recovery</b>	<b>Affects Development in Hazard Areas?</b>
<b>Policies (Municipal Code)</b>	Title 3 Public Safety, Chapter 4 Fire Prevention	Inclusion within the Ventura County Fire Protection District in Ventura County	Fire	Preparedness and Response	Yes
	Title 5 Sanitation and health, Chapter 1 Integrated Waste Management	To protect public health, safety and well-being, to control the spread of vectors and to limit sources of air pollution, noise and traffic within the City.	Hazardous materials	Mitigation, Preparedness, and Response	No
	Title 9 Building Regulations, Chapter 1 Uniform Codes	Adoption of the “Uniform Fire Code”	Fire	Mitigation and Preparedness	Yes
	Title 9 Building Regulations, Chapter 3 Fire Zones	Fire Zone 4 Requirements	Fire	Mitigation and Preparedness	Yes
	Title 9 Building Regulations, Chapter 9 Flood Protection	To promote the public health, safety, and general welfare and to minimize public and private losses due to flood conditions in specific area.	Flood	Mitigation and Preparedness	Yes
	Title 9 Building Regulations, Chapter 12 Seismic Safety	To promote public safety and welfare by reducing the risk of death or injury that may result from the effects of earthquakes on existing unreinforced masonry bearing wall buildings.	Earthquakes	Mitigation and Preparedness	Yes

**Table K-8. City of Ojai, Current and Completed Hazard Mitigation Projects and Programs**

Status (Current or Complete)	Project / Program Name	Description	Year(s)
Unknown	Address Floodplain Management Issues	Work with FEMA Region IX to address any floodplain management issues that may have arisen/arise from the countywide DFIRM, Community Assessment Visits, and/or DWR.	Unknown
Unknown	Vegetation Management	Manage vegetation in areas within and adjacent to rights-of-way and in close proximity to critical facilities in order to reduce the risk of tree failure and property damage and avoid creation of wind acceleration corridors within vegetated areas.	Unknown
Unknown	Fuel Modification Program	Implement a fuel modification program, which also includes residential maintenance requirements and enforcement, plan submittal and approval process, guidelines for planting, and a listing of undesirable plant species. Require builders and developers to submit their plans, complete with proposed fuel modification zones, to the local fire department for review and approval prior to beginning construction.	Unknown

**Table K-9. City of Ojai, Potential Mitigation Actions**

No.	Description	Hazard	Mitigation Category	New or Existing Construction
OA 1	Integrate the hazard analysis and mitigation strategy into the General Plan's Safety Element.	All	Local Plans and Regulations	Not Applicable
OA 2	Ensure that existing monitoring capabilities at the state and County level are integrated to provide an early warning of increased or new infestations.*	Agricultural (Insect Pests/Invasive Species)	Natural Systems Protection	Not Applicable
OA 3	Implement an infestation public awareness and educational campaign.	Agricultural (Insect Pests/Invasive Species)	Education and Awareness	Not Applicable
OA 4*	Relocate or reinforce bike trails, parking lots and other beach access amenities away from the shoreline to restore the beach/shoreline in sea-level rise/coastal erosion areas.	Climate Change	Natural Systems Protection	Existing
OA 5*	Restore habitat and improve flood protection for low-lying areas by employing innovative techniques such as constructing levees coupled with gently sloping tidal marshes to help protect from storm wave action and tidal surge.	Climate Change	Natural Systems Protection	New/Existing
OA 6	Develop a public outreach program that informs property owners located in the dam and levee failure inundation areas about voluntary flood insurance.	Dam and Levee Failure Inundation	Education and Awareness	Existing
OA 7	Develop a water conservation public outreach program to increase awareness about the drought, fines and penalties for overuse and solutions for conserving water.	Drought	Education and Awareness	New/Existing
OA 8	Adopt emergency water conservation measures and/or water conservation ordinance to limit irrigation.	Drought	Local Plans and Regulations	New/Existing
OA 9	Identify potentially vulnerable public and private utility systems including electric, gas, oil, water, sewer and communication. Upgrade vulnerable systems to ensure the operation and timely restoration of essential systems to reasonable levels of service.	Earthquake	Structure and Infrastructure Projects	New/Existing
OA 10	Seismically retrofit or upgrade seismically deficient government facilities and pre-identified shelter facilities.	Earthquake	Structure and Infrastructure Projects	Existing

**Table K-9. City of Ojai, Potential Mitigation Actions**

No.	Description	Hazard	Mitigation Category	New or Existing Construction
OA 11	Develop and implement plans to increase the building owner's general knowledge of and appreciation for the value of seismic upgrading of the building's structural and nonstructural elements.	Earthquake	Local Plans and Regulations & Awareness and Education	Existing
OA 12	Increase participation in the NFIP by entering the Community Rating System program which through enhanced floodplain management activities would allow property owners to receive a discount on their flood insurance.	Flood	All	New/Existing (Residential structures and critical facilities which are located within the 100-year floodplain)
OA 13*	Reinforce roads/bridges from flooding through protection activities, including elevating the roads/bridges and installing/widening culverts beneath the roads/bridges or upgrading storm drains.	Flood	Structure and Infrastructure Projects	Existing
OA 14*	Acquire, relocate, or elevate residential structures, in particular those that have been identified as RL properties, within the 100-year floodplain.	Flood	Structure and Infrastructure Projects	Existing
OA 15	Work with FEMA Region 9 to address any floodplain management issues that may have arisen/arise from the countywide DFIRM, Community Assessment Visits, and/or DWR.	Flood	Local Plans and Regulations	Not Applicable
OA 16*	Implement landslide stabilization and/or protection measures. Stabilization measures include grading the unstable portion of the slope to a lower gradient, construction of rock buttresses and retaining walls, and drainage improvements. Protection measures include containment and/or diversion of the moving debris, such as walls, berms, ditches and catchment basins.	Landslide	Structure and Infrastructure Projects, Natural Systems Protection	New/Existing
OA 17	Implement post-fire debris flow hillslope and channel treatments, such as seeding, mulching, check dams, and debris racks, as needed.	Post-Fire Debris Flow	Natural Systems Protection	New/Existing

**Table K-9. City of Ojai, Potential Mitigation Actions**

No.	Description	Hazard	Mitigation Category	New or Existing Construction
OA 18*	Continue to participate in the NWS TsunamiReady Program through continued implementation of Guideline 4: Community Preparedness measures, including public outreach material and curriculum.	Tsunami	Awareness and Education	Not Applicable
OA 19	Create a new vegetation management program that provides vegetation management services to elderly, disabled, or low-income property owners who lack the resources to remove flammable vegetation from around their homes.	Wildfire	Awareness and Education, Natural Systems Protection	Existing (Residential buildings in high wildfire severity zones)
OA 20	Implement a fuel modification program for new construction by requiring builders and developers to submit their plans, complete with proposed fuel modification zones, to the local fire department for review and approval prior to beginning construction.	Wildfire	Local Plans and Regulations	New (Residential and non-residential buildings located within high wildfire severity zones)
OA 21*	Develop a hazards fuel treatment program for areas that have been identified with overgrown/dead brush/trees to reduce the potential for tree-to-tree ignition. Ensure that a “maintenance now” component to provide continued fire resistance is part of the program.	Wildfire	Natural Systems Protection	New/Existing
OA 22	Develop a vegetation management program in areas within and adjacent to rights-of-way and in close proximity to critical facilities to reduce the risk of tree failure and property damage and avoid creation of wind acceleration corridors within vegetated areas.	Winter Storm	Awareness and Education, Natural Systems Protection	New/Existing

\* Recent/current FEMA, NWS and California Coastal Conservancy grant projects (nationwide)

OA = Overarching



**Table K-10. City of Ojai, Mitigation Action Plan**

No.	Description	Facility to be Mitigated (if Known and/or Applicable)	Funding Source	Department or Agency	Timeframe (0-5 Years)
OA 10	Seismically retrofit or upgrade seismically deficient government facilities and pre-identified shelter facilities.	Not Known	HMGP or PDM	Public Works	3-5 years
OA 11	Develop and implement plans to increase the building owner's general knowledge of and appreciation for the value of seismic upgrading of the building's structural and nonstructural elements.	Citywide	HMGP or PDM	Community Development	1-2 years
OA 14*	Acquire, relocate, or elevate residential structures, in particular those that have been identified as RL properties, within the 100-year floodplain.	Repetitive Loss property	FMA	City Engineer	3-5 years
OA 21*	Develop a hazards fuel treatment program for areas that have been identified with overgrown/dead brush/trees to reduce the potential for tree-to-tree ignition. Ensure that a "maintenance now" component to provide continued fire resistance is part of the program.	Citywide	HMGP or PDM	Public Works	2-3 years

\* Recent/current FEMA, NWS and California Coastal Conservancy grant projects (nationwide)  
Flood Mitigation Assistance (FMA) grant program

The Hazard Mitigation Assistance (HMA) Program requirements were used to guide choice of mitigation actions:

- Mitigation Planning
- Technical Feasibility and Effectiveness
- Floodplain Management and Protection of Wetlands
- Environmental Planning and Historic Review and Compliance
- Cost Effectiveness
- Cost Review
- General Program Requirements

*This page intentionally left blank*

Appendix L  
City of Oxnard

*This page intentionally left blank*

**Table L-1. City of Oxnard, Total Population and Residential Buildings**

Population <sup>1</sup>	Residential Buildings <sup>2</sup>
197,911	40,914

<sup>1</sup> 2010 census data, <sup>2</sup> Hazus 2.2 data (2010)

**Table L-2. City of Oxnard, Total Critical Facilities and Infrastructure**

Category	Name	Address	Value
Community	Arts Building	950 W. Hill St, Oxnard, CA 93033	Unknown
Community	Carnegie Museum Building	424 S. C St., Oxnard, CA	Unknown
Community	College Estates Park	Latitude and Longitude Coordinates	Unknown
Community	Colonia Park	Latitude and Longitude Coordinates	Unknown
Community	Colonia Park Youth Center, Gymnasium and Pool	195 N. Marquita St., Oxnard, CA 93030	Unknown
Community	Colonia Senior Center	126 B. Amelia Court, Oxnard, CA 93030	Unknown
Community	Community Center Park, Oxnard	Latitude and Longitude Coordinates	Unknown
Community	Community Center West Building and Tennis Center	801 Hobson Way, Oxnard, CA 93030	Unknown
Community	Del Sol Park	Latitude and Longitude Coordinates	Unknown
Community	Johnson Creek Park	Latitude and Longitude Coordinates	Unknown
Community	KADY-TV (Oxnard)	Latitude and Longitude Coordinates	Unknown
Community	KDAR-FM (Oxnard)	Latitude and Longitude Coordinates	Unknown
Community	KDAR-FM (Oxnard)	Latitude and Longitude Coordinates	Unknown
Community	KOXR-AM (Oxnard)	Latitude and Longitude Coordinates	Unknown
Community	La Jenelle Park	Latitude and Longitude Coordinates	Unknown
Community	Lemonwood Park	Latitude and Longitude Coordinates	Unknown
Community	Lying In Hospital (Historical)	Latitude and Longitude Coordinates	Unknown



**Table L-2. City of Oxnard, Total Critical Facilities and Infrastructure**

Category	Name	Address	Value
Community	Marina West Park	Latitude and Longitude Coordinates	Unknown
Community	Orchard Park	Latitude and Longitude Coordinates	Unknown
Community	Oxnard Medical Arts Center	Latitude and Longitude Coordinates	Unknown
Community	Oxnard Shores Park	Latitude and Longitude Coordinates	Unknown
Community	Pacific Shores Hospital	Latitude and Longitude Coordinates	Unknown
Community	Peninsula Park	3333 Peninsula Rd., Oxnard, CA	Unknown
Community	Performing Arts Center and Convention Center	800 Hobson Way, Oxnard, CA	Unknown
Community	Petit Park	Latitude and Longitude Coordinates	Unknown
Community	Plaza Park, Oxnard	Latitude and Longitude Coordinates	Unknown
Community	Pleasant Valley Park, Oxnard	Latitude and Longitude Coordinates	Unknown
Community	Rio Lindo Park	Latitude and Longitude Coordinates	Unknown
Community	Rose Park	Latitude and Longitude Coordinates	Unknown
Community	Sea Air Park	Latitude and Longitude Coordinates	Unknown
Community	Seaview Park	Latitude and Longitude Coordinates	Unknown
Community	Sierra Linda Park	Latitude and Longitude Coordinates	Unknown
Community	South Oxnard Center	200 E. Bard Rd., Oxnard, CA	Unknown
Community	Southwinds Park	Latitude and Longitude Coordinates	Unknown
Community	Squires Community Center	5241 Squires Drive, Oxnard, CA	Unknown
Community	Thompson Park	Latitude and Longitude Coordinates	Unknown
Community	Via Marina Park	Latitude and Longitude Coordinates	Unknown
Community	Wilson Senior Center	350 N. C St., Oxnard, CA	Unknown
Community	Youth Center	850 W. Hill St., Oxnard, CA	Unknown
Emergency Response	Durley Park	Latitude and Longitude Coordinates	Unknown
Emergency Response	Oxnard FD Station #1	491 S. "K" St., Oxnard, CA 93030	\$708,000
Emergency Response	Oxnard FD Station #2	531 E. Pleasant Valley Rd., Oxnard, CA 93030	\$708,000
Emergency Response	Oxnard FD Station #3	150 Hill St., Oxnard, CA 93030	\$708,000

**Table L-2. City of Oxnard, Total Critical Facilities and Infrastructure**

Category	Name	Address	Value
Emergency Response	Oxnard FD Station #4	230 W. Vineyard Ave., Oxnard, CA 93030	\$708,000
Emergency Response	Oxnard FD Station #5	1450 Colonia Rd., Oxnard, CA 93030	\$708,000
Emergency Response	Oxnard FD Station #6	2601 Peninsula Rd., Oxnard, CA 93030	\$708,000
Emergency Response	Oxnard FD Station #7	3300 Turnout Park Circle, Oxnard, CA 93036	\$708,000
Emergency Response	Oxnard Fire Department	251 S 'C' ST, Oxnard, CA 93030	\$708,000
Emergency Response	Oxnard Fire Headquarters	360 W. Second St., Oxnard, CA 90300	\$708,000
Emergency Response	Oxnard Police Annex- Alt EOC	3001 Sturgis Rd, Oxnard, CA	\$1,652,000
Emergency Response	Oxnard Police Dept - Saviers Road	2687 Saviers Rd, Oxnard, CA 93033-4569	\$1,652,000
Emergency Response	Oxnard Police Dept - W Clara Street	300 W Clara St, Oxnard, CA 93033-1430	\$1,652,000
Emergency Response	Oxnard Police Dept - W Fifth St	1900 W. Fifth St., Oxnard, CA	\$1,652,000
Emergency Response	Oxnard Police Dept (Citrus Grove)	250 Citrus Grove Suite 220, Oxnard, CA	\$1,652,000
Emergency Response	Oxnard Police Dept (Grant)	211 N Grant Ave, Oxnard, CA 93030-3635	\$1,652,000
Emergency Response	Oxnard Police Dept (S A St)	444 S A St., Oxnard, CA	\$1,652,000
Emergency Response	Oxnard Police Dept (Squires)	5200 Squires Dr., Oxnard, CA	\$1,652,000
Emergency Response	Oxnard Police Dept (Statham)	2091 Statham Blvd, Oxnard, CA 93033-3901	\$1,652,000
Emergency Response	Oxnard Police Dept (W 5th St)	143 W 5th St, Oxnard, CA 93030-7105	\$1,652,000
Emergency Response	Oxnard Police Dept- HDQS/Jail/DOC	251 S C St, Oxnard, CA 93030-5789	\$1,652,000
Emergency Response	Oxnard Police Dept Storefront - Gonzales Rd	181 W Gonzales Rd, Oxnard, CA 93030-2959	\$1,652,000
Emergency Response	Oxnard Police Dept Storefront - Pacific Ave	1653 Pacific Ave., #312, Oxnard, CA	\$1,652,000
Government	Campus Park (PAL Center)	937 W. Fifth St., Oxnard, CA	Unknown
Government	Campus Park Classroom Building	450 S. K St., Oxnard, CA	Unknown
Government	Campus Park Gymnasium	350 S. K St., Oxnard, CA	Unknown
Government	City Corporation Yard	1060 Pacific Ave., Oxnard, CA 93030	Unknown
Government	City of Oxnard Recreation & Community Services	555 S. A St., Oxnard, CA	Unknown
Government	Civic Center Annex I	300 W. Third St., Oxnard, CA 93030	Unknown
Government	Civic Center East Wing	205 W Third St., Oxnard, CA 93030	Unknown

**Table L-2. City of Oxnard, Total Critical Facilities and Infrastructure**

Category	Name	Address	Value
Government	Civic Center West Wing & Council Chambers	305 W. Third St., Oxnard, CA 90300	Unknown
Government	Colonia Boxing Center	520 E. First St., Oxnard, CA 93030	Unknown
Government	Colonia Multi Service Center	1500 Colonia St., Oxnard, CA 93030	Unknown
Government	Del Norte Regional Recycling and Transfer Station	111 S. Del Norte Boulevard, Oxnard, CA	Unknown
Government	Downtown Parking Structure	324 S. B St., Oxnard, CA 93030	Unknown
Government	Durley Park Buildings	800 W. Hill St., Oxnard, CA	Unknown
Government	Fashion Park Oxnard Housing	Fashion Park Pl. at Saviers Rd., Oxnard, CA	Unknown
Government	Housing Administration Building	1470 Colonia Rd., Oxnard, CA	Unknown
Government	Housing Department	435 S. D St., Oxnard, CA	Unknown
Government	Oxnard City Hall	305 W. Third St., Oxnard, CA 93030	Unknown
Government	Oxnard Public Library	250 S. A St., Oxnard, CA	Unknown
Government	Plaza Vista Housing Complex - 401 C St	401 S. C St., Oxnard, CA	Unknown
Government	Plaza Vista Housing Complex - 801 C St	801 S. C St., Oxnard, CA	Unknown
Government	Public Housing Office	300 N. Marquita St., Oxnard, CA	Unknown
Government	Service Center	214 S. C St., Oxnard, CA 93030, Oxnard, CA 93030	Unknown
Government	Southwinds Park Building	300 W. Clara St., Oxnard, CA	Unknown
Government	Squire Drive Oxnard Housing	Squire Drive at Pleasant Valley Rd., Oxnard, CA	Unknown
Government	Squires Housing Office	5200 Squires Dr., Oxnard, CA	Unknown
Medical Facility/ Residential Care	Beck Park	Latitude and Longitude Coordinates	Unknown
Medical Facility/ Residential Care	Brittell Park	Latitude and Longitude Coordinates	Unknown
Medical Facility/ Residential Care	Cabrillo Park	Latitude and Longitude Coordinates	Unknown
Medical Facility/ Residential Care	Central Park	Latitude and Longitude Coordinates	Unknown

**Table L-2. City of Oxnard, Total Critical Facilities and Infrastructure**

Category	Name	Address	Value
Medical Facility/ Residential Care	Wilson Park	Latitude and Longitude Coordinates	Unknown
Public Utility	Advanced Water Purification Facility	South Perkins Road N/o Magellan Way, Oxnard, CA 93033	Unknown
Public Utility	Eastwood Memorial Park	Latitude and Longitude Coordinates	Unknown
Public Utility	Edison Substation - Craig Dr	Craig Dr., Oxnard, CA, Oxnard, CA 93036	Unknown
Public Utility	Edison Substation - Victoria Ave/Hemlock St	Victoria Ave./Hemlock St. , Oxnard, CA	Unknown
Public Utility	Elm Park	Latitude and Longitude Coordinates	Unknown
Public Utility	Fremont Park	Latitude and Longitude Coordinates	Unknown
Public Utility	Heritage Square	Latitude and Longitude Coordinates	Unknown
Public Utility	KCAQ-FM (Oxnard)	Latitude and Longitude Coordinates	Unknown
Public Utility	Lift Station No. 1 (Cabezzone)	Harbor Boulevard & Cabezone Way, Oxnard, CA	Unknown
Public Utility	Lift Station No. 15 (Cascade)	4130 Maulhardt Road, Oxnard, CA 93033	Unknown
Public Utility	Lift Station No. 2 (Harbor)	2223 Harbor Boulevard, Ventura, CA 93001	Unknown
Public Utility	Lift Station No. 20 (Beardsley)	Ventura Boulevard E/o Beardsley Channel, Oxnard, CA	Unknown
Public Utility	Lift Station No. 23 (Wagon Wheel)	Vineyard Avenue & Ventura Road, Oxnard, CA	Unknown
Public Utility	Lift Station No. 24 (Handyman)	2323 West Vineyard Avenue, Oxnard, CA 93036	Unknown
Public Utility	Lift Station No. 27 (Launch Ramp)	2711 South Victoria Avenue, Oxnard, CA 93035	Unknown
Public Utility	Lift Station No. 28 (RiverPark)	290 East Myrtle Lane, Oxnard, CA 93036	Unknown
Public Utility	Lift Station No. 29 (Patterson)	1921 Patterson Road, Oxnard, CA 93035	Unknown
Public Utility	Lift Station No. 30 (Colony)	Channel Islands Boulevard & Harbor Boulevard, Oxnard, CA	Unknown
Public Utility	Lift Station No. 4 (Mandalay)	5202 West Wooley Road, Oxnard, CA 93035	Unknown
Public Utility	Lift Station No. 6 (Canal)	4701 West Wooley Road, Oxnard, CA 93035	Unknown
Public Utility	Lift Station No. 7 (Viewpoint)	1101 Viewpoint Drive, Oxnard, CA 93035	Unknown
Public Utility	Mandalay Generating Station	393 North Harbor Blvd., Oxnard, CA 93035	\$129,800,000

**Table L-2. City of Oxnard, Total Critical Facilities and Infrastructure**

Category	Name	Address	Value
Public Utility	Ormond Beach Generating Station	6635 S. Edison Drive, Oxnard, CA 93033	\$129,800,000
Public Utility	Oxnard Blending Station No. 2 (Richmond)	1061 Richmond Avenue, Oxnard, CA 93030	Unknown
Public Utility	Oxnard Blending Station No. 3 (Solar)	1700 Solar Drive, Oxnard, CA 93030	Unknown
Public Utility	Oxnard Blending Station No. 4 (Del Norte)	3637 North Rose Avenue, Oxnard, CA 93036	Unknown
Public Utility	Oxnard Blending Station No. 5 (Pleasant Valley)	980 East Pleasant Valley Road, Oxnard, CA 93033	Unknown
Public Utility	Oxnard Wastewater Treatment Plant	6001 S. Perkins Rd., Oxnard, CA 93033-9047	\$78,588,000
Public Utility	Oxnard Water Campus	251 South Hayes Avenue, Oxnard, CA 90300	Unknown
Public Utility	Pacific Recovery Corporation	2501 North Ventura Rd., Oxnard, CA 93030	\$129,800,000
Public Utility	RRI Mandalay	200 N. Harbor Boulevard, Oxnard, CA 93035	Unknown
Public Utility	RRI Mandalay Generating Station	393 N. Harbor Boulevard, Oxnard, CA 93035	Unknown
Public Utility	Santa Clara Estuary Natural Preserve	Latitude and Longitude Coordinates	Unknown
Transportation	Bard Rd Bridge	Latitude and Longitude Coordinates	\$285,019.60
Transportation	Channel Islands Blvd Bridge over Channel Islands Harbor (East)	Latitude and Longitude Coordinates	\$2,259,128.90
Transportation	Channel Islands Blvd Bridge over Channel Islands Harbor (West)	Latitude and Longitude Coordinates	\$7,233,876.70
Transportation	Clara St Bridge	Latitude and Longitude Coordinates	\$240,861.60
Transportation	Cypress Road Bridge	Latitude and Longitude Coordinates	\$794,843.30
Transportation	Harbor Blvd Bridge at SCE Co Canal	Latitude and Longitude Coordinates	\$1,060,556
Transportation	Hueneme Rd Bridge	Latitude and Longitude Coordinates	\$785,285.30
Transportation	Hueneme Road Bridge	Latitude and Longitude Coordinates	\$539,071.20
Transportation	Oxnard Transportation Center	201 E. Fourth St. , Oxnard, CA	Unknown
Transportation	Pleasant Valley Rd Bridge	Latitude and Longitude Coordinates	\$409,082.40
Transportation	Redwood St Bridge	Latitude and Longitude Coordinates	\$233,979.80
Transportation	Teakwood St Bridge	Latitude and Longitude Coordinates	\$232,450.60
Transportation	Third Street Bridge	Third St./Oxnard Blvd., Oxnard, CA , Oxnard, CA	Unknown



**Table L-2. City of Oxnard, Total Critical Facilities and Infrastructure**

Category	Name	Address	Value
Transportation	Wooley Rd Bridge	Latitude and Longitude Coordinates	\$1,219,600.80
Transportation	Yucca St Bridge	Latitude and Longitude Coordinates	\$169,941.20

**Table L-3. City of Oxnard, Summary of Impacts for Population and Residential Buildings**

Hazard	Population	% of Population	No. of Residential Buildings	% of Residential Buildings
Climate Change - Rising Tide	422	0.21%	247	0.60%
Climate Change - Coastal Storm	9,952	5.03%	3,002	7.34%
Dam Failure Inundation	197,903	100.00%	40,907	99.98%
Earthquake Ground Shaking - Extreme	157,533	79.60%	33,661	82.27%
Earthquake Ground Shaking - Violent	40,364	20.40%	7,241	17.70%
Earthquake Ground Shaking - Severe	0	0.00%	0	0.00%
Liquefaction	197,881	99.99%	40,896	99.96%
Flood - 100 Year	610	0.31%	337	0.82%
Flood - 500 Year	69,199	34.96%	14,075	34.40%
Landslide Susceptibility Class VIII	0	0.00%	0	0.00%
Landslide Susceptibility Class IX	15	0.01%	6	0.01%
Landslide Susceptibility Class X	3	0.00%	1	0.00%
Reduced Flood Risks Due to Levees	7,144	3.61%	1,956	4.78%
Tsunami Evacuation Area - Phase 3	2,402	1.21%	1,226	3.00%
Tsunami Evacuation Area - Max	7,235	3.66%	3,680	9.00%
Wildfire - High	0	0.00%	0	0.00%
Wildfire - Very High	0	0.00%	0	0.00%

**Table L-4. City of Oxnard, Summary of Impacts for Critical Facilities and Infrastructure**

<b>Hazard</b>	<b>No. of Critical Facilities and Infrastructure</b>	<b>% of Critical Facilities and Infrastructure</b>
Climate Change - Rising Tide	4	2.86%
Climate Change - Coastal Storm	12	8.57%
Dam Failure Inundation	137	97.86%
Earthquake Ground Shaking - Extreme	111	79.29%
Earthquake Ground Shaking - Violent	30	21.43%
Earthquake Ground Shaking - Severe	0	0.00%
Liquefaction	137	97.86%
Flood - 100 Year	5	3.57%
Flood - 500 Year	50	35.71%
Landslide Susceptibility Class VIII	0	0.00%
Landslide Susceptibility Class IX	1	0.71%
Landslide Susceptibility Class X	0	0.00%
Reduced Flood Risks Due to Levees	3	2.14%
Tsunami Evacuation Area - Phase 3	10	7.14%
Tsunami Evacuation Area - Max	18	12.86%
Wildfire - High	1	0.71%
Wildfire - Very High	2	1.43%

**Table L-5. City of Oxnard, Human and Technical Resources for Hazard Mitigation**

Staff/Personnel Resources	Department or Agency	Principal Activities Related to Hazard Mitigation
Planner(s), engineer(s) and technical staff with knowledge of land development, land management practices, and human-caused and natural hazards.	Development Services Department	<p>Develops and maintains the General Plan, including the Safety Element.</p> <p>Develops area plans based on the General Plan, to provide more specific guidance for the development of more specific areas.</p> <p>Reviews private development projects and proposed capital improvements projects and other physical projects involving property for consistency and conformity with the General Plan.</p> <p>Anticipates and acts on the need for new plans, policies, and Code changes.</p> <p>Applies the approved plans, policies, code provisions, and other regulations to proposed land uses.</p>
Engineer(s), Building Inspectors/Code Enforcement Officers or other professional(s) and technical staff trained in construction requirements and practices related to existing and new buildings.	Development Services Department	Oversees the effective, efficient, fair, and safe enforcement of the California Building Code
Engineers, construction project managers, and supporting technical staff.	Public Works	Provides direct or contract civil, structural, and mechanical engineering services, including contract, project, and construction management.
Engineer(s), project manager(s), technical staff, equipment operators, and maintenance and construction staff.	Public Works	Maintains and operates of a wide range of local equipment and facilities as well as providing assistance to members of the public. These include providing sufficient clean fresh water, reliable sewer services, street maintenance, storm drainage systems, street cleaning, street lights and traffic signals.
Floodplain Administrator	Oxnard Development Services Department	Reviews and ensures that new development proposals do not increase flood risk, and that new developments are not located below the 100 year flood level. In addition, the Floodplain Administrator is responsible for planning and managing flood risk reduction projects throughout the local jurisdiction.

**Table L-5. City of Oxnard, Human and Technical Resources for Hazard Mitigation**

Staff/Personnel Resources	Department or Agency	Principal Activities Related to Hazard Mitigation
Emergency Manager	Oxnard Fire Department / Disaster Preparedness Coordinator	Maintains and updates the Emergency Operations Plan for the local jurisdiction. In addition, coordinates local response and relief activities within the Emergency Operation Center, and works closely with County, state, and federal partners to support planning and training and to provide information and coordinate assistance.
Procurement Services Manager	Purchasing Division – Accounting Manager	Provides a full range of municipal financial services, administers several licensing measures, and functions as the local jurisdiction's Procurement Services Manager.

**Table L-6. City of Oxnard, Financial Resources for Hazard Mitigation**

Type	Subtype	Administrator	Purpose	Amount
<b>Local</b>	General Fund	Finance Department	Program operations and specific projects.	Variable
	General Obligation (GO) Bonds	Finance Department	GO Bonds are appropriately used for the construction and/or acquisition of improvements to real property broadly available to residents and visitors. Such facilities include, but are not limited to, libraries, hospitals, parks, public safety facilities, and cultural and educational facilities.	Variable.
<b>Local (cont.)</b>	Lease Revenue Bonds	Finance Department	Lease revenue bonds are used to finance capital projects that (1) have an identified budgetary stream for repayment (e.g., specified fees, tax receipts, etc.), (2) generate project revenue but rely on a broader pledge of general fund revenues to reduce borrowing costs, or (3) finance the acquisition and installation of equipment for the local jurisdiction's general governmental purposes.	Variable.
	Public-Private Partnerships	All Departments	Includes the use of local professionals, business owners, residents, and civic groups and trade associations, generally for the study of issues and the development of guidance and recommendations.	Project-specific.
<b>Federal</b>	Hazard Mitigation Grant Program (HMGP)	Federal Emergency Management Agency (FEMA)	Supports pre- and post-disaster mitigation plans and projects.	Available to California communities after a Presidentially declared disaster has occurred in California. Grant award based on specific projects as they are identified by eligible applicants.
	Pre-Disaster Mitigation (PDM) grant program	FEMA	Supports pre-disaster mitigation plans and projects.	Available on an annual basis as a nationally competitive grant. Grant award based on specific projects as they are identified (no more than \$3M federal share for projects).



**Table L-6. City of Oxnard, Financial Resources for Hazard Mitigation**

Type	Subtype	Administrator	Purpose	Amount
<b>Federal (cont.)</b>	Flood Mitigation Assistance (FMA) grant program	FEMA	Mitigates repetitively flooded structures and infrastructure.	Available on an annual basis, distributed to California communities by the California Governor's Office of Emergency Services (Cal OES). Grant award based on specific projects as they are identified.
	Assistance to Firefighters Grant (AFG) Program	FEMA/USFA (U.S. Fire Administration)	Provides equipment, protective gear, emergency vehicles, training, and other resources needed to protect the public and emergency personnel from fire and related hazards.	Available to fire departments and nonaffiliated emergency medical services providers. Grant awards based on specific projects as they are identified.
	Community Development Block Grant Program Entitlement Communities Grants	U.S. HUD (U.S. Department of Housing and Urban Development)	Acquisition of real property, relocation and demolition, rehabilitation of residential and non-residential structures, construction of public facilities and improvements, such as water and sewer facilities, streets, neighborhood centers, and the conversion of school buildings for eligible purposes.	Available to entitled cities. Grant award based on specific projects as they are identified.
	Community Action for a Renewed Environment (CARE)	U.S. Environmental Protection Agency (EPA)	Through financial and technical assistance offers an innovative way for a community to organize and take action to reduce toxic pollution (i.e., stormwater) in its local environment. Through CARE, a community creates a partnership that implements solutions to reduce releases of toxic pollutants and minimize people's exposure to them.	Competitive grant program. Grant award based on specific projects as they are identified.
	Clean Water State Revolving Fund (CWSRF)	EPA	The CWSRF is a loan program that provides low-cost financing to eligible entities within state and tribal lands for water quality projects, including all types of non-point source, watershed protection or restoration, estuary management projects, and more traditional municipal wastewater treatment projects.	CWSRF programs provided more than \$5 billion annually to fund water quality protection projects for wastewater treatment, non-point source pollution control, and watershed and estuary management.

**Table L-6. City of Oxnard, Financial Resources for Hazard Mitigation**

Type	Subtype	Administrator	Purpose	Amount
<b>Federal (cont.)</b>	Public Health Emergency Preparedness (PHEP) Cooperative Agreement.	Department of Health and Human Services' (HHS') Centers for Disease Control and Prevention (CDC)	Funds are intended to upgrade state and local public health jurisdictions' preparedness and response to bioterrorism, outbreaks of infectious diseases, and other public health threats and emergencies.	Competitive grant program. Grant award based on specific projects as they are identified. The City of Oxnard would participate through the County's Public Health Department.
	Homeland Security Preparedness Technical Assistance Program (HSPTAP)	FEMA/DHS	Build and sustain preparedness technical assistance activities in support of the four homeland security mission areas (prevention, protection, response, recovery) and homeland security program management.	Technical assistance services developed and delivered to state and local homeland security personnel. Grant award based on specific projects as they are identified.

**Table L-7. City of Oxnard, Legal and Regulatory Resources for Hazard Mitigation**

<b>Regulatory Tool</b>	<b>Name</b>	<b>Description (Effect on Hazard Mitigation)</b>	<b>Hazards Addressed</b>	<b>Mitigation, Preparedness, Response, or Recovery</b>	<b>Affects Development in Hazard Areas?</b>
<b>Plans</b>	General Plan: Safety Element (2011)	Describes hazard areas and regulates current and future development based on known hazard areas.	Flooding, Earthquake, and other hazards not included in this HMP	Mitigation & Preparedness	Yes
	Emergency Operations (2010 update)	Describes what the local jurisdiction's actions will be during a response to an emergency. Includes annexes that describe in more detail the actions required of the local jurisdiction's departments/agencies. Further, this plan describes the role of the Emergency Operation Center (EOC) and the coordination that occurs between the EOC and the local jurisdiction's departments and other response agencies. Finally, this plan describes how the EOC serves as the focal point among local, state, and federal governments in times of disaster.	Earthquake, Flooding, Wildfire, Dam Failure, Tsunami, and other hazards not included in this HMP	Response	No
	Stormwater Quality Management Program (SWQMP) (2008)	Describes measures that the local jurisdiction will take to minimize stormwater pollution. The SWQMP is required by the National Pollutant Discharge Elimination System Phase II regulations, which became effective in March 2003.	Stormwater	Mitigation & Preparedness	Yes
<b>Programs</b>	National Flood Insurance Program (NFIP)	Makes affordable flood insurance available to homeowners, business owners, and renters in participating communities. In exchange, those communities must adopt and enforce minimum floodplain management regulations to reduce the risk of damage from future floods. The City of Oxnard joined the NFIP in 1979.	Flood	Mitigation, Preparedness & Recovery	Yes
<b>Policies (Municipal Code)</b>	Chapter 6: Emergency Organization and Functions	To provide for the protection of persons and property within the city in the event of an emergency; the direction of the emergency organization; and the coordination of the emergency functions of the city with other public agencies, corporations, organizations, and private persons.	All	Mitigation, Preparedness & Response	No

**Table L-7. City of Oxnard, Legal and Regulatory Resources for Hazard Mitigation**

<b>Regulatory Tool</b>	<b>Name</b>	<b>Description (Effect on Hazard Mitigation)</b>	<b>Hazards Addressed</b>	<b>Mitigation, Preparedness, Response, or Recovery</b>	<b>Affects Development in Hazard Areas?</b>
<b>Policies (Municipal Code cont.)</b>	Chapter 11: Permits, Article XIII. Certified Unified Program Agency	To implement the unified hazardous waste and hazardous materials management regulatory program and to provide for fees to defray the costs to the city of administering and implementing such program in its capacity as a certified unified program agency ("CUPA").	Hazardous Materials	Mitigation & Preparedness	No
	Chapter 14: Building Regulations, Article II. California Building Code	Adoption of the California Building Code (CBC) and amendments to the CBC	Fire, Earthquake	Mitigation & Preparedness	Yes
	Chapter 18: Floodplain Management	To promote public health, safety and general welfare, and to minimize public and private losses due to flood conditions in specific areas.	Flood	Mitigation & Preparedness	Yes
	Chapter 19: Public Works, Article I. Sewerage System; Wastewater Disposal	Uniform requirements for users of the municipal wastewater system of the city (system) and enables the city to comply with all applicable State and federal laws including the Clean Water Act (33 USC Sections 1251 et seq.), general pretreatment regulations (40 CFR Part 403), and the requirements of the city's national pollutant discharge elimination system (NPDES) permit.	Hazardous Materials	Mitigation & Preparedness	No
	Chapter 19: Public Works, Article II Solid Waste; Recycling	Requirements for the collection, transportation, processing, marketing, transfer and disposal of solid waste and recyclables.	Hazardous Materials	Mitigation & Preparedness	No

**Table L-8. City of Oxnard, Current and Completed Hazard Mitigation Projects and Programs**

Status (Current or Complete)	Project / Program Name	Description	Year(s)
Complete	Tsunami Ready Program	Participate in the NOAA Tsunami Ready Program.	2013
Current	Asbestos Abatement	Abatement of asbestos in City buildings. Several buildings remain to be abated.	1980 to present
Current	Un-reinforced masonry building ordinance	Survey and inventory of un-reinforced masonry buildings and requirements to upgrade buildings. Survey is complete. Retrofits enforced with each building permit request.	2003 - present
Current	Evaluation of Santa Clara River Levees 1 and 3	Design study for upgrade and construction of Santa Clara River levees. The Santa Clara River levee 3 (SCR-3) has been designed and construction will commence in the Spring of 2016. SCR-1 is in the design phase.	2008 - present
Current	DFIRM and CAV concerns	Work with FEMA Region IX to address any floodplain management issues that may have arisen/arise from the countywide DFIRM, Community Assessment Visits, and/or DWR.	2010 to present
Current	Mandalay Beach Area Flooding	Install Flood Prevention pumps at Mandalay Beach.	2010 to present
Current	Repetitive Loss Properties	Acquire, relocate, or elevate residential structures, in particular those that have been identified as RL properties, within the 100-year floodplain.	2013 to present
Current	Dam Inundation Hazard Areas	Encourage property owners located in the dam or levee inundation hazard areas to purchase voluntary flood insurance.	2013 to present
Current	CRS Program	Increase participation in the NFIP by entering the Community Rating System program which through enhanced floodplain management activities would allow property owners to receive a discount on their flood insurance. The City of Oxnard entered the CRS program on May 1, 2013 and achieved a CRS rating of 9. The goal is to maintain this level and if possible, achieve an even lower rating.	2013- present



**Table L-9. City of Oxnard, Potential Mitigation Actions**

No.	Description	Hazard	Floodplain Management Activity	New or Existing Construction
OX 1	Acquire, relocate, elevate, and/or floodproof critical facilities located within the 100-year floodplain and/or any RL properties. Acquisition projects will be managed by the City of Oxnard Property Management Department and Development Services Department. Land acquisition will be turned into passive open space, if applicable.	Flood	Property Protection	Not Applicable
OX 2	Work with FEMA Region IX to address any floodplain management issues that may have arisen/arise from the countywide DFIRM, Community Assessment Visits, and/or DWR.	Flood	Structural Projects, Preventive, Natural Resource Protection, Public Information	Not Applicable
OX 3	Increase participation in the NFIP by maintaining a CRS rating Class 9, which through enhanced floodplain management activities would allow property owners to receive a discount on their flood insurance.	Flood	Public Information, Structural Projects, Preventive, Natural Resource Protection	New/Existing
OX 4	Develop a tool to collect and analyze post-flood disaster risk assessment information to allow the City of Oxnard to analyze the effects of the flood and implement future mitigation projects. Information to be collected will include: number and location of structures, including RL properties, flooded; identification of flooded areas outside of the SFHA and floodwater heights at these locations; number and location of failed gages; etc.	Flood	Post-Disaster Mitigation Procedures	New/Existing
OX 5	Continue to participate in the NWS TsunamiReady Program through continued implementation of Guideline 4: Community Preparedness measures, including public outreach material and curriculum.	Tsunami	Public Information, Preventive	Not Applicable
OX 6	Evaluate Santa Clara Levees 1, 2 and 3 for upgrade and construction.	Levee Failure	Structural Project	Existing

**Table L-9. City of Oxnard, Potential Mitigation Actions**

No.	Description	Hazard	Floodplain Management Activity	New or Existing Construction
OX 7	Construct a Mandalay Beach storm drainage system to the Channel Islands Harbor. During rain events, stormwater accumulation along Mandalay Beach Road is caused by wind and sand blocking the drainage to the ocean outfall.	Flood	Structural Project	New/Existing
OX 8	Construct a permanent lift station for Ventura Road @ Wagon Wheel Road. Water in the low point in the roadway must be manually pumped with each rain event.	Flood	Structural Project	New/Existing
OX 9	Construct a stormwater lift station at Perkins Road. Flooding occurs at the point in Perkins Road which is caused by an undersized sump pump. The proposed stormwater lift system will transport stormwater to the Advanced Water Purification Facility and recycle the storm water for agricultural use along Hueneme Road.	Flood	Structural Project	New/Existing
OX 10	Construct a permanent flood protection pump station at Dodge Road. Flooding occurs at the low point in Dodge Road at the intersection with Maulhardt Road.	Flood	Structural Project	Existing
OX 11	As part of the Memorandum of Agreement / Memorandum of Understanding with The Nature Conservancy (TNC): continue to partner with TNC on acquisition, restoration and mitigation planning processes; partner on grant proposals; participate in negotiations with land use owners; carry-out restoration projects; hold titles to floodplain properties as appropriate; and hold or co-hold with TNC multipurpose easements.	Flood	Natural Resource Protection	Not Applicable

OX = Oxnard

**Table L-10. City of Oxnard, Review of Potential Mitigation Actions**

No.	Description	Review: Pros/Cons; Capability to Fund and Implement; Implementation Status; Listed in the 2010 MHMP.
OX 1	Acquire, relocate, elevate, and/or floodproof critical facilities located within the 100-year floodplain and/or any RL properties. Acquisition projects will be managed by the City of Oxnard Property Management Department and Development Services Department. Land acquisition will be turned into passive open space, if applicable.	Identified as a mitigation action in the 2010 MHMP for the City of Oxnard. For the 2015 MHMP this mitigation action was modified to include the acquisition, relocation, and elevation of the City's three RL properties. All three RL properties are located outside of the 100-year floodplain. Outside funding will be required. This activity is appropriate for the City of Oxnard because it addresses RL properties. However, there are no critical facilities with the exception of bridges located in the 100-year floodplain.
OX 2	Work with FEMA Region IX to address any floodplain management issues that may have arisen/arise from the countywide DFIRM, Community Assessment Visits, and/or DWR.	Identified as a mitigation action in the 2010 MHMP for the City of Oxnard. The City of Oxnard Floodplain Manager along works closely with other local floodplain managers, FEMA Region IX and DWR staff to address development design issues and regulation requirement issues. Local funding required, as applicable. This activity is appropriate for the City of Oxnard as it continues to work with other local floodplain managers and FEMA Region IX to create/update FIS and DFIRMs that more accurately reflect current flood conditions.
OX 3	Increase participation in the NFIP by maintaining a CRS rating Class 9, which through enhanced floodplain management activities would allow property owners to receive a discount on their flood insurance.	Identified as a mitigation action in the 2010 MHMP for the City of Oxnard and modified for the 2015 MHMP to include the CRS class rating. Local funding required. Outside funding may be sought as well. This activity is appropriate for the City of Oxnard because it increases public awareness of the flood hazard risks within the City. It increases community resiliency from flooding impacts through floodplain management and safer building construction. It also reduces flood insurance premiums on an annual bases to the insureds.
OX 4	Develop a tool to collect and analyze post-flood disaster risk assessment information to allow the City of Oxnard to analyze the effects of the flood and implement future mitigation projects. Information to be collected will include: number and location of structures, including RL properties, flooded; identification of flooded areas outside of the SFHA and floodwater heights at these locations; number and location of failed gages; etc.	Outside funding will be required. The activity is appropriate for the City of Oxnard because it would ensure that post-disaster information is collected on a consistent and timely basis.

**Table L-10. City of Oxnard, Review of Potential Mitigation Actions**

No.	Description	Review: Pros/Cons; Capability to Fund and Implement; Implementation Status; Listed in the 2010 MHMP.
OX 5	Continue to participate in the NWS TsunamiReady Program through continued implementation of Guideline 4: Community Preparedness measures, including public outreach material and curriculum.	<p>The City of Oxnard joined the TsunamiReady Program in 2011. The certification of the TsunamiReady Program is reviewed and renewed every five years.</p> <p>Outside funding will be required.</p> <p>This activity is appropriate for the City of Oxnard because tsunamis have affected and caused significant damage to coastal infrastructure, including beaches, harbors, docks, and other structures. Significant private property damage has also occurred.</p>
OX 6	Evaluate Santa Clara Levees 1, 2 and 3 for upgrade and construction and upgrade as needed.	<p>State Local Levee Assistance grants will be required.</p> <p>This activity is appropriate for the City of Oxnard because it ensures adequate flood protection and community resiliency for residents, businesses and public infrastructure. It also ensures compliance with Federal Levee Certification Regulatory requirements.</p>
OX 7	Construct a Mandalay Beach storm drainage system to the Channel Islands Harbor. During rain events, stormwater accumulation along Mandalay Beach Road is caused by wind and sand blocking the drainage to the ocean outfall.	<p>Strong community support for this mitigation action. The cost is estimated to be \$1.8M. Implementation is expected to take 8 months to complete. No funds have been identified for this project.</p> <p>This activity is appropriate for the City of Oxnard because it will reduce repetitive stormwater flooding and has community support.</p>
OX 8	Construct a permanent lift station for Ventura Road @ Wagon Wheel Road. Water in the low point in the roadway must be manually pumped with each rain event.	<p>Flooding is a repetitive problem for this area and will be reduced through a lift station. Annual maintenance of the lift station will be required, however. Project is expected to take 12 months to complete.</p> <p>Outside funding will be required.</p> <p>This activity is appropriate for the City of Oxnard because it will reduce repetitive stormwater flooding and has community support.</p>
OX 9	Construct a stormwater lift station at Perkins Road. Flooding occurs at the point in Perkins Road which is caused by an undersized sump pump. The proposed stormwater lift system will transport stormwater to the Advanced Water Purification Facility and recycle the storm water for agricultural use along Hueneme Road.	<p>Strong political support for this project due to reuse of stormwater. The project is expected to take two years to complete. No funding has been identified at this time.</p> <p>This activity is appropriate for the City of Oxnard because it has strong political support, will reduce flooding and will result in the reuse of water.</p>

**Table L-10. City of Oxnard, Review of Potential Mitigation Actions**

No.	Description	Review: Pros/Cons; Capability to Fund and Implement; Implementation Status; Listed in the 2010 MHMP.
OX 10	Construct a permanent flood protection pump station at Dodge Road. Flooding occurs at the low point in Dodge Road at the intersection with Maulhardt Road.	<p>Flooding is a repetitive problem for this area and will be reduced through a flood protection pump station. Annual maintenance of the pump station will be required, however. There is a lot of community support for this project. The project is only expected to take 6 months to complete but a funding source has not yet been identified.</p> <p>This activity is appropriate for the City of Oxnard because it will reduce repetitive stormwater flooding and has community support.</p>
OX 11	As part of the Memorandum of Agreement / Memorandum of Understanding with The Nature Conservancy (TNC): continue to partner with TNC on acquisition, restoration and mitigation planning processes; partner on grant proposals; participate in negotiations with land use owners; carry-out restoration projects; hold titles to floodplain properties as appropriate; and hold or co-hold with TNC multipurpose easements.	<p>Overlapping wetland/habitat conservation opportunities between the City of Oxnard and TNC. Partnership has resulted in coordinated planning efforts, setting joint priorities, and work together on projects.</p> <p>In-kind services have been used to fund project.</p> <p>This activity is appropriate for the City of Oxnard because coordinated planning, grant application and project implementation by TNC and the City of Oxnard will lead to greater collective efficiency and effectiveness.</p>



**Table L-11. City of Oxnard, Mitigation Action Plan**

No.	Description	Goal	Floodplain Management Activity	Funding Source	Department or Agency	Timeframe (0-5 Years)
OX 3	Increase participation in the NFIP by maintaining a CRS rating Class 9, which through enhanced floodplain management activities would allow property owners to receive a discount on their flood insurance.	2	Public Information, Structural Projects, Preventive, Natural Resource Protection	Local funding	Development Services Department	Ongoing
OX 4	Develop a tool to collect and analyze post-flood disaster risk assessment information to allow the City of Oxnard to analyze the effects of the flood and implement future mitigation projects. Information to be collected will include: number and location of structures, including RL properties, flooded; identification of flooded areas outside of the SFHA and floodwater heights at these locations; number and location of failed gages; etc.	1	Post-Disaster Mitigation Procedures	Outside funding	Development Services Department	1 Year
OX 5	Continue to participate in the NWS TsunamiReady Program through continued implementation of Guideline 4: Community Preparedness measures, including public outreach material and curriculum.	1	Public Information, Preventive	Outside funding	Development Services Department	Ongoing
OX 6	Evaluate Santa Clara Levees 1, 2 and 3 for upgrade and construction and upgrade as needed.	2	Structural Project	State Local Levee Assistance grants	Development Services Department	1-2 Years
OX 7	Construct a Mandalay Beach storm drainage system to the Channel Islands Harbor. During rain events, stormwater accumulation along Mandalay Beach Road is caused by wind and sand blocking the drainage to the ocean outfall.	2	Structural Project	Outside funding	Development Services Department	1-2 Years
OX 8	Construct a permanent lift station for Ventura Road at Wagon Wheel Road. Water in the low point in the roadway must be manually pumped with each rain event.	2	Structural Project	Outside funding (HMGP/PDM)	Development Services Department	1-2 Years

**Table L-11. City of Oxnard, Mitigation Action Plan**

No.	Description	Goal	Floodplain Management Activity	Funding Source	Department or Agency	Timeframe (0-5 Years)
OX 9	Construct a stormwater lift station at Perkins Road. Flooding occurs at the point in Perkins Road which is caused by an undersized sump pump. The proposed stormwater lift system will transport stormwater to the Advanced Water Purification Facility and recycle the storm water for agricultural use along Hueneme Road.	2	Structural Project	Outside funding (HMGP/PDM)	Development Services Department	1-2 Years
OX 10	Construct a permanent flood protection pump station at Dodge Road. Flooding occurs at the low point in Dodge Road at the intersection with Maulhardt Road.	2	Structural Project	Outside funding (HMGP/PDM)	Development Services Department	1-2 Years
OX 11	As part of the Memorandum of Agreement / Memorandum of Understanding with The Nature Conservancy (TNC): continue to partner with TNC on acquisition, restoration and mitigation planning processes; partner on grant proposals; participate in negotiations with land use owners; carry-out restoration projects; hold titles to floodplain properties as appropriate; and hold or co-hold with TNC multipurpose easements.	1, 2	Natural Resource Protection	In-kind services	Development Services Department	Ongoing

The Hazard Mitigation Assistance (HMA) Program requirements were used to guide choice of mitigation actions:

- Mitigation Planning
- Technical Feasibility and Effectiveness
- Floodplain Management and Protection of Wetlands
- Environmental Planning and Historic Review and Compliance
- Cost Effectiveness
- Cost Review
- General Program Requirements

*This page intentionally left blank*

Appendix M  
City of Port Hueneme

*This page intentionally left blank*



**Table M-1. City of Port Hueneme, Total Population and Residential Buildings**

Population <sup>1</sup>	Residential Buildings <sup>2</sup>
21,750	5,530

<sup>1</sup> 2010 census data, <sup>2</sup> Hazus 2.2 data (2010)

**Table M-2. City of Port Hueneme, Total Critical Facilities and Infrastructure**

Category	Name	Address	Value
Community	Dewar Park	Latitude and Longitude Coordinates	Unknown
Community	KTRO-AM (Port Hueneme)	Latitude and Longitude Coordinates	Unknown
Community	Port Hueneme Beach Park	Latitude and Longitude Coordinates	Unknown
Community	Port of Hueneme	Latitude and Longitude Coordinates	Unknown
Community	Richard Bard Bubbling Springs Park	Latitude and Longitude Coordinates	Unknown
Community	Seabee Park	Latitude and Longitude Coordinates	Unknown
Community	Walter B Moranda Park	Latitude and Longitude Coordinates	Unknown
Emergency Response	Port Hueneme Police Dept	250 N Ventura Rd, Port Hueneme, CA 93041-3094	\$1,652,000
Government	City of Port Hueneme Public Works Building	700B East Hueneme Road, Port Hueneme, CA 93041	\$2,000,000
Government	City of Port Hueneme Utilities Services	746 Industrial Ave., Port Hueneme, CA 93041	\$1,000,000
Government	Port Hueneme City Hall	250 N. Ventura Rd., Port Hueneme, CA 93041	Unknown
Medical Facility/ Residential Care	Bolker Park	Latitude and Longitude Coordinates	Unknown
Public Utility	Port Hueneme Water Assoc	5751 Perkins Road, Oxnard, CA 93033	Unknown
Transportation	Channel Islands Blvd Bridge	Latitude and Longitude Coordinates	Unknown
Transportation	Channel Islands Blvd Bridge at Bolker Dr	Latitude and Longitude Coordinates	\$211,423
Transportation	Channel Islands Blvd Bridge at Lido Bl	Latitude and Longitude Coordinates	\$211,423
Transportation	Channel Islands Blvd Bridge at Patterson Rd	Latitude and Longitude Coordinates	\$241,626.20

**Table M-2. City of Port Hueneme, Total Critical Facilities and Infrastructure**

Category	Name	Address	Value
Transportation	Channel Islands Blvd Bridge at Wheelhouse Ave	Latitude and Longitude Coordinates	\$294,195.20
Transportation	Channel Islands Blvd Bridge between Madera and Ventura	Latitude and Longitude Coordinates	241626.2
Transportation	Channel Islands Blvd Bridge between Victoria and Wheelhouse (East)	Latitude and Longitude Coordinates	Unknown
Transportation	Channel Islands Blvd Bridge between Victoria and Wheelhouse (West)	Latitude and Longitude Coordinates	\$194,409.70
Transportation	Marine Spill Response Corp. Barge Wharf	Port Hueneme Road, Port Hueneme, CA 93041	\$1,997,000
Transportation	Port Hueneme Utility Wharf	Port Hueneme Road, Port Hueneme, CA 93041	\$1,997,000
Transportation	Port Hueneme, Cattle Loading Chute	Port Hueneme Road, Port Hueneme, CA 93041	\$1,997,000
Transportation	Railroad Station	Channel Islands Blvd and Patterson Rd., Port Huene	\$2,663,000

**Table M-3. City of Port Hueneme, Summary of Impacts for Population and Residential Buildings**

<b>Hazard</b>	<b>Population</b>	<b>% of Population</b>	<b>No. of Residential Buildings</b>	<b>% of Residential Buildings</b>
Climate Change - Rising Tide	1	0.00%	0	0.00%
Climate Change - Coastal Storm	34	0.16%	9	0.16%
Dam Failure Inundation	21,750	100.00%	5,530	100.00%
Earthquake Ground Shaking - Extreme	14,328	65.87%	3,339	60.38%
Earthquake Ground Shaking - Violent	0	0.00%	0	0.00%
Earthquake Ground Shaking - Severe	7,422	34.12%	2,191	39.62%
Liquefaction	21,750	100.00%	5,530	100.00%
Flood - 100 Year	99	0.45%	22	0.41%
Flood - 500 Year	20,498	94.24%	5,223	94.45%
Landslide Susceptibility Class VIII	0	0.00%	0	0.00%
Landslide Susceptibility Class IX	0	0.00%	0	0.00%
Landslide Susceptibility Class X	0	0.00%	0	0.00%
Reduced Flood Risks Due to Levees	0	0.00%	0	0.00%
Tsunami Evacuation Area - Phase 3	971	4.46%	199	3.59%
Tsunami Evacuation Area - Max	1,519	6.99%	330	5.97%
Wildfire - High	0	0.00%	0	0.00%
Wildfire - Very High	0	0.00%	0	0.00%

**Table M-4. City of Port Hueneme, Summary of Impacts for Critical Facilities and Infrastructure**

Hazard	No. of Critical Facilities and Infrastructure	% of Critical Facilities and Infrastructure
Climate Change - Rising Tide	4	16.00%
Climate Change - Coastal Storm	5	20.00%
Dam Failure Inundation	25	100.00%
Earthquake Ground Shaking - Extreme	10	40.00%
Earthquake Ground Shaking - Violent	13	52.00%
Earthquake Ground Shaking - Severe	0	0.00%
Liquefaction	24	96.00%
Flood - 100 Year	9	36.00%
Flood - 500 Year	15	60.00%
Landslide Susceptibility Class VIII	0	0.00%
Landslide Susceptibility Class IX	0	0.00%
Landslide Susceptibility Class X	0	0.00%
Reduced Flood Risks Due to Levees	0	0.00%
Tsunami Evacuation Area - Phase 3	5	20.00%
Tsunami Evacuation Area - Max	5	20.00%
Wildfire - High	0	0.00%
Wildfire - Very High	0	0.00%

**Table M-5. City of Port Hueneme, Human and Technical Resources for Hazard Mitigation**

Staff/Personnel Resources	Department or Agency	Principal Activities Related to Hazard Mitigation
Planner(s), engineer(s) and technical staff with knowledge of land development, land management practices, and human-caused and natural hazards.	Department of Community Development	<p>Develops and maintains the General Plan, including the Safety Element.</p> <p>Develops area plans based on the General Plan, to provide more specific guidance for the development of more specific areas.</p> <p>Reviews private development projects and proposed capital improvements projects and other physical projects involving property for consistency and conformity with the General Plan.</p> <p>Anticipates and acts on the need for new plans, policies, and Code changes.</p> <p>Applies the approved plans, policies, code provisions, and other regulations to proposed land uses.</p>
Engineer(s), Building Inspectors/Code Enforcement Officers or other professional(s) and technical staff trained in construction requirements and practices related to existing and new buildings.	Department of Community Development	Oversees the effective, efficient, fair, and safe enforcement of the California Building Code
Engineers, construction project managers, and supporting technical staff.	Public Works and Department of Community Development	Provides direct or contract civil, structural, and mechanical engineering services, including contract, project, and construction management.
Engineer(s), project manager(s), technical staff, equipment operators, and maintenance and construction staff.	Public Works Department	Maintains and operates of a wide range of local equipment and facilities as well as providing assistance to members of the public. These include providing sufficient clean fresh water, reliable sewer services, street maintenance, storm drainage systems, street cleaning, street lights and traffic signals.
Floodplain Administrator	Department of Community Development (Director)	Reviews and ensures that new development proposals do not increase flood risk, and that new developments are not located below the 100 year flood level. In addition, the Floodplain Administrator is responsible for planning and managing flood risk reduction projects throughout the local jurisdiction.



**Table M-5. City of Port Hueneme, Human and Technical Resources for Hazard Mitigation**

Staff/Personnel Resources	Department or Agency	Principal Activities Related to Hazard Mitigation
Emergency Manager	City Manager's Office	Maintains and updates the Emergency Operations Plan for the local jurisdiction. In addition, coordinates local response and relief activities within the Emergency Operation Center, and works closely with County, state, and federal partners to support planning and training and to provide information and coordinate assistance.
Procurement Services Manager	Finance Department	Provides a full range of municipal financial services, administers several licensing measures, and functions as the local jurisdiction's Procurement Services Manager.

**Table M-6. City of Port Hueneme, Financial Resources for Hazard Mitigation**

Type	Subtype	Administrator	Purpose	Amount
<b>Local</b>	General Fund	Administration and Finance Department	Program operations and specific projects.	Variable. FY 2010-11 General Fund Budget is \$16.8 million
	Taxable Pension Obligation Bonds	Finance Department	The net proceeds (\$10.7 million) of these bonds were used to fund a portion of the City's obligation to PERS for unfunded accrued actuarial liability arising from retirement benefits to members.	\$540,000 to \$1.2 million
<b>Local (cont.)</b>	Certificates of Participation	Finance Department	Certificates of Participation proceeds (\$5.6 million) were used to provide for the funding of a security deposit with respect to a portion of certain base rental payments to be made by the City to the Redevelopment Agency.	Annual payments are approximately \$490,000 until 2018.
	Revenue Bonds	Finance Department	Lease revenue bonds are used to finance capital projects that (1) have an identified budgetary stream for repayment (e.g., specified fees, tax receipts, etc.), (2) generate project revenue but rely on a broader pledge of general fund revenues to reduce borrowing costs, or (3) finance the acquisition and installation of equipment for the local jurisdiction's general governmental purposes.	Variable.
	Weed Abatement and Shoreline Lighting Program	Community Development (Director)	Mitigates fire hazards and nighttime responses to storm surges near Port	\$10,000 budgeted annually from SPA
<b>Federal</b>	Hazard Mitigation Grant Program (HMGP)	Federal Emergency Management Agency (FEMA)	Supports pre- and post-disaster mitigation plans and projects.	Available to California communities after a Presidentially declared disaster has occurred in California. Grant award based on specific projects as they are identified by eligible applicants.

**Table M-6. City of Port Hueneme, Financial Resources for Hazard Mitigation**

Type	Subtype	Administrator	Purpose	Amount
	Pre-Disaster Mitigation (PDM) grant program	FEMA	Supports pre-disaster mitigation plans and projects.	Available on an annual basis as a nationally competitive grant. Grant award based on specific projects as they are identified (no more than \$3M federal share for projects).
<b>Federal (cont.)</b>	Flood Mitigation Assistance (FMA) grant program	FEMA	Mitigates repetitively flooded structures and infrastructure.	Available on an annual basis, distributed to California communities by the California Governor's Office of Emergency Services (Cal OES). Grant award based on specific projects as they are identified.
	Assistance to Firefighters Grant (AFG) Program	FEMA/USFA (U.S. Fire Administration)	Provides equipment, protective gear, emergency vehicles, training, and other resources needed to protect the public and emergency personnel from fire and related hazards.	Available to fire departments and nonaffiliated emergency medical services providers. Grant awards based on specific projects as they are identified.
	Community Development Block Grant Program Entitlement Communities Grants	U.S. HUD (U.S. Department of Housing and Urban Development)	Acquisition of real property, relocation and demolition, rehabilitation of residential and non-residential structures, construction of public facilities and improvements, such as water and sewer facilities, streets, neighborhood centers, and the conversion of school buildings for eligible purposes.	Available to entitled cities. Grant award based on specific projects as they are identified.
	Community Action for a Renewed Environment (CARE)	U.S. Environmental Protection Agency (EPA)	Through financial and technical assistance offers an innovative way for a community to organize and take action to reduce toxic pollution (i.e., stormwater) in its local environment. Through CARE, a community creates a partnership that implements solutions to reduce releases of toxic pollutants and minimize people's exposure to them.	Competitive grant program. Grant award based on specific projects as they are identified.

**Table M-6. City of Port Hueneme, Financial Resources for Hazard Mitigation**

Type	Subtype	Administrator	Purpose	Amount
<b>Federal (cont.)</b>	Clean Water State Revolving Fund (CWSRF)	EPA	The CWSRF is a loan program that provides low-cost financing to eligible entities within state and tribal lands for water quality projects, including all types of non-point source, watershed protection or restoration, estuary management projects, and more traditional municipal wastewater treatment projects.	CWSRF programs provided more than \$5 billion annually to fund water quality protection projects for wastewater treatment, non-point source pollution control, and watershed and estuary management.
	Public Health Emergency Preparedness (PHEP) Cooperative Agreement.	Department of Health and Human Services' (HHS') Centers for Disease Control and Prevention (CDC)	Funds are intended to upgrade state and local public health jurisdictions' preparedness and response to bioterrorism, outbreaks of infectious diseases, and other public health threats and emergencies.	Competitive grant program. Grant award based on specific projects as they are identified. City of Port Hueneme would participate through the County's Public Health Department.
	Homeland Security Preparedness Technical Assistance Program (HSPTAP)	FEMA/DHS	Build and sustain preparedness technical assistance activities in support of the four homeland security mission areas (prevention, protection, response, recovery) and homeland security program management.	Technical assistance services developed and delivered to state and local homeland security personnel. Grant award based on specific projects as they are identified.

**Table M-7. City of Port Hueneme, Legal and Regulatory Resources for Hazard Mitigation**

<b>Regulatory Tool</b>	<b>Name</b>	<b>Description (Effect on Hazard Mitigation)</b>	<b>Hazards Addressed</b>	<b>Mitigation, Preparedness, Response, or Recovery</b>	<b>Affects Development in Hazard Areas?</b>
<b>Plans</b>	General Plan: Safety Element (1999/2000)	Describes hazard areas and regulates current and future development based on known hazard areas.	Dam Failure, Tsunami, Earthquake, Flooding, Wildfire, and other hazards not included in this HMP	Mitigation & Preparedness	Yes
	Stormwater Quality Management Program (SWQMP)	Describes measures that the local jurisdiction will take to minimize stormwater pollution. The SWQMP is required by the National Pollutant Discharge Elimination System Phase II regulations, which became effective in March 2003.	Stormwater	Mitigation & Preparedness	Yes
<b>Programs</b>	National Flood Insurance Program (NFIP)	Makes affordable flood insurance available to homeowners, business owners, and renters in participating communities. In exchange, those communities must adopt and enforce minimum floodplain management regulations to reduce the risk of damage from future floods. The City of Port Hueneme joined the NFIP in 1984.	Flood	Mitigation, Preparedness & Recovery	Yes
<b>Policies (Municipal Code)</b>	Article III - Public Health and Safety, Chapter 2 – Disaster Council	To provide for the preparation and carrying out of plans for the protection of persons and property within the City in the event of a disaster, and to provide for the coordination of the civil defense and disaster functions of the City with all other public agencies and affected private persons, corporations and organizations.	All	Preparedness, Response & Recovery	No
	Article VIII – Building Regulations, Chapter 2 – California Building Code	Adoption of the California Building Code	Earthquake, Fire	Mitigation & Preparedness	Yes



**Table M-7. City of Port Hueneme, Legal and Regulatory Resources for Hazard Mitigation**

<b>Regulatory Tool</b>	<b>Name</b>	<b>Description (Effect on Hazard Mitigation)</b>	<b>Hazards Addressed</b>	<b>Mitigation, Preparedness, Response, or Recovery</b>	<b>Affects Development in Hazard Areas?</b>
<b>Policies (Municipal Code cont.)</b>	Article X – Zoning Regulations, Chapter 4 – Zoning Classifications, Park K – Flood Hazard Overlay Zone	To provide additional provisions and requirements for new development within mapped flood hazard areas.	Flood	Mitigation & Preparedness	Yes

**Table M-8. City of Port Hueneme, Current and Completed Hazard Mitigation Projects and Programs**

<b>Status (Current or Complete)</b>	<b>Project / Program Name</b>	<b>Description</b>	<b>Year(s)</b>
Complete	New FEMA flood insurance rate maps issued for City effective January 20, 2010 w/no issues	Work with FEMA Region IX to address any floodplain management issues that may have arisen/arise from the countywide DFIRM, Community Assessment Visits, and/or DWR.	2010
Complete	Tsunami Ready	Participate in the NOAA Tsunami Ready Program.	City Declared Tsunami Ready Community 2010/11
Current	Weed Abatement and Shoreline Lighting Program	Mitigates fire hazards and nighttime responses to storm surges near Port. Annual program: \$10,000 budgeted annually from RDA and SPA	Ongoing

**Table M-9. City of Port Hueneme, Potential Mitigation Actions**

No.	Description	Hazard	Mitigation Category	New or Existing Construction
OA 1	Integrate the hazard analysis and mitigation strategy into the General Plan's Safety Element.	All	Local Plans and Regulations	Not Applicable
OA 2	Ensure that existing monitoring capabilities at the state and County level are integrated to provide an early warning of increased or new infestations.*	Agricultural (Insect Pests/Invasive Species)	Natural Systems Protection	Not Applicable
OA 3	Implement an infestation public awareness and educational campaign.	Agricultural (Insect Pests/Invasive Species)	Education and Awareness	Not Applicable
OA 4*	Relocate or reinforce bike trails, parking lots and other beach access amenities away from the shoreline to restore the beach/shoreline in sea-level rise/coastal erosion areas.	Climate Change	Natural Systems Protection	Existing
OA 5*	Restore habitat and improve flood protection for low-lying areas by employing innovative techniques such as constructing levees coupled with gently sloping tidal marshes to help protect from storm wave action and tidal surge.	Climate Change	Natural Systems Protection	New/Existing
OA 6	Develop a public outreach program that informs property owners located in the dam and levee failure inundation areas about voluntary flood insurance.	Dam and Levee Failure Inundation	Education and Awareness	Existing
OA 7	Develop a water conservation public outreach program to increase awareness about the drought, fines and penalties for overuse and solutions for conserving water.	Drought	Education and Awareness	New/Existing
OA 8	Adopt emergency water conservation measures and/or water conservation ordinance to limit irrigation.	Drought	Local Plans and Regulations	New/Existing
OA 9	Identify potentially vulnerable public and private utility systems including electric, gas, oil, water, sewer and communication. Upgrade vulnerable systems to ensure the operation and timely restoration of essential systems to reasonable levels of service.	Earthquake	Structure and Infrastructure Projects	New/Existing
OA 10	Seismically retrofit or upgrade seismically deficient government facilities and pre-identified shelter facilities.	Earthquake	Structure and Infrastructure Projects	Existing

**Table M-9. City of Port Hueneme, Potential Mitigation Actions**

No.	Description	Hazard	Mitigation Category	New or Existing Construction
OA 11	Develop and implement plans to increase the building owner's general knowledge of and appreciation for the value of seismic upgrading of the building's structural and nonstructural elements.	Earthquake	Local Plans and Regulations & Awareness and Education	Existing
OA 12	Increase participation in the NFIP by entering the Community Rating System program which through enhanced floodplain management activities would allow property owners to receive a discount on their flood insurance.	Flood	All	New/Existing (Residential structures and critical facilities which are located within the 100-year floodplain)
OA 13*	Reinforce roads/bridges from flooding through protection activities, including elevating the roads/bridges and installing/widening culverts beneath the roads/bridges or upgrading storm drains.	Flood	Structure and Infrastructure Projects	Existing
OA 14*	Acquire, relocate, or elevate residential structures, in particular those that have been identified as RL properties, within the 100-year floodplain.	Flood	Structure and Infrastructure Projects	Existing
OA 15	Work with FEMA Region 9 to address any floodplain management issues that may have arisen/arise from the countywide DFIRM, Community Assessment Visits, and/or DWR.	Flood	Local Plans and Regulations	Not Applicable
OA 16*	Implement landslide stabilization and/or protection measures. Stabilization measures include grading the unstable portion of the slope to a lower gradient, construction of rock buttresses and retaining walls, and drainage improvements. Protection measures include containment and/or diversion of the moving debris, such as walls, berms, ditches and catchment basins.	Landslide	Structure and Infrastructure Projects, Natural Systems Protection	New/Existing
OA 17	Implement post-fire debris flow hillslope and channel treatments, such as seeding, mulching, check dams, and debris racks, as needed.	Post-Fire Debris Flow	Natural Systems Protection	New/Existing

**Table M-9. City of Port Hueneme, Potential Mitigation Actions**

No.	Description	Hazard	Mitigation Category	New or Existing Construction
OA 18*	Continue to participate in the NWS TsunamiReady Program through continued implementation of Guideline 4: Community Preparedness measures, including public outreach material and curriculum.	Tsunami	Awareness and Education	Not Applicable
OA 19	Create a new vegetation management program that provides vegetation management services to elderly, disabled, or low-income property owners who lack the resources to remove flammable vegetation from around their homes.	Wildfire	Awareness and Education, Natural Systems Protection	Existing (Residential buildings in high wildfire severity zones)
OA 20	Implement a fuel modification program for new construction by requiring builders and developers to submit their plans, complete with proposed fuel modification zones, to the local fire department for review and approval prior to beginning construction.	Wildfire	Local Plans and Regulations	New (Residential and non-residential buildings located within high wildfire severity zones)
OA 21*	Develop a hazards fuel treatment program for areas that have been identified with overgrown/dead brush/trees to reduce the potential for tree-to-tree ignition. Ensure that a “maintenance now” component to provide continued fire resistance is part of the program.	Wildfire	Natural Systems Protection	New/Existing
OA 22	Develop a vegetation management program in areas within and adjacent to rights-of-way and in close proximity to critical facilities to reduce the risk of tree failure and property damage and avoid creation of wind acceleration corridors within vegetated areas.	Winter Storm	Awareness and Education, Natural Systems Protection	New/Existing

\* Recent/current FEMA, NWS and California Coastal Conservancy grant projects (nationwide)

OA = Overarching

**Table M-10. City of Port Hueneme, Mitigation Action Plan**

No.	Description	Facility to be Mitigated (if Known and/or Applicable)	Funding Source	Department or Agency	Timeframe (0-5 Years)
OA 6	Develop a public outreach program that informs property owners located in the dam and levee failure inundation areas about voluntary flood insurance.	Citywide	General Fund	Department of Community Development	1-3 years
OA 10	Seismically retrofit or upgrade seismically deficient government facilities and pre-identified shelter facilities.	Not Known	HMGP or PDM	Public Works	3-5 years
OA 11	Develop and implement plans to increase the building owner's general knowledge of and appreciation for the value of seismic upgrading of the building's structural and nonstructural elements.	Citywide	HMGP or PDM	Department of Community Development	1-2 years
OA 13*	Reinforce roads/bridges from flooding through protection activities, including elevating the roads/bridges and installing/widening culverts beneath the roads/bridges or upgrading storm drains.	Not Known	HMGP or PDM	Public Works	3-5 years
OA 18*	Continue to participate in the NWS TsunamiReady Program through continued implementation of Guideline 4: Community Preparedness measures, including public outreach material and curriculum.	Citywide	General Fund	Department of Community Development	Ongoing

\* Recent/current FEMA, NWS and California Coastal Conservancy grant projects (nationwide)

HMGP = Hazard Mitigation Grant Program

PDM = Pre-Disaster Mitigation grant program

The Hazard Mitigation Assistance (HMA) Program requirements were used to guide choice of mitigation actions:

- Mitigation Planning
- Technical Feasibility and Effectiveness
- Floodplain Management and Protection of Wetlands
- Environmental Planning and Historic Review and Compliance
- Cost Effectiveness
- Cost Review
- General Program Requirements



*This page intentionally left blank*

Appendix N  
City of Santa Paula

*This page intentionally left blank*

**Table N-1. City of Santa Paula, Total Population and Residential Buildings**

Population <sup>1</sup>	Residential Buildings <sup>2</sup>
29,595	7,162

<sup>1</sup> 2010 census data, <sup>2</sup> Hazus 2.2 data (2010)

**Table N-2. City of Santa Paula, Total Critical Facilities and Infrastructure**

Category	Name	Address	Value
Community	Ebell Park	Latitude and Longitude Coordinates	Unknown
Community	KXBS-FM (Santa Paula)	Latitude and Longitude Coordinates	Unknown
Community	KZTR-AM (Santa Paula)	Latitude and Longitude Coordinates	Unknown
Community	Las Piedras Park	Latitude and Longitude Coordinates	Unknown
Community	Mill Park	Latitude and Longitude Coordinates	Unknown
Community	Obregon Park	Latitude and Longitude Coordinates	Unknown
Community	Santa Paula Community Center	530 W. Main St., Santa Paula, CA 93060	Unknown
Community	Santa Paula Oil Museum	1001 E. Main St., Santa Paula, CA 93060	Unknown
Community	Santa Paula-Fillmore County Sanitary Landfill	Latitude and Longitude Coordinates	Unknown
Community	Veterans Memorial Park	Latitude and Longitude Coordinates	Unknown
Emergency Response	Santa Paula FD Station #1	114 S. 10th St., Santa Paula, CA 93061	\$708,000
Emergency Response	Santa Paula FD Station #2	536 W. Main St., Santa Paula, CA 93061	\$708,000
Emergency Response	Santa Paula Fire Department	200 S. Tenth St, Santa Paula, CA 93061	\$708,000
Emergency Response	Santa Paula Police Department (Animal Control)	214 S 10th St, Santa Paula, CA 93060-3704	\$1,652,000
Emergency Response	Santa Paula Police Department Storefront	431 N 13th St, Santa Paula, CA 93060-2303	\$1,652,000
Government	Santa Paula City Hall	P.O. Box 569 , Santa Paula, CA 93060	Unknown
Government	Santa Paula Corporate Yard	903 Corporation St, Santa Paula, CA 93060	Unknown
Public Utility	Harding Park	Latitude and Longitude Coordinates	Unknown
Public Utility	Santa Paula Water Recycling Facility (Waste Water)	905 Corporation St., Santa Paula, CA 93060	\$78,588,000
Transportation	Santa Paula Airport	Wright Taxi Wy., Santa Paula, CA 93060	\$10,651,000
Transportation	Telegraph Rd Bridge	Latitude and Longitude Coordinates	\$1,787,919.50



**Table N-3. City of Santa Paula, Summary of Impacts for Population and Residential Buildings**

Hazard	Population	% of Population	No. of Residential Buildings	% of Residential Buildings
Climate Change - Rising Tide	0	0.00%	0	0.00%
Climate Change - Coastal Storm	0	0.00%	0	0.00%
Dam Failure Inundation	25,416	85.88%	5,801	81.00%
Earthquake Ground Shaking - Extreme	29,561	99.88%	7,147	99.79%
Earthquake Ground Shaking - Violent	34	0.12%	15	0.21%
Earthquake Ground Shaking - Severe	0	0.00%	0	0.00%
Liquefaction	10,282	34.74%	2,141	29.90%
Flood - 100 Year	11,108	37.53%	2,197	30.67%
Flood - 500 Year	7,256	24.52%	1,777	24.81%
Landslide Susceptibility Class VIII	0	0.00%	0	0.00%
Landslide Susceptibility Class IX	478	1.61%	158	2.21%
Landslide Susceptibility Class X	288	0.97%	95	1.33%
Reduced Flood Risks Due to Levees	0	0.00%	0	0.00%
Tsunami Evacuation Area - Phase 3	0	0.00%	0	0.00%
Tsunami Evacuation Area - Max	0	0.00%	0	0.00%
Wildfire - High	9	0.03%	3	0.04%
Wildfire - Very High	1,329	4.49%	431	6.01%

**Table N-4. City of Santa Paula, Summary of Impacts for Critical Facilities and Infrastructure**

Hazard	No. of Critical Facilities and Infrastructure	% of Critical Facilities and Infrastructure
Climate Change - Rising Tide	0	0.00%
Climate Change - Coastal Storm	0	0.00%
Dam Failure Inundation	18	85.71%
Earthquake Ground Shaking - Extreme	21	100.00%
Earthquake Ground Shaking - Violent	0	0.00%
Earthquake Ground Shaking - Severe	0	0.00%
Liquefaction	11	52.38%
Flood - 100 Year	5	23.81%
Flood - 500 Year	8	38.10%
Landslide Susceptibility Class VIII	0	0.00%
Landslide Susceptibility Class IX	0	0.00%
Landslide Susceptibility Class X	1	4.76%
Reduced Flood Risks Due to Levees	0	0.00%
Tsunami Evacuation Area - Phase 3	0	0.00%
Tsunami Evacuation Area - Max	0	0.00%
Wildfire - High	0	0.00%
Wildfire - Very High	2	9.52%

**Table N-5. City of Santa Paula, Human and Technical Resources for Hazard Mitigation**

Staff/Personnel Resources	Department or Agency	Principal Activities Related to Hazard Mitigation
Planner(s), engineer(s) and technical staff with knowledge of land development, land management practices, and human-caused and natural hazards.	Planning	<p>Develops and maintains the General Plan, including the Safety Element.</p> <p>Develops area plans based on the General Plan, to provide more specific guidance for the development of more specific areas.</p> <p>Reviews private development projects and proposed capital improvements projects and other physical projects involving property for consistency and conformity with the General Plan.</p> <p>Anticipates and acts on the need for new plans, policies, and Code changes.</p> <p>Applies the approved plans, policies, code provisions, and other regulations to proposed land uses.</p>
Engineer(s), Building Inspectors/Code Enforcement Officers or other professional(s) and technical staff trained in construction requirements and practices related to existing and new buildings.	Fire Department Inspection Services	Oversees the effective, efficient, fair, and safe enforcement of the California Building Code
Engineers, construction project managers, and supporting technical staff.	Public Works	Provides direct or contract civil, structural, and mechanical engineering services, including contract, project, and construction management.
Engineer(s), project manager(s), technical staff, equipment operators, and maintenance and construction staff.	Public Works	Maintains and operates of a wide range of local equipment and facilities as well as providing assistance to members of the public. These include providing sufficient clean fresh water, reliable sewer services, street maintenance, storm drainage systems, street cleaning, street lights and traffic signals.
Floodplain Administrator	Public Works	Reviews and ensures that new development proposals do not increase flood risk, and that new developments are not located below the 100 year flood level. In addition, the Floodplain Administrator is responsible for planning and managing flood risk reduction projects throughout the local jurisdiction.

**Table N-5. City of Santa Paula, Human and Technical Resources for Hazard Mitigation**

Staff/Personnel Resources	Department or Agency	Principal Activities Related to Hazard Mitigation
Emergency Manager	Office of the City Manager	Maintains and updates the Emergency Operations Plan for the local jurisdiction. In addition, coordinates local response and relief activities within the Emergency Operation Center, and works closely with County, state, and federal partners to support planning and training and to provide information and coordinate assistance.
Procurement Services Manager	Finance	Provides a full range of municipal financial services, administers several licensing measures, and functions as the local jurisdiction's Procurement Services Manager.
Any other information that is requested for the purposes of our hazard mitigation assessment.	Office of the City Manager	EOC Coordinator and PIO – responsible for all information pertaining to emergency management and preparedness, as well as demographic data.

**Table N-6. City of Santa Paula, Financial Resources for Hazard Mitigation**

Type	Subtype	Administrator	Purpose	Amount
<b>Local</b>	General Fund	Finance	Program operations and specific projects.	Variable.
	General Obligation (GO) Bonds	Finance	GO Bonds are appropriately used for the construction and/or acquisition of improvements to real property broadly available to residents and visitors. Such facilities include, but are not limited to, libraries, hospitals, parks, public safety facilities, and cultural and educational facilities.	Variable.
	Lease Revenue Bonds	Finance	Lease revenue bonds are used to finance capital projects that (1) have an identified budgetary stream for repayment (e.g., specified fees, tax receipts, etc.), (2) generate project revenue but rely on a broader pledge of general fund revenues to reduce borrowing costs, or (3) finance the acquisition and installation of equipment for the local jurisdiction's general governmental purposes.	Variable.
	Public-Private Partnerships	Santa Paula Chamber of Commerce Also: EDC-VC, CALED, VCEDA	Includes the use of local professionals, business owners, residents, and civic groups and trade associations, generally for the study of issues and the development of guidance and recommendations.	Project-specific.
<b>Federal</b>	Hazard Mitigation Grant Program (HMGP)	Federal Emergency Management Agency (FEMA)	Supports pre- and post-disaster mitigation plans and projects.	Available to California communities after a Presidentially declared disaster has occurred in California. Grant award based on specific projects as they are identified by eligible applicants.
	Pre-Disaster Mitigation (PDM) grant program	FEMA	Supports pre-disaster mitigation plans and projects.	Available on an annual basis as a nationally competitive grant. Grant award based on specific projects as they are identified (no more than \$3M federal share for projects).



**Table N-6. City of Santa Paula, Financial Resources for Hazard Mitigation**

Type	Subtype	Administrator	Purpose	Amount
<b>Federal (cont.)</b>	Flood Mitigation Assistance (FMA) grant program	FEMA	Mitigates repetitively flooded structures and infrastructure.	Available on an annual basis, distributed to California communities by the California Governor's Office of Emergency Services (Cal OES). Grant award based on specific projects as they are identified.
	Assistance to Firefighters Grant (AFG) Program	FEMA/USFA (U.S. Fire Administration)	Provides equipment, protective gear, emergency vehicles, training, and other resources needed to protect the public and emergency personnel from fire and related hazards.	Available to fire departments and nonaffiliated emergency medical services providers. Grant awards based on specific projects as they are identified.
	Community Development Block Grant Program Entitlement Communities Grants	U.S. HUD (U.S. Department of Housing and Urban Development)	Acquisition of real property, relocation and demolition, rehabilitation of residential and non-residential structures, construction of public facilities and improvements, such as water and sewer facilities, streets, neighborhood centers, and the conversion of school buildings for eligible purposes.	Available to entitled cities. Grant award based on specific projects as they are identified.
	Community Action for a Renewed Environment (CARE)	U.S. Environmental Protection Agency (EPA)	Through financial and technical assistance offers an innovative way for a community to organize and take action to reduce toxic pollution (i.e., stormwater) in its local environment. Through CARE, a community creates a partnership that implements solutions to reduce releases of toxic pollutants and minimize people's exposure to them.	Competitive grant program. Grant award based on specific projects as they are identified.
	Clean Water State Revolving Fund (CWSRF)	EPA	The CWSRF is a loan program that provides low-cost financing to eligible entities within state and tribal lands for water quality projects, including all types of non-point source, watershed protection or restoration, estuary management projects, and more traditional municipal wastewater treatment projects.	CWSRF programs provided more than \$5 billion annually to fund water quality protection projects for wastewater treatment, non-point source pollution control, and watershed and estuary management.

**Table N-6. City of Santa Paula, Financial Resources for Hazard Mitigation**

Type	Subtype	Administrator	Purpose	Amount
<b>Federal (cont.)</b>	Public Health Emergency Preparedness (PHEP) Cooperative Agreement.	Department of Health and Human Services' (HHS') Centers for Disease Control and Prevention (CDC)	Funds are intended to upgrade state and local public health jurisdictions' preparedness and response to bioterrorism, outbreaks of infectious diseases, and other public health threats and emergencies.	Competitive grant program. Grant award based on specific projects as they are identified. The City of Santa Paula would participate through the County's Public Health Department.
	Homeland Security Preparedness Technical Assistance Program (HSPTAP)	FEMA/DHS	Build and sustain preparedness technical assistance activities in support of the four homeland security mission areas (prevention, protection, response, recovery) and homeland security program management.	Technical assistance services developed and delivered to state and local homeland security personnel. Grant award based on specific projects as they are identified.

**Table N-7. City of Santa Paula, Legal and Regulatory Resources for Hazard Mitigation**

<b>Regulatory Tool</b>	<b>Name</b>	<b>Description (Effect on Hazard Mitigation)</b>	<b>Hazards Addressed</b>	<b>Mitigation, Preparedness, Response, or Recovery</b>	<b>Affects Development in Hazard Areas?</b>
<b>Plans</b>	General Plan: Safety Element (1998)	Describes hazard areas and regulates current and future development based on known hazard areas.	Earthquake, Liquefaction, Flooding, Landslide, Wildfire, Geological, and other hazards not included in this HMP	Mitigation & Preparedness	Yes
	Multi-hazard Functional Plan (MHFP – 2010)	Describes what the local jurisdiction's actions will be during a response to an emergency. Includes annexes that describe in more detail the actions required of the local jurisdiction's departments/agencies. Further, this plan describes the role of the Emergency Operation Center (EOC) and the coordination that occurs between the EOC and the local jurisdiction's departments and other response agencies. Finally, this plan describes how the EOC serves as the focal point among local, state, and federal governments in times of disaster.	Hazardous materials spill, Flooding (coastal and riverine, dam failure), Wildfire, Earthquake, Liquefaction, Landslide, and other hazards not included in this HMP.	Response	Yes
	Chapter 54, Stormwater Quality Management Program (SWQMP) (1998)	Describes measures that the local jurisdiction will take to minimize stormwater pollution. The SWQMP is required by the National Pollutant Discharge Elimination System Phase II regulations, which became effective in March 2003.	Stormwater	Mitigation & Preparedness	Yes
<b>Programs</b>	National Flood Insurance Program (NFIP)	Makes affordable flood insurance available to homeowners, business owners, and renters in participating communities. In exchange, those communities must adopt and enforce minimum floodplain management regulations to reduce the risk of damage from future floods. The City of Santa Paula joined the NFIP in 1980.	Flood	Mitigation, Preparedness & Recovery	Yes

**Table N-7. City of Santa Paula, Legal and Regulatory Resources for Hazard Mitigation**

<b>Regulatory Tool</b>	<b>Name</b>	<b>Description (Effect on Hazard Mitigation)</b>	<b>Hazards Addressed</b>	<b>Mitigation, Preparedness, Response, or Recovery</b>	<b>Affects Development in Hazard Areas?</b>
<b>Policies (Municipal Code)</b>	Title III: Administration, Chapter 34: Civil Defense	to provide for the preparation and carrying out of plans for the protection of persons and property within this city in the event of a disaster, and to provide for the coordination of the civil defense and disaster functions of this city with all other public agencies and affected private persons, corporations and organizations.	All	Mitigation, Preparedness, Response & Recovery	No
	Title XV: Land Use, Chapter 150: Building Regulations	Adoption of California Building Code	Fire, Earthquake	Mitigation, & Preparedness	Yes
	Title XV: Land Use, Chapter 151: Flood Damage Prevention	to promote the public health, safety, and general welfare, and to minimize public and private losses due to flood conditions in specific areas	Flood	Mitigation, & Preparedness	Yes

**Table N-8. City of Santa Paula, Current and Completed Hazard Mitigation Projects and Programs**

Status (Current or Complete)	Project / Program Name	Description	Year(s)
Unknown	GIS-based pre-application review	Create a GIS-based pre-application review for new construction and major remodels in hazard areas, such levee break, high and/or very high wildfire areas.	Unknown
Unknown	Integrate the 2010 LHMP	Integrate the 2010 LHMP, in particular the hazard analysis and mitigation strategy sections, into local planning documents, including general plans, emergency operations plans, and capital improvement plans.	Unknown
Unknown	Address RL properties	Acquire, relocate, or elevate residential structures, in particular those that have been identified as RL properties, within the 100-year floodplain.	Unknown
Unknown	Vegetation Management	Manage vegetation in areas within and adjacent to rights-of-way and in close proximity to critical facilities in order to reduce the risk of tree failure and property damage and avoid creation of wind acceleration corridors within vegetated areas.	Unknown
Unknown	Address Floodplain Management Issues	Work with FEMA Region IX to address any floodplain management issues that may have arisen/arise from the countywide DFIRM, Community Assessment Visits, and/or DWR.	Unknown

**Table N-9. City of Santa Paula, Potential Mitigation Actions**

No.	Description	Hazard	Mitigation Category	New or Existing Construction
OA 1	Integrate the hazard analysis and mitigation strategy into the General Plan's Safety Element.	All	Local Plans and Regulations	Not Applicable
OA 2	Ensure that existing monitoring capabilities at the state and County level are integrated to provide an early warning of increased or new infestations.*	Agricultural (Insect Pests/Invasive Species)	Natural Systems Protection	Not Applicable
OA 3	Implement an infestation public awareness and educational campaign.	Agricultural (Insect Pests/Invasive Species)	Education and Awareness	Not Applicable
OA 4*	Relocate or reinforce bike trails, parking lots and other beach access amenities away from the shoreline to restore the beach/shoreline in sea-level rise/coastal erosion areas.	Climate Change	Natural Systems Protection	Existing
OA 5*	Restore habitat and improve flood protection for low-lying areas by employing innovative techniques such as constructing levees coupled with gently sloping tidal marshes to help protect from storm wave action and tidal surge.	Climate Change	Natural Systems Protection	New/Existing
OA 6	Develop a public outreach program that informs property owners located in the dam and levee failure inundation areas about voluntary flood insurance.	Dam and Levee Failure Inundation	Education and Awareness	Existing
OA 7	Develop a water conservation public outreach program to increase awareness about the drought, fines and penalties for overuse and solutions for conserving water.	Drought	Education and Awareness	New/Existing
OA 8	Adopt emergency water conservation measures and/or water conservation ordinance to limit irrigation.	Drought	Local Plans and Regulations	New/Existing
OA 9	Identify potentially vulnerable public and private utility systems including electric, gas, oil, water, sewer and communication. Upgrade vulnerable systems to ensure the operation and timely restoration of essential systems to reasonable levels of service.	Earthquake	Structure and Infrastructure Projects	New/Existing
OA 10	Seismically retrofit or upgrade seismically deficient government facilities and pre-identified shelter facilities.	Earthquake	Structure and Infrastructure Projects	Existing



**Table N-9. City of Santa Paula, Potential Mitigation Actions**

No.	Description	Hazard	Mitigation Category	New or Existing Construction
OA 11	Develop and implement plans to increase the building owner's general knowledge of and appreciation for the value of seismic upgrading of the building's structural and nonstructural elements.	Earthquake	Local Plans and Regulations & Awareness and Education	Existing
OA 12	Increase participation in the NFIP by entering the Community Rating System program which through enhanced floodplain management activities would allow property owners to receive a discount on their flood insurance.	Flood	All	New/Existing (Residential structures and critical facilities which are located within the 100-year floodplain)
OA 13*	Reinforce roads/bridges from flooding through protection activities, including elevating the roads/bridges and installing/widening culverts beneath the roads/bridges or upgrading storm drains.	Flood	Structure and Infrastructure Projects	Existing
OA 14*	Acquire, relocate, or elevate residential structures, in particular those that have been identified as RL properties, within the 100-year floodplain.	Flood	Structure and Infrastructure Projects	Existing
OA 15	Work with FEMA Region 9 to address any floodplain management issues that may have arisen/arise from the countywide DFIRM, Community Assessment Visits, and/or DWR.	Flood	Local Plans and Regulations	Not Applicable
OA 16*	Implement landslide stabilization and/or protection measures. Stabilization measures include grading the unstable portion of the slope to a lower gradient, construction of rock buttresses and retaining walls, and drainage improvements. Protection measures include containment and/or diversion of the moving debris, such as walls, berms, ditches and catchment basins.	Landslide	Structure and Infrastructure Projects, Natural Systems Protection	New/Existing
OA 17	Implement post-fire debris flow hillslope and channel treatments, such as seeding, mulching, check dams, and debris racks, as needed.	Post-Fire Debris Flow	Natural Systems Protection	New/Existing

**Table N-9. City of Santa Paula, Potential Mitigation Actions**

No.	Description	Hazard	Mitigation Category	New or Existing Construction
OA 18*	Continue to participate in the NWS TsunamiReady Program through continued implementation of Guideline 4: Community Preparedness measures, including public outreach material and curriculum.	Tsunami	Awareness and Education	Not Applicable
OA 19	Create a new vegetation management program that provides vegetation management services to elderly, disabled, or low-income property owners who lack the resources to remove flammable vegetation from around their homes.	Wildfire	Awareness and Education, Natural Systems Protection	Existing (Residential buildings in high wildfire severity zones)
OA 20	Implement a fuel modification program for new construction by requiring builders and developers to submit their plans, complete with proposed fuel modification zones, to the local fire department for review and approval prior to beginning construction.	Wildfire	Local Plans and Regulations	New (Residential and non-residential buildings located within high wildfire severity zones)
OA 21*	Develop a hazards fuel treatment program for areas that have been identified with overgrown/dead brush/trees to reduce the potential for tree-to-tree ignition. Ensure that a “maintenance now” component to provide continued fire resistance is part of the program.	Wildfire	Natural Systems Protection	New/Existing
OA 22	Develop a vegetation management program in areas within and adjacent to rights-of-way and in close proximity to critical facilities to reduce the risk of tree failure and property damage and avoid creation of wind acceleration corridors within vegetated areas.	Winter Storm	Awareness and Education, Natural Systems Protection	New/Existing

\* Recent/current FEMA, NWS and California Coastal Conservancy grant projects (nationwide)

OA = Overarching

**Table N-10. City of Santa Paula, Mitigation Action Plan**

No.	Description	Facility to be Mitigated (if Known and/or Applicable)	Funding Source	Department or Agency	Timeframe (0-5 Years)
OA 6	Develop a public outreach program that informs property owners located in the dam and levee failure inundation areas about voluntary flood insurance.	Properties in dam inundation areas	General Fund	Public Works	1-3 years
OA 7	Develop a water conservation public outreach program to increase awareness about the drought, fines and penalties for overuse and solutions for conserving water.	Citywide	General Fund	Planning	1-2 years
OA 11	Develop and implement plans to increase the building owner's general knowledge of and appreciation for the value of seismic upgrading of the building's structural and nonstructural elements.	Citywide	HMGP or PDM	Planning and Public Works	1-2 years
OA 14*	Acquire, relocate, or elevate residential structures, in particular those that have been identified as RL properties, within the 100-year floodplain.	Repetitive Loss Properties	FMA	Public Works	3-5 years

\* Recent/current FEMA, NWS and California Coastal Conservancy grant projects (nationwide)

FMA = Flood Mitigation Assistance grant program

HMGP = Hazard Mitigation Grant Program

PDM = Pre-Disaster Mitigation grant program

The Hazard Mitigation Assistance (HMA) Program requirements were used to guide choice of mitigation actions:

- Mitigation Planning
- Technical Feasibility and Effectiveness
- Floodplain Management and Protection of Wetlands
- Environmental Planning and Historic Review and Compliance
- Cost Effectiveness
- Cost Review
- General Program Requirements

Appendix O  
City of Thousand Oaks

*This page intentionally left blank*

**Table O-1. City of Thousand Oaks, Total Population and Residential Buildings**

Population <sup>1</sup>	Residential Buildings <sup>2</sup>
126,693	39,847

<sup>1</sup> 2010 census data, <sup>2</sup> Hazus 2.2 data (2010)

**Table O-2. City of Thousand Oaks, Total Critical Facilities and Infrastructure\***

Category	Name	Address	Value
Community	Acorn Acres Park	Latitude and Longitude Coordinates	Unknown
Community	Civic Arts Plaza	Latitude and Longitude Coordinates	Unknown
Community	Conejo Ridge Open Space	Latitude and Longitude Coordinates	Unknown
Community	Dos Vientos Community Center	4801 Borchard Road, Newbury Park, CA 91320	\$5,450,728
Community	Goebel Adult Center	1385 East Janss Road, Thousand Oaks, CA 91362	\$6,005,522
Community	Hope Nature Preserve	Latitude and Longitude Coordinates	Unknown
Community	Joel McCrea Wildlife Preserve	Latitude and Longitude Coordinates	Unknown
Community	KCPB-FM (Thousand Oaks)	Latitude and Longitude Coordinates	Unknown
Community	Lake Eleanor Open Space	Latitude and Longitude Coordinates	Unknown
Community	Lang Ranch Open Space	Latitude and Longitude Coordinates	Unknown
Community	Los Padres Open Space	Latitude and Longitude Coordinates	Unknown
Community	Los Robles Golf Course (Golf Course Property, Pro Shop, Clubhouse, Bar & Grill, Carts, Cart Barn, Snack Bar, & Pump House)	299 South Moorpark Road, Thousand Oaks, CA 91362	\$7,518,641
Community	Los Robles Hospital and Medical Center	Latitude and Longitude Coordinates	Unknown
Community	Los Robles Open Space	Latitude and Longitude Coordinates	Unknown
Community	Newbury Park Branch Library (Building & Books)	2331 Borchard Road, Newbury Park, CA 91320	\$11,298,074
Community	North Ranch Open Space	Latitude and Longitude Coordinates	Unknown
Community	Oakbrook Community Park	Latitude and Longitude Coordinates	Unknown



**Table O-2. City of Thousand Oaks, Total Critical Facilities and Infrastructure\***

Category	Name	Address	Value
Community	Oakbrook Regional Park	Latitude and Longitude Coordinates	Unknown
Community	Olsen Road Water Reclamation Plant	Latitude and Longitude Coordinates	Unknown
Community	Newbury Park High School Football Stadium	Latitude and Longitude Coordinates	Unknown
Community	Potrero Open Space	Latitude and Longitude Coordinates	Unknown
Community	Rancho Conejo Open Space	Latitude and Longitude Coordinates	Unknown
Community	Sycamore Park	Latitude and Longitude Coordinates	Unknown
Community	Thousand Oaks Teen Center	1375 East Janss Road, Thousand Oaks, CA 91362	\$3,435,863
Community	The Grant R. Brimhall Library (Building & Books)	1401 E. Janss Road, Thousand Oaks, CA 91362	\$56,739,960
Community	Thousand Oaks Community Center	2525 Moorpark Road, Thousand Oaks, CA	\$5,324,989
Community	Los Robles Surgical Hospital	Latitude and Longitude Coordinates	Unknown
Community	Ventu Park	Latitude and Longitude Coordinates	Unknown
Community (Conejo RPD)	Alex Fiore Playfield	S/W Route 23 and Avenida de los Arboles, Thousand Oaks, CA 93160	Unknown
Community (Conejo RPD)	Alex Fiore Thousand Oaks Teen Center	1375 East Janss Road, Thousand Oaks, CA 91362	Unknown
Community (Conejo RPD)	Banyan Park	3605 Erinlea Avenue, Newbury Park, CA 91320	Unknown
Community (Conejo RPD)	Beyer Park	280 Conejo School Road, Thousand Oaks, CA 91362	Unknown
Community (Conejo RPD)	Borchard Community Center (includes park)	190 Reino Road, Thousand Oaks, CA 91320	\$5,435,117
Community (Conejo RPD)	Botanic Garden	350 W Gainsborough Road, Thousand Oaks, CA 91360	Unknown
Community (Conejo RPD)	Canada Park	1619 Calle Zocalo, Thousand Oaks, CA 91360	Unknown
Community (Conejo RPD)	Conejo Community Center (includes park)	1175 Hendrix Avenue, Thousand Oaks, CA 91360	\$2,814,673
Community (Conejo RPD)	Conejo Creek Dog Park	1350 Avenida de las Flores, Thousand Oaks, CA 91362	Unknown
Community (Conejo RPD)	Conejo Creek North Park / Creekside Pavilion	1379 E. Janss Road, Thousand Oaks, CA 91362	Unknown
Community (Conejo RPD)	Conejo Creek North Park / Lakeside Pavilion	1379 E. Janss Road, Thousand Oaks, CA 91362	Unknown
Community (Conejo RPD)	Conejo Creek North Park / Willowbend Pavilion	1379 E. Janss Road, Thousand Oaks, CA 91362	Unknown
Community (Conejo RPD)	Conejo Creek Northwest Equestrian Area	1350 Avenida de las Flores, Thousand Oaks, CA 91360	Unknown
Community (Conejo RPD)	Conejo Creek South Playfield	1300 E. Janss Road, Thousand Oaks, CA 91362	Unknown

**Table O-2. City of Thousand Oaks, Total Critical Facilities and Infrastructure\***

Category	Name	Address	Value
Community (Conejo RPD)	Conejo Valley Botanic Garden	1035 St. Charles Place, Thousand Oaks, CA 91360	Unknown
Community (Conejo RPD)	Crowley House	2522 Pleasant Way, Thousand Oaks, CA 91362	Unknown
Community (Conejo RPD)	Cypress Park	469 1/2 Havenside Avenue, Newbury Park, CA 91320	Unknown
Community (Conejo RPD)	Dos Vientos Community Center (includes park)	4801 Borchard Road, Newbury Park, CA 91320	Unknown
Community (Conejo RPD)	Dos Vientos Neighborhood Park	4850 Lynn Road, Newbury Park, CA 91320	Unknown
Community (Conejo RPD)	El Parque de la Paz	2580 Pleasant Way, Thousand Oaks, CA 91362	Unknown
Community (Conejo RPD)	Estella Park	300 Erbes Road, Thousand Oaks, CA 91362	Unknown
Community (Conejo RPD)	Evenstar Park	1021 Evenstar Avenue, Westlake Village, CA 91361	Unknown
Community (Conejo RPD)	Glenwood Park	1291 Windsor Drive, Thousand Oaks, CA 91360	Unknown
Community (Conejo RPD)	Goebel Senior Adult Center	1385 East Janss Road, Thousand Oaks, CA 91362	Unknown
Community (Conejo RPD)	Hickory Park	3877 South Camphor, Newbury Park, CA 91320	Unknown
Community (Conejo RPD)	Hillcrest Center, Center for the Arts	403 West Hillcrest Drive, Thousand Oaks, CA 91360	Unknown
Community (Conejo RPD)	Kimber Park	3295 Bear Creek Drive, Newbury Park, CA 91320	Unknown
Community (Conejo RPD)	Lang Ranch Neighborhood Park	3287 Lang Ranch Parkway, Thousand Oaks, CA 91362	Unknown
Community (Conejo RPD)	Las Flores Community Garden	1300 W. Avenida de las Flores, Thousand Oaks, CA 91360	Unknown
Community (Conejo RPD)	Lynn Oaks Park	359 Capitan Street, Newbury Park, CA 91361	Unknown
Community (Conejo RPD)	McCrea Wildlife Refuge (McCrea Ranch)	4545 N. Moorpark Road, Thousand Oaks, CA 91360	Unknown
Community (Conejo RPD)	Newbury Gateway Park	2250 Michael Drive, Newbury Park, CA 91320	Unknown
Community (Conejo RPD)	North Ranch Neighborhood Park	1901 Upper Ranch Road, Thousand Oaks, CA 91362	Unknown
Community (Conejo RPD)	North Ranch Playfield	952 Rockfield Street, Thousand Oaks, CA 91362	Unknown
Community (Conejo RPD)	Northwood Park	3620 Avenue Verano, Thousand Oaks, CA 91360	Unknown
Community (Conejo RPD)	Oakbrook Neighborhood Park	2787 Erbes Road, Thousand Oaks, CA 91362	Unknown
Community (Conejo RPD)	Old Meadows Park	1600 Marview Drive, Thousand Oaks, CA 91362	Unknown
Community (Conejo RPD)	Pepper Tree Playfield	3720 Old Conejo Road, Newbury Park, CA 91320	Unknown
Community (Conejo RPD)	Rancho Conejo Playfields	950 N. Ventu Park Road, Newbury Park, CA 91320	Unknown

**Table O-2. City of Thousand Oaks, Total Critical Facilities and Infrastructure\***

Category	Name	Address	Value
Community (Conejo RPD)	Russell Park	3199 North Medicine Bow Court, Westlake Village, CA 91362	Unknown
Community (Conejo RPD)	Southshore Hills Park	2025 Tanbark Ct., Thousand Oaks, CA 91361	Unknown
Community (Conejo RPD)	Spring Meadow Park	3283 Spring Meadow, Thousand Oaks, CA 91360	Unknown
Community (Conejo RPD)	Stagecoach Inn (Museum)	51 South Ventu Park Road, Newbury Park, CA 91320	Unknown
Community (Conejo RPD)	Stagecoach Inn Park	51 South Ventu Park Road, Newbury Park, CA 91320	Unknown
Community (Conejo RPD)	Suburbia Park	2600 Tennyson Street, Thousand Oaks, CA 91360	Unknown
Community (Conejo RPD)	Sunset Hills Park	3350 Monte Carlo Drive, Thousand Oaks, CA 91362	Unknown
Community (Conejo RPD)	Sycamore Neighborhood Park	198 Via Katrina, Thousand Oaks, CA 91320	Unknown
Community (Conejo RPD)	Thousand Oaks Community Center (includes park)	2525 North Moorpark Road, Thousand Oaks, CA 91360	Unknown
Community (Conejo RPD)	Triunfo Community Park	980 Aranmoor Avenue, Westlake Village, CA 91361	Unknown
Community (Conejo RPD)	Walnut Grove Equestrian Center	401 Ronel Court, Newbury Park, CA 91320	Unknown
Community (Conejo RPD)	Walnut Grove Neighborhood Park	400 Windtree Avenue, Newbury Park, CA 91320	Unknown
Community (Conejo RPD)	Waverly Park	1300 Avenida de las Flores, Thousand Oaks, CA 91360	Unknown
Community (Conejo RPD)	Wendy Park	815 American Oaks Avenue, Newbury Park, CA 91320	Unknown
Community (Conejo RPD)	Wildflower Playfield	635 Avenida de los Arboles, Thousand Oaks, CA 91360	Unknown
Community (Conejo RPD)	Wildwood Neighborhood Park	650 W. Avenida de los Arboles, Thousand Oaks, CA 91360	Unknown
Community (Conejo RPD)	Wildwood Park	928 W. Avenida de los Arboles, Thousand Oaks, CA 91360	Unknown
Emergency Response	East County Sheriff Station	2101 E. Olsen Road, Thousand Oaks, CA 91360	\$219,461
Government	Thousand Oaks Transportation Center	265 South Rancho Road, Thousand Oaks, CA 91362	\$394,388
Government	Thousand Oaks Household Hazardous Waste Facility	2010 Conejo Center Drive, Thousand Oaks, CA 91320	\$2,745,000
Government	Thousand Oaks Municipal Service Center (Buildings A, B, C, D & Fueling Station: Gasoline, Diesel and CNG)	1993 Rancho Conejo Road, Thousand Oaks, CA 91320	\$6,092,463

**Table O-2. City of Thousand Oaks, Total Critical Facilities and Infrastructure\***

Category	Name	Address	Value
Government	Office Space - CRPD Office Building	403 West Hillcrest Drive, Thousand oaks, CA 91362	\$9,178,844
Government	Office Space - Department of Forestry	401 West Hillcrest Drive, Thousand Oaks, CA 91362	\$6,207,726
Government	Thousand Oaks City Hall (Civic Arts Plaza - City Hall Part 1 & 2, Forum Theatre, Kavli Theatre, & Parking Structure)	2100 E. Thousand Oaks Blvd., Thousand Oaks, CA 91362	\$99,111,535
Government	Thousand Oaks Department of Public Works	2025 OlsenRoad, Thousand Oaks, CA 91320	\$78,588,000
Medical Facility/Residential Care	KCLU-FM (Thousand Oaks)	Latitude and Longitude Coordinates	Unknown
Medical Facility/Residential Care	Wildwood Regional Park	Latitude and Longitude Coordinates	Unknown
Public Utility	Arboles Pump Station	2655 E. Avenida de Los Arboles, Thousand Oaks, CA 91362	\$527,063
Public Utility	Arboles Turnout	555 E. Avenida de Los Arboles (Fire Station), Thousand Oaks, CA 91360	Unknown
Public Utility	Arroyo Conejo Open Space	Latitude and Longitude Coordinates	Unknown
Public Utility	Del Sol Turnout	3235 Erbes Rd., Thousand Oaks, CA 91362	Unknown
Public Utility	Encino Vista Turnout	819 Encino Vista Dr., Thousand Oaks, CA 91362	Unknown
Public Utility	Erbes Road Pump Station	2106 Erbes Road, Thousand Oaks, CA 91362	\$790,595
Public Utility	Fairview Reservoir - Roseland Ave	8875 Roseland Avenue , Moorpark 93021	Unknown
Public Utility	Fiore Playfield	Latitude and Longitude Coordinates	Unknown
Public Utility	Flores Turnout	2194 N. Moorpark Rd., Thousand Oaks, CA 91360	Unknown
Public Utility	Fort Wildwood Park	Latitude and Longitude Coordinates	Unknown
Public Utility	Freeway Reservoir	369 Fairview Road, Thousand Oaks, CA 91361	\$790,595
Public Utility	Gainsborough Turnout	1240 N. Moorpark Rd., Thousand Oaks, CA 91360	Unknown
Public Utility	Grissom Pump Station	1619 Grissom Street, Thousand Oaks, CA 91362	\$395,296
Public Utility	Grissom Reservoir (x2)	1619 Grissom Street, Thousand Oaks, CA 91362	\$527,064
Public Utility	Hillcrest Turnout	19 E. Hillcrest Dr., Thousand Oaks, CA 91360	Unknown

**Table O-2. City of Thousand Oaks, Total Critical Facilities and Infrastructure\***

Category	Name	Address	Value
Public Utility	Kelly Pump Station	452 Whitegate Road, Thousand Oaks, CA 91320	\$395,296
Public Utility	Kelly Reservoir	452 Whitegate Road, Thousand Oaks, CA 91320	\$527,063
Public Utility	Kelly Turnout	2770 Borchard Rd., Thousand Oaks, CA 91320	Unknown
Public Utility	La Granada Reservoir	510 N. Conejo School Road, Thousand Oaks, CA 93162	\$992,191
Public Utility	La Jolla Turnout	1355 La Jolla Drive, Thousand Oaks, CA 91362	Unknown
Public Utility	Lang Ranch Dam (Lang Ranch Detention Basin)	Latitude and Longitude Coordinates	Unknown
Public Utility	Lang Ranch Pump Station	2237 Peak Place, Thousand Oaks, CA 91362	\$527,063
Public Utility	Lang Ranch Reservoir	2237 Peak Place, Thousand Oaks, CA 91362	\$1,185,889
Public Utility	Lawrence Lift Station	2500 West Hillcrest Drive, Thousand Oaks, CA 91320	\$700,859
Public Utility	Lindero 2 Pumping Station	2100 Olsen Road, Thousand Oaks, CA 91360	Unknown
Public Utility	Lindero Turnout	2106 Erbes Road, Thousand Oaks, CA 91362	Unknown
Public Utility	Lone Oak Pump Station	560 Lone Oak Drive, Thousand Oaks, CA 91362	\$527,063
Public Utility	Lone Oak Turnout	560 Lone Oak Drive, Thousand Oaks, CA 91362	Unknown
Public Utility	Meadows Reservoir	1683 Shadow Oaks Place, Thousand Oaks, CA 91362	\$2,635,312
Public Utility	Northwood Pump Station (Booster)	3070 Northwook Parkway, Thousand Oaks, CA 91360	\$658,828
Public Utility	Oakbrook Reservoir	2228 Westlake Blvd., Thousand Oaks, CA 91362	\$1,976,483
Public Utility	Pederson Pump Station	1551 Pederson Road, Thousand Oaks, CA 91360	\$922,358
Public Utility	Pederson Reservoir	1551 Pederson Road, Thousand Oaks, CA 91360	\$2,635,312
Public Utility	Rolling Oaks Pump Station	275 South Rancho Road, Thousand Oaks, CA 91362	\$658,828
Public Utility	Rolling Oaks Reservoir	511 Rimrock Road, Westlake Village, CA 91361	\$263,532
Public Utility	Sherwood Reservoir	From 493 Hillsborough through gate. Follow Janss Fire Road about 1 mile to Westlake/Edison Rd. left. Reservoir on right approx. 200 yards on asphalt road to tank., Westlake Village, CA 91361	Unknown
Public Utility	Sunset 1 Pump Station	4025 Lemonberry Place, Thousand Oaks, CA 91362	\$790,595
Public Utility	Sunset 2 Pump Station	2240 Fernleaf Court, Thousand oaks, CA 91362	\$658,828

**Table O-2. City of Thousand Oaks, Total Critical Facilities and Infrastructure\***

Category	Name	Address	Value
Public Utility	Sunset 2 Reservoir	2240 Fernleaf Court, Thousand oaks, CA 91362	\$263,532
Public Utility	Sunset 3 Pump Station (Hydro Station)	2615 McCrea Road, Thousand Oaks, CA 91362	\$395,296
Public Utility	Sunset 3 Reservoir	2615 McCrea Road, Thousand Oaks, CA 91362	\$658,828
Public Utility	Tara Reservoir	3070 Northwood Parkway, Thousand Oaks, CA 91360	\$1,054,124
Public Utility	Ventu Park Turnout	1304 Newbury Rd., Thousand Oaks, CA 91320	Unknown
Public Utility	Ventu Pump Station	1394 Kathleen Drive, Newbury Park, CA 91320	\$1,311,562
Public Utility	Ventu Reservoir	1394 Kathleen Drive, Newbury Park, CA 91320	\$3,060,313
Public Utility	Wilder Pump Station	1630 Wilder Street, Thousand Oaks, CA 91362	\$658,828
Public Utility	Wilder Reservoir	1630 Wilder Street, Thousand Oaks, CA 91362	\$922,358
Public Utility	Willow Lane Pump Station	385 Conejo Ridge Avenue, Thousand Oaks, CA 91361	\$790,595
Public Utility	Willow Lane Reservoir	385 Conejo Ridge Avenue, Thousand Oaks, CA 91361	\$1,185,889
Public Utility (Conejo RPD)	Lake Eleanor Dam	Latitude and Longitude Coordinates	Unknown
Transportation	Arroyo Conejo Bridge (Boardwalk Avenue)	Boardwalk Avenue (between Thousand Oaks Blvd and Hillcrest Drive)	\$325,163
Transportation	Arroyo Conejo Bridge (Moorpark Road)	Moorpark Road (between Hillcrest Drive and Thousand Oaks Blvd.)	\$1,645,888
Transportation	Borchard Drain Bridge	Reino Road (Borchard Drain @ Reino Road, 0.5 miles N of Borchard Road)	\$419,023
Transportation	Potrero Road Bridge	Latitude and Longitude Coordinates	\$213,334.60
Transportation	South Branch Arroyo Bridge - Reino Rd	Reino Road (Borchard @ Reino Road)	\$569,848
Transportation	South Branch Arroyo Bridge - Ventu Park Rd	Ventu Park Road, Thousand Oaks, CA	Unknown
Transportation	Triunfo Cyn Rd Bridge	Latitude and Longitude Coordinates	\$1,456,256.90
Transportation	W Hillcrest Dr Bridge	Latitude and Longitude Coordinates	\$406,023.80

\* Also includes critical facilities and infrastructure for Conejo Recreation and Park District as this special district has chosen to participate through the City of Thousand Oaks



**Table O-3. City of Thousand Oaks, Summary of Impacts for Population and Residential Buildings**

<b>Hazard</b>	<b>Population</b>	<b>% of Population</b>	<b>No. of Residential Buildings</b>	<b>% of Residential Buildings</b>
Climate Change - Rising Tide	0	0.00%	0	0.00%
Climate Change - Coastal Storm	0	0.00%	0	0.00%
Dam Failure Inundation	4,697	3.71%	1,836	4.61%
Earthquake Ground Shaking - Extreme	0	0.00%	0	0.00%
Earthquake Ground Shaking - Violent	125,856	99.34%	39,569	99.30%
Earthquake Ground Shaking - Severe	837	0.66%	278	0.70%
Liquefaction	3,528	2.79%	780	1.96%
Flood - 100 Year	1,836	1.45%	555	1.39%
Flood - 500 Year	980	0.77%	214	0.54%
Landslide Susceptibility Class VIII	5,153	4.07%	1,737	4.36%
Landslide Susceptibility Class IX	9,199	7.26%	3,146	7.90%
Landslide Susceptibility Class X	2,450	1.93%	788	1.98%
Reduced Flood Risks Due to Levees	0	0.00%	0	0.00%
Tsunami Evacuation Area - Phase 3	0	0.00%	0	0.00%
Tsunami Evacuation Area - Max	0	0.00%	0	0.00%
Wildfire - High	1	0.00%	0	0.00%
Wildfire - Very High	54,551	43.06%	18,156	45.57%

**Table O-4. City of Thousand Oaks, Summary of Impacts for Critical Facilities and Infrastructure**

<b>Hazard</b>	<b>No. of Critical Facilities and Infrastructure</b>	<b>% of Critical Facilities and Infrastructure</b>
Climate Change - Rising Tide	0	0.00%
Climate Change - Coastal Storm	0	0.00%
Dam Failure Inundation	7	7.37%
Earthquake Ground Shaking - Extreme	1	1.05%
Earthquake Ground Shaking - Violent	95	96.84%
Earthquake Ground Shaking - Severe	2	2.11%
Liquefaction	9	9.47%
Flood - 100 Year	4	4.21%
Flood - 500 Year	2	2.11%
Landslide Susceptibility Class VIII	11	11.58%
Landslide Susceptibility Class IX	9	9.47%
Landslide Susceptibility Class X	6	5.26%
Reduced Flood Risks Due to Levees	0	0.00%
Tsunami Evacuation Area - Phase 3	0	0.00%
Tsunami Evacuation Area - Max	0	0.00%
Wildfire - High	1	1.05%
Wildfire - Very High	62	62.11%

**Table O-5. City of Thousand Oaks, Human and Technical Resources for Hazard Mitigation**

Staff/Personnel Resources	Department or Agency	Principal Activities Related to Hazard Mitigation
Planner(s), engineer(s) and technical staff with knowledge of land development, land management practices, and human-caused and natural hazards.	Community Development Department and Public Works Department	Develops and maintains the General Plan, including the Safety Element. Develops a specific plans based on the General Plan, to provide more specific guidance for the development of more specific areas. Reviews private development projects for consistency with approved policies, code provisions, other regulations. Anticipates and acts on the need for new plans, policies, and Code changes.
Engineer(s), Building Inspectors/Code Enforcement Officers or other professional(s) and technical staff trained in construction requirements and practices related to existing and new buildings.	Community Development Department	Oversees the enforcement of the California Building Code
Engineers, construction project managers, and supporting technical staff.	Public Works Department	Provides direct or contract civil, structural, and mechanical engineering services, including contract, project, and construction management.
Engineer(s), project manager(s), technical staff, equipment operators, and maintenance and construction staff.	Public Works Department	Maintains and operates of a wide range of local equipment and facilities as well as providing assistance to members of the public. These include providing sufficient clean fresh water, reliable sewer services, street maintenance, storm drainage systems, street cleaning, street lights and traffic signals.
Floodplain Administrator	Public Works Department	Reviews and ensures that new development proposals do not increase flood risk, and that new developments are not located below the 100-year flood level. In addition, the Floodplain Administrator is responsible for planning and managing flood risk reduction projects throughout the local jurisdiction.
Emergency Services Coordinator	Public Works Department	Maintains and updates the Emergency Operations Plan for the local jurisdiction. In addition, coordinates local response and relief activities within the Emergency Operation Center, and works closely with County, state, and federal partners to support planning and training and to provide information and coordinate assistance.

**Table O-5. City of Thousand Oaks, Human and Technical Resources for Hazard Mitigation**

Staff/Personnel Resources	Department or Agency	Principal Activities Related to Hazard Mitigation
Procurement Services Manager	Finance Department	Provides a full range of municipal financial services, administers several licensing measures, and functions as the local jurisdiction's Procurement Services Manager.
Personnel skilled in GIS and/or HAZUS	Finance Department and Public Works Department	Provides a full range of Information Technology – GIS accessible to staff including location and nature of interested facilities and infrastructures.
Grant writers	City/County	Staff from the Public Works Dept, Finance Department and Community Development Department seek out funding as needed

**Table O-6. City of Thousand Oaks, Financial Resources for Hazard Mitigation**

Type	Subtype	Administrator	Purpose	Amount
<b>Local</b>	General Fund	City Manager's Office: City Council & City Manager Departments: Finance, Public Works, and Community Development	Program operations and specific projects.	Variable.
	General Obligation (GO) Bonds	City Manager's Office: City Council, City Manager Departments: Finance, Public Works, Community Development, Cultural Affairs, and Library Services	GO Bonds are appropriately used for the construction and/or acquisition of improvements to real property broadly available to residents and visitors. Such facilities include, but are not limited to, libraries, hospitals, parks, public safety facilities, and cultural and educational facilities.	Variable.
	Lease Revenue Bonds	City Manager's Office: City Council & City Manager Departments: Finance, Public Works, and Community Development	Lease revenue bonds are used to finance capital projects that (1) have an identified budgetary stream for repayment (e.g., specified fees, tax receipts, etc.), (2) generate project revenue but rely on a broader pledge of general fund revenues to reduce borrowing costs, or (3) finance the acquisition and installation of equipment for the local jurisdiction's general governmental purposes.	Variable.
	Public-Private Partnerships	City Manager's Office	Includes the use of local professionals, business owners, residents, and civic groups and trade associations, generally for the study of issues and the development of guidance and recommendations.	Project-specific.

**Table O-6. City of Thousand Oaks, Financial Resources for Hazard Mitigation**

Type	Subtype	Administrator	Purpose	Amount
<b>Local (cont.)</b>	Capital Improvements Project Funding	City Manager's Office: City Council, City Manager Departments: Finance, Public Works, and Community Development	Authorize appropriation and expenditure of funds for capital improvements. Determines funding needs for Finance operated City facilities. Determines funding needs for Public Works projects and for Public Works operated facilities. Determines funding needs for Community Development projects.	Variable.
	Authority to levy taxes for a specific purpose	City Council approval required	Per prop 218, City Council has authority to levy taxes only with voter approval	Variable
	Fees for water and wastewater	City Manager's Office: City Council, City Manager, Public Works Department	Authorize fees for water and wastewater. Determines fees required to provide for the purchase of water, operations and maintenance, and capital projects.	Variable.
	Impact fees for homebuyers or developers for new development	City Manager's Office: City Council, City Manager Departments: Finance, Public Works, and Community Development	Authorize impact fees. Determines fees required to provide for services.	Variable.
<b>Local (cont.)</b>	Other – Other Grants	City Manager's Office: City Council, City Manager Departments: Finance, Public Works, and Community Development	Authorize the acceptance of grant and expenditure of City funds for grant fund matching requirements. Researches and administers grants for the Finance Department. Coordinates Federal single audit. Researches and administers grants for the Public Works Department. Coordinates audits such as transportation audits. Researches and administers grants for the Community Development Department.	Variable.



**Table O-6. City of Thousand Oaks, Financial Resources for Hazard Mitigation**

Type	Subtype	Administrator	Purpose	Amount
<b>Federal</b>	Hazard Mitigation Grant Program (HMGP)	Federal Emergency Management Agency (FEMA)	Supports pre- and post-disaster mitigation plans and projects.	Available to California communities after a Presidentially declared disaster has occurred in California. Grant award based on specific projects as they are identified by eligible applicants.
	Pre-Disaster Mitigation (PDM) grant program	FEMA	Supports pre-disaster mitigation plans and projects.	Available on an annual basis as a nationally competitive grant. Awards based on specific projects as they are identified (no more than \$3M federal share for projects).
	Flood Mitigation Assistance (FMA) grant program	FEMA	Mitigates repetitively flooded structures and infrastructure.	Available on an annual basis, distributed to California communities by the California Governor's Office of Emergency Services (Cal OES). Grant award based on specific projects as they are identified.
	Assistance to Firefighters Grant (AFG) Program	FEMA/USFA (U.S. Fire Administration)	Provides equipment, protective gear, emergency vehicles, training, and other resources needed to protect the public and emergency personnel from fire and related hazards.	Available to fire departments and nonaffiliated emergency medical services providers. Grant awards based on specific projects as they are identified.
<b>Federal (cont.)</b>	Community Development Block Grant Program Entitlement Communities Grants	U.S. HUD (U.S. Department of Housing and Urban Development)	Acquisition of real property, relocation and demolition, rehabilitation of residential and non-residential structures, construction of public facilities and improvements, such as water and sewer facilities, streets, neighborhood centers, and the conversion of school buildings for eligible purposes.	Available to entitled cities. Grant award based on specific projects as they are identified.

**Table O-6. City of Thousand Oaks, Financial Resources for Hazard Mitigation**

Type	Subtype	Administrator	Purpose	Amount
	Community Action for a Renewed Environment (CARE)	U.S. Environmental Protection Agency (EPA)	Through financial and technical assistance offers an innovative way for a community to organize and take action to reduce toxic pollution (i.e., stormwater) in its local environment. Through CARE, a community creates a partnership that implements solutions to reduce releases of toxic pollutants and minimize people's exposure to them.	Competitive grant program. Grant award based on specific projects as they are identified.
	Clean Water State Revolving Fund (CWSRF)	EPA	The CWSRF is a loan program that provides low-cost financing to eligible entities within state and tribal lands for water quality projects, including all types of non-point source, watershed protection or restoration, estuary management projects, and more traditional municipal wastewater treatment projects.	CWSRF programs provided more than \$5 billion annually to fund water quality protection projects for wastewater treatment, non-point source pollution control, and watershed and estuary management.
	Public Health Emergency Preparedness (PHEP) Cooperative Agreement.	Department of Health and Human Services' (HHS') Centers for Disease Control and Prevention (CDC)	Funds are intended to upgrade state and local public health jurisdictions' preparedness and response to bioterrorism, outbreaks of infectious diseases, and other public health threats and emergencies.	Competitive grant program. Grant award based on specific projects as they are identified. City of Thousand Oaks would participate through the County's Public Health Department.
	Homeland Security Preparedness Technical Assistance Program (HSPTAP)	FEMA/DHS	Build and sustain preparedness technical assistance activities in support of the four homeland security mission areas (prevention, protection, response, recovery) and homeland security program management.	Technical assistance services developed and delivered to state and local homeland security personnel. Grant award based on specific projects as they are identified.

**Table O-7. City of Thousand Oaks, Legal and Regulatory Resources for Hazard Mitigation**

<b>Regulatory Tool</b>	<b>Name</b>	<b>Description (Effect on Hazard Mitigation)</b>	<b>Hazards Addressed</b>	<b>Mitigation, Preparedness, Response, or Recovery</b>	<b>Affects Development in Hazard Areas?</b>
<b>Plans</b>	Safety Element of the General Plan (2014)	Describes hazard areas and regulates current and future development based on known hazard areas.	Earthquake, Geologic, Flooding, Wildfire	Mitigation & Preparedness	Yes
	Emergency Operations Plan (2014)	Describes what the local jurisdiction's actions will be during a response to an emergency. Includes annexes that describe in more detail the actions required of the local jurisdiction's departments/agencies. Further, this plan describes the role of the Emergency Operation Center (EOC) and the coordination that occurs between the EOC and the local jurisdiction's departments and other response agencies. Finally, this plan describes how the EOC serves as the focal point among local, state, and federal governments in times of disaster.	Earthquake, Flooding, Fires, Dam Failure, Landslide, and other hazards not included in this HMP	Preparedness Response and Recovery	No
	Capital Improvement Plan	5 year CIP updated every 2 years for city infrastructure. Private development projects are evaluated for hazards on a case by case basis	Liquifaction, Earthquake, and Flooding	Mitigation	Yes
<b>Programs</b>	National Flood Insurance Program (NFIP)	Makes affordable flood insurance available to homeowners, business owners, and renters in participating communities. In exchange, those communities must adopt and enforce minimum floodplain management regulations to reduce the risk of damage from future floods. City of Thousand Oaks joined the NFIP in 1978.	Flood	Mitigation, Preparedness & Recovery	Yes
<b>Policies (Municipal Code)</b>	Code of Ordinances (Flood Damage Prevention – T.O.M.C Title 4, Chapter 7	The purpose of this code is to establish the minimum requirements to safeguard the public health, safety, and general welfare through structural strength, means of egress facilities, stability, access to persons with disabilities, sanitation, adequate lighting and ventilation and energy conservation, and safety to life and property from fire and other hazards attributed to the built environment; to regulate and control the demolition of all buildings and structures, and for related purposes.	Earthquake, Wildfires and Flooding	Mitigation, Preparedness, and Response	Yes

**Table O-7. City of Thousand Oaks, Legal and Regulatory Resources for Hazard Mitigation**

<b>Regulatory Tool</b>	<b>Name</b>	<b>Description (Effect on Hazard Mitigation)</b>	<b>Hazards Addressed</b>	<b>Mitigation, Preparedness, Response, or Recovery</b>	<b>Affects Development in Hazard Areas?</b>
<b>Policies (Municipal Code cont.)</b>	Site plan review requirements	Site plans are reviewed for potential development in areas with natural hazards	Earthquake, Geologic, Flooding, Wildfire	Mitigation	Yes
	Real estate disclosure requirements	Known hazards are required to be identified in disclosure documents	Flooding, Earthquake, Wild fire	Preparedness	No

**Table O-8. City of Thousand Oaks, Current and Completed Hazard Mitigation Projects and Programs**

Status (Current or Complete)	Project / Program Name	Description	Year(s)
Complete	Collection System and Water Treatment Plan Improvements	Ongoing construction to improve the collection system and water treatment plant capacity and reliability. Phase 2 construction efforts allow for increased facility capacity to meet the future growth of the City. Phase 3 facility upgrades allow for the more efficient biological removal of nitrogen and phosphorus.	Phase II completed in 1999 Phase III completed in 2006
Complete	Adoption of Seismic-Safe Model	As it pertains to substation construction, SCE has completed the following: <ul style="list-style-type: none"> <li>– Live tank circuit breakers were replaced with dead tank circuit breakers at every opportunity to lower the center of gravity and reduce internal seismic loads.</li> <li>– Conventional porcelain insulators replaced with polymer/silicon rubber insulators in selective applications to reduce seismic loads.</li> <li>– High-strength insulators are used more generously throughout the system.</li> </ul>	2006
Complete	Unit W Phase 1 and 2 Reconstruction Projects	Unit W wastewater line, originally constructed in 1962, conveys approximately 60 percent of the total wastewater flow that is treated at the City's Hill Canyon Wastewater Treatment Plant. Under Unit W, Phase 1 and 2 reconstruction projects, a total of about 13,800 feet of new 24 to 48 inch diameter wastewater line was constructed and completed 2001, with a total design and construction cost of about \$22 million. The projects secured several creek crossings with improved pipe encasements and armoring. The original pipe was relined and now serves as back up to the system and bypass during routine cleaning and inspection of the new line.	2008

**Table O-8. City of Thousand Oaks, Current and Completed Hazard Mitigation Projects and Programs**

Status (Current or Complete)	Project / Program Name	Description	Year(s)
Complete	Battery Back Systems for Traffic Safety During Power Outages	Battery back systems for traffic safety during power outages - Battery backup systems installed in 160 traffic signals.	2009
Complete	Battery Back Systems for Traffic Safety During Power Outages	Battery back systems for traffic safety during power outages – 132 new battery back-up units (BBU) completed. Battery back systems are for traffic safety during power outages and may not necessarily be disaster mitigation; BBUs are more likely to have a regular benefit since they would be automatically used whenever power is lost for many different reasons.	2015
Complete	Emergency Response Plans for Municipal Service Center and Hill Canyon Wastewater Treatment Plant	The Municipal Service Center and Hill Canyon Wastewater Treatment Plant have separate Emergency Response Plans.	2015
Complete	Training – Disaster Costs	Train City staff in methodologies for collecting data and assessing and tracking costs associated with disaster loss, mitigation, response and repair. This supports long-term risk assessment efforts and cost/benefit analysis related to a range of potential mitigation activities.	2015
Complete	Overland flow policy	It is the policy and practice for all development and drainage-oriented projects to maintain safe, overland flow patterns for all runoff.	2015
Complete	Address Floodplain Management issues	Work with FEMA Region IX to address any floodplain management issues that may have arisen/arise from the countywide DFIRM, Community Assessment Visits, and/or DWR.	2015



**Table O-8. City of Thousand Oaks, Current and Completed Hazard Mitigation Projects and Programs**

Status (Current or Complete)	Project / Program Name	Description	Year(s)
Current	Urban defensive barriers for wildfire	Establish defensive barriers in the urban/wildland interface to protect against wildfire, including: maintaining 100 foot defensible perimeter around each habitable structure; providing for the removal of annual fuels within the defensive perimeter; providing any fire suppression resource from any agency the opportunity to successfully protect structures and other valuable properties during a wildfire threat; and protecting the watershed fire areas from exposure to structure fires.	2015 (anticipated completion)
Current	Floodplain Hazard Reduction	Initiated a Federal Interest Determination (FID) study with the U.S. Army Corps of Engineers (USACE) in November 2014. The objective of the study was to propose and qualify a major channel widening improvement to reduce or eliminate the largest floodplain in the City. The project would be co-funded via matching funds among the USACE, Ventura County Watershed Protection District, and the City of Thousand Oaks.	2015 (anticipated completion)

**Table O-9. City of Thousand Oaks, Potential Mitigation Actions**

No.	Description	Hazard	Mitigation Category	New or Existing Construction
OA 1	Integrate the hazard analysis and mitigation strategy into the General Plan's Safety Element.	All	Local Plans and Regulations	Not Applicable
OA 2	Ensure that existing monitoring capabilities at the state and County level are integrated to provide an early warning of increased or new infestations.*	Agricultural (Insect Pests/Invasive Species)	Natural Systems Protection	Not Applicable
OA 3	Implement an infestation public awareness and educational campaign.	Agricultural (Insect Pests/Invasive Species)	Education and Awareness	Not Applicable
OA 4*	Relocate or reinforce bike trails, parking lots and other beach access amenities away from the shoreline to restore the beach/shoreline in sea-level rise/coastal erosion areas.	Climate Change	Natural Systems Protection	Existing
OA 5*	Restore habitat and improve flood protection for low-lying areas by employing innovative techniques such as constructing levees coupled with gently sloping tidal marshes to help protect from storm wave action and tidal surge.	Climate Change	Natural Systems Protection	New/Existing
OA 6	Develop a public outreach program that informs property owners located in the dam and levee failure inundation areas about voluntary flood insurance.	Dam and Levee Failure Inundation	Education and Awareness	Existing
OA 7	Develop a water conservation public outreach program to increase awareness about the drought, fines and penalties for overuse and solutions for conserving water.	Drought	Education and Awareness	New/Existing
OA 8	Adopt emergency water conservation measures and/or water conservation ordinance to limit irrigation.	Drought	Local Plans and Regulations	New/Existing
OA 9	Identify potentially vulnerable public and private utility systems including electric, gas, oil, water, sewer and communication. Upgrade vulnerable systems to ensure the operation and timely restoration of essential systems to reasonable levels of service.	Earthquake	Structure and Infrastructure Projects	New/Existing
OA 10	Seismically retrofit or upgrade seismically deficient government facilities and pre-identified shelter facilities.	Earthquake	Structure and Infrastructure Projects	Existing

**Table O-9. City of Thousand Oaks, Potential Mitigation Actions**

No.	Description	Hazard	Mitigation Category	New or Existing Construction
OA 11	Develop and implement plans to increase the building owner's general knowledge of and appreciation for the value of seismic upgrading of the building's structural and nonstructural elements.	Earthquake	Local Plans and Regulations & Awareness and Education	Existing
OA 12	Increase participation in the NFIP by entering the Community Rating System program which through enhanced floodplain management activities would allow property owners to receive a discount on their flood insurance.	Flood	All	New/Existing (Residential structures and critical facilities which are located within the 100-year floodplain)
OA 13*	Reinforce roads/bridges from flooding through protection activities, including elevating the roads/bridges and installing/widening culverts beneath the roads/bridges or upgrading storm drains.	Flood	Structure and Infrastructure Projects	Existing
OA 14*	Acquire, relocate, or elevate residential structures, in particular those that have been identified as RL properties, within the 100-year floodplain.	Flood	Structure and Infrastructure Projects	Existing
OA 15	Work with FEMA Region 9 to address any floodplain management issues that may have arisen/arise from the countywide DFIRM, Community Assessment Visits, and/or DWR.	Flood	Local Plans and Regulations	Not Applicable
OA 16*	Implement landslide stabilization and/or protection measures. Stabilization measures include grading the unstable portion of the slope to a lower gradient, construction of rock buttresses and retaining walls, and drainage improvements. Protection measures include containment and/or diversion of the moving debris, such as walls, berms, ditches and catchment basins.	Landslide	Structure and Infrastructure Projects, Natural Systems Protection	New/Existing
OA 17	Implement post-fire debris flow hillslope and channel treatments, such as seeding, mulching, check dams, and debris racks, as needed.	Post-Fire Debris Flow	Natural Systems Protection	New/Existing

**Table O-9. City of Thousand Oaks, Potential Mitigation Actions**

No.	Description	Hazard	Mitigation Category	New or Existing Construction
OA 18*	Continue to participate in the NWS TsunamiReady Program through continued implementation of Guideline 4: Community Preparedness measures, including public outreach material and curriculum.	Tsunami	Awareness and Education	Not Applicable
OA 19	Create a new vegetation management program that provides vegetation management services to elderly, disabled, or low-income property owners who lack the resources to remove flammable vegetation from around their homes.	Wildfire	Awareness and Education, Natural Systems Protection	Existing (Residential buildings in high wildfire severity zones)
OA 20	Implement a fuel modification program for new construction by requiring builders and developers to submit their plans, complete with proposed fuel modification zones, to the local fire department for review and approval prior to beginning construction.	Wildfire	Local Plans and Regulations	New (Residential and non-residential buildings located within high wildfire severity zones)
OA 21*	Develop a hazards fuel treatment program for areas that have been identified with overgrown/dead brush/trees to reduce the potential for tree-to-tree ignition. Ensure that a “maintenance now” component to provide continued fire resistance is part of the program.	Wildfire	Natural Systems Protection	New/Existing
OA 22	Develop a vegetation management program in areas within and adjacent to rights-of-way and in close proximity to critical facilities to reduce the risk of tree failure and property damage and avoid creation of wind acceleration corridors within vegetated areas.	Winter Storm	Awareness and Education, Natural Systems Protection	New/Existing
TO 1	Develop a water conservation public outreach program to increase awareness about the drought, fines and penalties for overuse and methods for conserving water.	Drought	Education and Awareness	New/Existing
TO 2	Adopt emergency water conservation measures and/or water conservation ordinance to reduce irrigation.	Drought	Local Plans and Regulations	New/Existing
TO 3	Evaluate City bridges for structural, seismic, functional, and safety adequacy.	Earthquake	Structure and Infrastructure Projects	Existing

**Table O-9. City of Thousand Oaks, Potential Mitigation Actions**

No.	Description	Hazard	Mitigation Category	New or Existing Construction
TO 4	Update Supervisory Control and Data Acquisition Master Plan with seismic improvements, including design, integration of new Programmable Logic Controllers and communication systems at City pump stations, reservoirs, and turnouts.	Earthquake	Structure and Infrastructure Projects	Existing
TO 5	Remove and/or repair the interior of reservoir tanks and perform analysis, identify causes, and mitigate hazards to ensure tanks achieve seismic standards.	Earthquake	Structure and Infrastructure Projects	Existing
TO 6	Thousand Oaks is participating in a joint partnership with US Army Corps of Engineers and the Ventura County Watershed Protection District to prepare a Project Feasibility Study for the floodplain located in Newbury Park on the South Branch Arroyo Conejo. The project goal is the construction of channel improvements to reduce or eliminate the existing floodplain, removing a large portion of the community's flood hazard.	Flood	Structure and Infrastructure Projects	New/Existing

\* Recent/current FEMA, NWS and California Coastal Conservancy grant projects (nationwide)

OA = Overarching

TO = Thousand Oaks (potential mitigation action is specific to Thousand Oaks)

**Table O-10. City of Thousand Oaks, Mitigation Action Plan**

No.	Description	Facility to be Mitigated (if Known and/or Applicable)	Funding Source	Department or Agency	Timeframe (0-5 Years)
TO 1	Water Conservation Public Outreach Program	Citywide	General Fund	Public Works	2 years
TO 2	Adopt emergency water conservation measures and/or water conservation ordinance to limit irrigation.	Citywide	Not Applicable	Public Works	2 years
TO 3	Evaluate City bridges for structural, seismic, functional, and safety adequacy.	Bridges	Capital Improvements Project Funding	Public Works	3 years
TO 4	Update Supervisory Control and Data Acquisition Master Plan with seismic improvements, including design, integration of new Programmable Logic Controllers and communication systems at City pump stations, reservoirs, and turnouts.	Not Applicable	HMGP or PDM	Public Works	3 years
TO 5	Remove and/or repair the interior of reservoir tanks and perform analysis, identify causes, and mitigate hazards to ensure tanks achieve seismic standards.	Reservoir tanks	HMGP or PDM	Public Works	3 years

HMGP = Hazard Mitigation Grant Program

PDM = Pre-Disaster Mitigation grant program

The Hazard Mitigation Assistance (HMA) Program requirements were used to guide choice of mitigation actions:

- Mitigation Planning
- Technical Feasibility and Effectiveness
- Floodplain Management and Protection of Wetlands
- Environmental Planning and Historic Review and Compliance
- Cost Effectiveness
- Cost Review
- General Program Requirements



*This page intentionally left blank*

Appendix P  
City of Ventura

*This page intentionally left blank*

**Table P-1. City of Ventura, Total Population and Residential Buildings**

Population <sup>1</sup>	Residential Buildings <sup>2</sup>
107,195	32,961

<sup>1</sup> 2010 census data, <sup>2</sup> Hazus 2.2 data (2010)

**Table P-2. City of Ventura, Total Critical Facilities and Infrastructure**

Category	Name	Address	Value
Community	Camino Real Park	Latitude and Longitude Coordinates	Unknown
Community	City of Ventura Filtration Plant	Latitude and Longitude Coordinates	Unknown
Community	Hobert Park	Latitude and Longitude Coordinates	Unknown
Community	Junipero Serra Park	Latitude and Longitude Coordinates	Unknown
Community	KAGR-FM (Ventura)	Latitude and Longitude Coordinates	Unknown
Community	KBBY-FM (Ventura)	Latitude and Longitude Coordinates	Unknown
Community	Kennebec Linear Park	Latitude and Longitude Coordinates	Unknown
Community	KHAY-FM (Ventura)	Latitude and Longitude Coordinates	Unknown
Community	KOGO-AM (Ventura)	Latitude and Longitude Coordinates	Unknown
Community	KSTV-TV (Ventura)	Latitude and Longitude Coordinates	Unknown
Community	KVEN-AM (Ventura)	Latitude and Longitude Coordinates	Unknown
Community	Main Street Park	Latitude and Longitude Coordinates	Unknown
Community	Marina Park	Latitude and Longitude Coordinates	Unknown
Community	Marion Cannon Park	Latitude and Longitude Coordinates	Unknown
Community	Northbank Linear Park	Latitude and Longitude Coordinates	Unknown
Community	Ocean Avenue Park	Latitude and Longitude Coordinates	Unknown
Community	Plaza Park, Ventura	Latitude and Longitude Coordinates	Unknown
Community	Promenade Park	Latitude and Longitude Coordinates	Unknown

**Table P-2. City of Ventura, Total Critical Facilities and Infrastructure**

Category	Name	Address	Value
Community	Ralston Village Linear Park	Latitude and Longitude Coordinates	Unknown
Community	Rancho Ventura Linear Park	Latitude and Longitude Coordinates	Unknown
Community	Reynolds Park	Latitude and Longitude Coordinates	Unknown
Community	Riverview Linear Park	Latitude and Longitude Coordinates	Unknown
Community	Seaside Park	Latitude and Longitude Coordinates	Unknown
Community	Seaside Wilderness Park	Latitude and Longitude Coordinates	Unknown
Community	Surfers Point Park	Latitude and Longitude Coordinates	Unknown
Community	Ventura Keys	Latitude and Longitude Coordinates	Unknown
Community	West Park Playground	Latitude and Longitude Coordinates	Unknown
Emergency Response	Chumash Park, Ventura	Latitude and Longitude Coordinates	Unknown
Emergency Response	County Square Linear Park	Latitude and Longitude Coordinates	Unknown
Emergency Response	Grant Park Radio Bldg	398 Ferro Dr., Ventura, CA 93001	\$14,048
Emergency Response	Ventura City Police/Fire Headquarters	1425 Dowell DR, Ventura, CA 93003	\$14,402,037
Emergency Response	Ventura FD Station #1	717 N. Ventura Ave., Ventura, CA 93001	\$1,039,197
Emergency Response	Ventura FD Station #2	41 S. Seaward Ave., Ventura, CA 93001	\$708,000
Emergency Response	Ventura FD Station #3	5838 Telegraph Rd., Ventura, CA 93003	\$708,000
Emergency Response	Ventura FD Station #4	8303 Telephone Rd., Ventura, CA 93003	\$708,000
Emergency Response	Ventura FD Station #5	4225 E. Main St., Ventura, CA 93003	\$1,432,386
Emergency Response	Ventura FD Station #6	10797 Darling Rd., Ventura, CA 93004	\$1,557,261
Emergency Response	Ventura Police Dept	110 N Olive St # K, Ventura, CA 93001-2570	\$1,652,000
Fuel Distribution	DeWitt Petroleum	4480 DuPont Ct., Ventura CA 93003	Unknown
Government	Sanjon Yard Maintenance	336 Sanjon Rd., Ventura, CA 93001	\$16,931,517
Government	Ventura City Hall	501 Poli St., Ventura, CA 93001	\$28,178,046
Government	Ventura County Govt Center/Courthouse	800 S Victoria Ave, Ventura, CA 93003	Unknown
Medical Facility/ Residential Care	Aurora Vista Del Mar Hospital	Latitude and Longitude Coordinates	Unknown

**Table P-2. City of Ventura, Total Critical Facilities and Infrastructure**

Category	Name	Address	Value
Medical Facility/ Residential Care	Barranca Vista Park	Latitude and Longitude Coordinates	Unknown
Medical Facility/ Residential Care	Bristol Bay Linear Park	Latitude and Longitude Coordinates	Unknown
Medical Facility/ Residential Care	Community Memorial Hospital	147 N Brent St, Ventura CA 93003	\$400,000,000
Medical Facility/ Residential Care	Eastwood Park	Latitude and Longitude Coordinates	Unknown
Medical Facility/ Residential Care	Olivas Adobe Historical Park	Latitude and Longitude Coordinates	Unknown
Medical Facility/ Residential Care	Olivas Park	Latitude and Longitude Coordinates	Unknown
Medical Facility/ Residential Care	Ventura County Medical Center	3291 Loma Vista Rd., Ventura, CA 93003	\$400,000,000
Medical Facility/ Residential Care	Woodside Linear Park	Latitude and Longitude Coordinates	Unknown
Public Utility	Arroyo Verde Park	Latitude and Longitude Coordinates	Unknown
Public Utility	Arundell Linear Park	Latitude and Longitude Coordinates	Unknown
Public Utility	Babe Ruth Field	Latitude and Longitude Coordinates	Unknown
Public Utility	Bard Sanitarium	Latitude and Longitude Coordinates	Unknown
Public Utility	Buena Vista Pump Sta #213	Latitude and Longitude Coordinates	\$174,058
Public Utility	City of Ventura - Ave. Water Treatment	5895 N. Ventura, Ventura, CA 93003	\$12,180,840
Public Utility	City of Ventura - Bailey Reservoir	6315 Fremont , Ventura, CA 93003	\$2,478,802
Public Utility	Corbett Tank	Latitude and Longitude Coordinates	Unknown
Public Utility	Dover Ln Lift Station	Latitude and Longitude Coordinates	\$24,561
Public Utility	Elizabeth Bard Memorial Hospital	Latitude and Longitude Coordinates	Unknown
Public Utility	Elizabeth Tank	Latitude and Longitude Coordinates	Unknown
Public Utility	Five Points Pump Sta #217	Latitude and Longitude Coordinates	\$439,773



**Table P-2. City of Ventura, Total Critical Facilities and Infrastructure**

Category	Name	Address	Value
Public Utility	Foothill Tanks	Latitude and Longitude Coordinates	Unknown
Public Utility	Foster Park Intake #351	Latitude and Longitude Coordinates	\$45,075
Public Utility	Fritz Huntsinger Youth Sports Complex	Latitude and Longitude Coordinates	Unknown
Public Utility	Golf Course Well #5	Latitude and Longitude Coordinates	Unknown
Public Utility	Golf Course Well 3 #353	Latitude and Longitude Coordinates	\$8,502
Public Utility	Golf Course Well 6 #352 & 353	Latitude and Longitude Coordinates	\$366,117
Public Utility	Gosnell Pump Sta #223	Latitude and Longitude Coordinates	\$109,456
Public Utility	Grant Memorial Park	Latitude and Longitude Coordinates	Unknown
Public Utility	Grant Park Reservoir/Fire Tanks	Latitude and Longitude Coordinates	\$3,708,120
Public Utility	Hall Canyon Tanks	Latitude and Longitude Coordinates	Unknown
Public Utility	Hall Cyn Pump Sta #229	Latitude and Longitude Coordinates	\$139,376
Public Utility	Hall Cyn Reservoir	Latitude and Longitude Coordinates	\$1,449,233
Public Utility	Harmon Park	Latitude and Longitude Coordinates	Unknown
Public Utility	Harry A Lyon Park	Latitude and Longitude Coordinates	Unknown
Public Utility	Kalorama Tanks	Latitude and Longitude Coordinates	Unknown
Public Utility	KBBY-FM (Ventura) – Laguna Peak	Latitude and Longitude Coordinates	Unknown
Public Utility	Kimball Pump Sta #233	Latitude and Longitude Coordinates	\$111,468
Public Utility	Kimball Tank	Latitude and Longitude Coordinates	Unknown
Public Utility	Kingston Reservoir	Latitude and Longitude Coordinates	\$1,007,925
Public Utility	Long Canyon Tanks	Latitude and Longitude Coordinates	Unknown
Public Utility	Mariano Tanks	Latitude and Longitude Coordinates	Unknown
Public Utility	Mcelrea Tanks	Latitude and Longitude Coordinates	Unknown
Public Utility	Modella Pump Sta #237	Latitude and Longitude Coordinates	\$117,810
Public Utility	Mound Well	Latitude and Longitude Coordinates	\$3,072,471
Public Utility	Nob Hill Tank	Latitude and Longitude Coordinates	Unknown
Public Utility	Nye Well #1	Latitude and Longitude Coordinates	\$3,420,894

**Table P-2. City of Ventura, Total Critical Facilities and Infrastructure**

Category	Name	Address	Value
Public Utility	Nye Well #11	Latitude and Longitude Coordinates	Unknown
Public Utility	Nye Well #7	Latitude and Longitude Coordinates	Unknown
Public Utility	Nye Well #8	Latitude and Longitude Coordinates	Unknown
Public Utility	Ondulando Tank	Latitude and Longitude Coordinates	Unknown
Public Utility	Power Reservoir	Latitude and Longitude Coordinates	\$9,682,084
Public Utility	Sanjon Lift Station	Latitude and Longitude Coordinates	\$125,340
Public Utility	Saticoy Well #3	Latitude and Longitude Coordinates	Unknown
Public Utility	Saticoy Well Conditioning Fac.	Latitude and Longitude Coordinates	\$668,763
Public Utility	Seaside Transfer Sta #475	Latitude and Longitude Coordinates	\$798,510
Public Utility	Seneca Tank	Latitude and Longitude Coordinates	Unknown
Public Utility	Sexton Tanks	Latitude and Longitude Coordinates	Unknown
Public Utility	Valley Vista Tank	Latitude and Longitude Coordinates	\$3,072,471
Public Utility	Ventura Garage and Service Center	10060 Telegraph Road, Ventura, CA 93004	\$129,800,000
Public Utility	Ventura Harbor	Latitude and Longitude Coordinates	Unknown
Public Utility	Ventura Water Reclamation	1400 Spinnaker, Ventura, CA 93001	\$89,202,740
Public Utility	Victoria Well	Latitude and Longitude Coordinates	\$593,994
Public Utility	View Park Tanks	Latitude and Longitude Coordinates	Unknown
Public Utility	Weymouth Lift Sta	Latitude and Longitude Coordinates	\$24,561
Public Utility	Willis Pump Sta #259	Latitude and Longitude Coordinates	\$153,355
Public Utility	Willis Tank	Latitude and Longitude Coordinates	Unknown
Transportation	Arrundell Circle Bridge	Latitude and Longitude Coordinates	\$302,797
Transportation	Arundell RR Bridge	Latitude and Longitude Coordinates	Unknown
Transportation	Beachmont St Bridge	Latitude and Longitude Coordinates	\$629,681
Transportation	California St RR Trestle	Latitude and Longitude Coordinates	Unknown
Transportation	Darling Rd Bridge	Latitude and Longitude Coordinates	\$198,806
Transportation	Harbor Blvd Bridge at Arundell Barranca NB	Latitude and Longitude Coordinates	\$508,485.60

**Table P-2. City of Ventura, Total Critical Facilities and Infrastructure**

Category	Name	Address	Value
Transportation	Harbor Blvd Bridge at Arundell Barranca SB	Latitude and Longitude Coordinates	\$256,537
Transportation	Johnson Dr RR Bridge	Latitude and Longitude Coordinates	Unknown
Transportation	Main St-Ventura River Bridge	Latitude and Longitude Coordinates	\$12,147,071
Transportation	Sanjon RR Bridge	Latitude and Longitude Coordinates	Unknown
Transportation	Seaward Av RR Bridge	Latitude and Longitude Coordinates	Unknown
Transportation	Telephone Rd Bridge at Brown Barranca	Latitude and Longitude Coordinates	\$351,926
Transportation	Telephone Rd Bridge at RR	Latitude and Longitude Coordinates	\$1,851,385
Transportation	Ventura River RR Trestle	Latitude and Longitude Coordinates	Unknown
Transportation	Victoria Av Bridge	Latitude and Longitude Coordinates	Unknown
Transportation	Vista Del Mar Bridge	Latitude and Longitude Coordinates	\$567,745

**Table P-3. City of Ventura, Summary of Impacts for Population and Residential Buildings**

<b>Hazard</b>	<b>Population</b>	<b>% of Population</b>	<b>No. of Residential Buildings</b>	<b>% of Residential Buildings</b>
Climate Change - Rising Tide	100	0.09%	50	0.15%
Climate Change - Coastal Storm	2,718	2.54%	1,361	4.13%
Dam Failure Inundation	29,773	27.77%	8,937	27.11%
Earthquake Ground Shaking - Extreme	79,701	74.35%	24,424	74.10%
Earthquake Ground Shaking - Violent	27,166	25.34%	8,379	25.42%
Earthquake Ground Shaking - Severe	0	0.00%	0	0.00%
Liquefaction	43,152	40.26%	13,704	41.58%
Flood - 100 Year	541	0.50%	206	0.63%
Flood - 500 Year	3,424	3.19%	1,067	3.24%
Landslide Susceptibility Class VIII	38	0.04%	10	0.03%
Landslide Susceptibility Class IX	2,650	2.47%	965	2.93%
Landslide Susceptibility Class X	3,351	3.13%	1,198	3.63%
Reduced Flood Risks Due to Levees	4,561	4.25%	847	2.57%
Tsunami Evacuation Area - Phase 3	2,014	1.88%	972	2.95%
Tsunami Evacuation Area - Max	4,918	4.59%	2,331	7.07%
Wildfire - High	0	0.00%	0	0.00%
Wildfire - Very High	12,201	11.38%	4,015	12.18%

**Table P-4. City of Ventura, Summary of Impacts for Critical Facilities and Infrastructure**

<b>Hazard</b>	<b>No. of Critical Facilities and Infrastructure</b>	<b>% of Critical Facilities and Infrastructure</b>
Climate Change - Rising Tide	4	3.20%
Climate Change - Coastal Storm	20	16.00%
Dam Failure Inundation	60	48.00%
Earthquake Ground Shaking - Extreme	78	62.40%
Earthquake Ground Shaking - Violent	43	34.40%
Earthquake Ground Shaking - Severe	0	0.00%
Liquefaction	59	47.20%
Flood - 100 Year	20	16.00%
Flood - 500 Year	7	5.60%
Landslide Susceptibility Class VIII	00	0.00%
Landslide Susceptibility Class IX	9	7.20%
Landslide Susceptibility Class X	11	8.80%
Reduced Flood Risks Due to Levees	5	4.00%
Tsunami Evacuation Area - Phase 3	8	6.40%
Tsunami Evacuation Area - Max	16	12.80%
Wildfire - High	0	0.00%
Wildfire - Very High	36	28.80%

**Table P-5. City of Ventura, Human and Technical Resources for Hazard Mitigation**

Staff/Personnel Resources	Department or Agency	Principal Activities Related to Hazard Mitigation
Planner(s), engineer(s) and technical staff with knowledge of land development, land management practices, and human-caused and natural hazards.	Planning, Building and Engineering Divisions	<p>Develops and maintains the General Plan, including the Safety Element.</p> <p>Develops area plans based on the General Plan, to provide more specific guidance for the development of more specific areas.</p> <p>Reviews private development projects and proposed capital improvements projects and other physical projects involving property for consistency and conformity with the General Plan.</p> <p>Anticipates and acts on the need for new plans, policies, and Code changes.</p> <p>Applies the approved plans, policies, code provisions, and other regulations to proposed land uses.</p>
Engineer(s), Building Inspectors/Code Enforcement Officers or other professional(s) and technical staff trained in construction requirements and practices related to existing and new buildings.	Building and Engineering Divisions	Oversees the effective, efficient, fair, and safe enforcement of the California Building Code
Engineers, construction project managers, and supporting technical staff.	Engineering Division	Provides direct or contract civil, structural, and mechanical engineering services, including contract, project, and construction management.
Engineer(s), project manager(s), technical staff, equipment operators, and maintenance and construction staff.	Public Works Department, Ventura Water	Maintains and operates a wide range of local equipment and facilities as well as providing assistance to members of the public. These include providing sufficient clean fresh water, reliable sewer services, street maintenance, storm drainage systems, street cleaning, street lights and traffic signals.
Floodplain Administrator	City Engineer and Building Official	Reviews and ensures that new development proposals do not increase flood risk, and that new developments are not located below the 100 year flood level. In addition, the Floodplain Administrator is responsible for planning and managing flood risk reduction projects throughout the local jurisdiction.



**Table P-5. City of Ventura, Human and Technical Resources for Hazard Mitigation**

Staff/Personnel Resources	Department or Agency	Principal Activities Related to Hazard Mitigation
Emergency Manager	Fire Department	Maintains and updates the Emergency Operations Plan for the local jurisdiction. In addition, coordinates local response and relief activities within the Emergency Operation Center, and works closely with County, state, and federal partners to support planning and training and to provide information and coordinate assistance.
Procurement Services Manager	Finance & Technology Dept.	Provides a full range of municipal financial services, administers several licensing measures, and functions as the local jurisdiction's Procurement Services Manager.

**Table P-6. City of Ventura, Financial Resources for Hazard Mitigation**

Type	Subtype	Administrator	Purpose	Amount
<b>Local</b>	General Fund	Finance	Program operations and specific projects.	Variable.
	General Obligation (GO) Bonds	Finance	GO Bonds are appropriately used for the construction and/or acquisition of improvements to real property broadly available to residents and visitors. Such facilities include, but are not limited to, libraries, hospitals, parks, public safety facilities, and cultural and educational facilities.	Variable.
<b>Local (cont.)</b>	Lease Revenue Bonds	Finance	Lease revenue bonds are used to finance capital projects that (1) have an identified budgetary stream for repayment (e.g., specified fees, tax receipts, etc.), (2) generate project revenue but rely on a broader pledge of general fund revenues to reduce borrowing costs, or (3) finance the acquisition and installation of equipment for the local jurisdiction's general governmental purposes.	Variable.
	Public-Private Partnerships	Finance	Includes the use of local professionals, business owners, residents, and civic groups and trade associations, generally for the study of issues and the development of guidance and recommendations.	Project-specific.
<b>Federal</b>	Hazard Mitigation Grant Program (HMGP)	Federal Emergency Management Agency (FEMA)	Supports pre- and post-disaster mitigation plans and projects.	Available to California communities after a Presidentially declared disaster has occurred in California. Grant award based on specific projects as they are identified by eligible applicants.
	Pre-Disaster Mitigation (PDM) grant program	FEMA	Supports pre-disaster mitigation plans and projects.	Available on an annual basis as a nationally competitive grant. Grant award based on specific projects as they are identified (no more than \$3M federal share for projects).

**Table P-6. City of Ventura, Financial Resources for Hazard Mitigation**

Type	Subtype	Administrator	Purpose	Amount
<b>Federal (cont.)</b>	Flood Mitigation Assistance (FMA) grant program	FEMA	Mitigates repetitively flooded structures and infrastructure.	Available on an annual basis, distributed to California communities by the California Governor's Office of Emergency Services (Cal OES). Grant award based on specific projects as they are identified.
	Assistance to Firefighters Grant (AFG) Program	FEMA/USFA (U.S. Fire Administration)	Provides equipment, protective gear, emergency vehicles, training, and other resources needed to protect the public and emergency personnel from fire and related hazards.	Available to fire departments and nonaffiliated emergency medical services providers. Grant awards based on specific projects as they are identified.
	Community Development Block Grant Program Entitlement Communities Grants	U.S. HUD (U.S. Department of Housing and Urban Development)	Acquisition of real property, relocation and demolition, rehabilitation of residential and non-residential structures, construction of public facilities and improvements, such as water and sewer facilities, streets, neighborhood centers, and the conversion of school buildings for eligible purposes.	Available to entitled cities. Grant award based on specific projects as they are identified.
	Community Action for a Renewed Environment (CARE)	U.S. Environmental Protection Agency (EPA)	Through financial and technical assistance offers an innovative way for a community to organize and take action to reduce toxic pollution (i.e., stormwater) in its local environment. Through CARE, a community creates a partnership that implements solutions to reduce releases of toxic pollutants and minimize people's exposure to them.	Competitive grant program. Grant award based on specific projects as they are identified.
	Clean Water State Revolving Fund (CWSRF)	EPA	The CWSRF is a loan program that provides low-cost financing to eligible entities within state and tribal lands for water quality projects, including all types of non-point source, watershed protection or restoration, estuary management projects, and more traditional municipal wastewater treatment projects.	CWSRF programs provided more than \$5 billion annually to fund water quality protection projects for wastewater treatment, non-point source pollution control, and watershed and estuary management.

**Table P-6. City of Ventura, Financial Resources for Hazard Mitigation**

Type	Subtype	Administrator	Purpose	Amount
<b>Federal (cont.)</b>	Public Health Emergency Preparedness (PHEP) Cooperative Agreement.	Department of Health and Human Services' (HHS') Centers for Disease Control and Prevention (CDC)	Funds are intended to upgrade state and local public health jurisdictions' preparedness and response to bioterrorism, outbreaks of infectious diseases, and other public health threats and emergencies.	Competitive grant program. Grant award based on specific projects as they are identified. The City of Ventura would participate through the County's Public Health Department.
	Homeland Security Preparedness Technical Assistance Program (HSPTAP)	FEMA/DHS	Build and sustain preparedness technical assistance activities in support of the four homeland security mission areas (prevention, protection, response, recovery) and homeland security program management.	Technical assistance services developed and delivered to state and local homeland security personnel. Grant award based on specific projects as they are identified.

**Table P-7. City of Ventura, Legal and Regulatory Resources for Hazard Mitigation**

<b>Regulatory Tool</b>	<b>Name</b>	<b>Description (Effect on Hazard Mitigation)</b>	<b>Hazards Addressed</b>	<b>Mitigation, Preparedness, Response, or Recovery</b>	<b>Affects Development in Hazard Areas?</b>
<b>Plans</b>	General Plan: Safety Element (2005)	Describes hazard areas and regulates current and future development based on known hazard areas.	Natural and man-made	Mitigation & Preparedness	Yes
	Emergency Operations Plan (2013)	Describes what the local jurisdictions' actions will be during a response to an emergency. Includes annexes that describe in more detail the actions required of the local jurisdiction's departments/agencies. Further, this plan describes the role of the Emergency Operation Center (EOC) and the coordination that occurs between the EOC and the local jurisdiction's departments and other response agencies. Finally, this plan describes how the EOC serves as the focal point among local, state, and federal governments in times of disaster.	Natural and man-made	Response	No
	Stormwater Quality Management Program (SWQMP) (2010)	Describes measures that the local jurisdiction will take to minimize stormwater pollution. The SWQMP is required by the National Pollutant Discharge Elimination System Phase II regulations, which became effective in March 2003.	Stormwater	Mitigation & Preparedness	Yes
<b>Programs</b>	National Flood Insurance Program (NFIP)	Makes affordable flood insurance available to homeowners, business owners, and renters in participating communities. In exchange, those communities must adopt and enforce minimum floodplain management regulations to reduce the risk of damage from future floods. The City of Ventura joined the NFIP in 1986.	Flood	Mitigation, Preparedness & Recovery	Yes
<b>Policies (Municipal Code)</b>	Division 2 – Administration, Chapter 2.370 - City Emergency Organization and Functions	Establishes the city's emergency response organization, and to provide for the preparation, adoption and implementation of city emergency response plans in the event of emergency conditions caused by fire, flood, storms, earthquakes, epidemic, riots or war or other events.	All	Mitigation, Preparedness, Response, & Recovery	No

**Table P-7. City of Ventura, Legal and Regulatory Resources for Hazard Mitigation**

<b>Regulatory Tool</b>	<b>Name</b>	<b>Description (Effect on Hazard Mitigation)</b>	<b>Hazards Addressed</b>	<b>Mitigation, Preparedness, Response, or Recovery</b>	<b>Affects Development in Hazard Areas?</b>
<b>Policies (Municipal Code cont.)</b>	Division 12 – Buildings and Construction Regulations, Part 1 – Buildings and Construction Regulations	Adoption of California Residential Code, California Building Code, California Plumbing Code, California Electrical Code, and California Mechanical Code	Earthquake, Fire	Mitigation, & Preparedness	Yes
	Division 12 – Buildings and Construction Regulations, Part 4 – Flood plain regulations	To promote public health, safety and welfare, and to minimize public and private losses due to flood conditions in areas particularly vulnerable to floods	Flood	Mitigation, & Preparedness	Yes
	Division 14 – Fire and Hazardous Material Regulations, Chapter 14.010 – Fire Regulations	Adoption of California Fire Code and amendments	Fire	Mitigation, & Preparedness	Yes
	Division 14 – Fire and Hazardous Material Regulations, Chapter 14.050 - Storage of Hazardous Materials	For the protection of health, life, resources and property through prevention and control of unauthorized discharge of hazardous materials, and to establish liability for reimbursement of the city's expenses incurred in corrective action necessitated by unauthorized release or threatened release, discharge or deposit of hazardous materials, that in the determination of the fire chief or his authorized representative poses a present and potential risk to health, life or safety of persons or property or to the ecological balance of the environment.	Hazardous Materials	Mitigation, & Preparedness	No



**Table P-8. City of Ventura, Current and Completed Hazard Mitigation Projects and Programs**

Status (Current or Complete)	Project / Program Name	Description	Year(s)
Complete	Ventura Wastewater Influent Headworks Project	The project consisted of building a new intake facility at the plant.	2005
Complete	Avenue Water Treatment Plant Membrane Filtration	This project consisted of the installation of filter membranes, the construction of a new chemical storage and equipment building, a chlorination facility, backwash basins, sludge basins and a pump station to meet new stringent regulations for drinking water. The City received a \$20M loan from the State Revolving Fund.	2007
Complete	Downtown Water Main and Sewer Main Replacement	The project replaced deteriorated water and sewer mains and repaired existing sewer services. The project will also accommodate existing and future water and sewer capacities. New water lines will improve fire flow to the neighborhood.	2008
Complete	Water Line Replacement – Lincoln Drive Neighborhood	The water lines are over 50 years old and have fire flow deficiencies and experience breakages that require significant repair. New water lines will improve fire flow to the neighborhood.	Completed 2010
Complete	Police/Fire Headquarters Emergency Generator	Project will increase the building emergency power capacity to maintain essential services for EOC, homeland security and protection of the community.	Completed 2011
Complete	Ventura Wastewater Reclamation Facility Nutrient Removal	Project will provide reliable removal of ammonia and nitrogen to protect the Santa Clara River estuary. Necessary to meet Regional Water Quality Control Board requirements.	Completed 2012

**Table P-8. City of Ventura, Current and Completed Hazard Mitigation Projects and Programs**

Status (Current or Complete)	Project / Program Name	Description	Year(s)
Complete	Ca Fire Code Adoption, Chapter 49	Implement a fuel modification program, which also includes residential maintenance requirements and enforcement, plan submittal and approval process, guide lines for planting, and a listing of undesirable plant species. Require builders and developers to submit their plans, complete with proposed fuel modification zones, to the local fire department for review and approval prior to beginning construction.	Completed 2013

**Table P-9. City of Ventura, Potential Mitigation Actions**

No.	Description	Hazard	Mitigation Category	New or Existing Construction
OA 1	Integrate the hazard analysis and mitigation strategy into the General Plan's Safety Element.	All	Local Plans and Regulations	Not Applicable
OA 2	Ensure that existing monitoring capabilities at the state and County level are integrated to provide an early warning of increased or new infestations.*	Agricultural (Insect Pests/Invasive Species)	Natural Systems Protection	Not Applicable
OA 3	Implement an infestation public awareness and educational campaign.	Agricultural (Insect Pests/Invasive Species)	Education and Awareness	Not Applicable
OA 4*	Relocate or reinforce bike trails, parking lots and other beach access amenities away from the shoreline to restore the beach/shoreline in sea-level rise/coastal erosion areas.	Climate Change	Natural Systems Protection	Existing
OA 5*	Restore habitat and improve flood protection for low-lying areas by employing innovative techniques such as constructing levees coupled with gently sloping tidal marshes to help protect from storm wave action and tidal surge.	Climate Change	Natural Systems Protection	New/Existing
OA 6	Develop a public outreach program that informs property owners located in the dam and levee failure inundation areas about voluntary flood insurance.	Dam and Levee Failure Inundation	Education and Awareness	Existing
OA 7	Develop a water conservation public outreach program to increase awareness about the drought, fines and penalties for overuse and solutions for conserving water.	Drought	Education and Awareness	New/Existing
OA 8	Adopt emergency water conservation measures and/or water conservation ordinance to limit irrigation.	Drought	Local Plans and Regulations	New/Existing
OA 9	Identify potentially vulnerable public and private utility systems including electric, gas, oil, water, sewer and communication. Upgrade vulnerable systems to ensure the operation and timely restoration of essential systems to reasonable levels of service.	Earthquake	Structure and Infrastructure Projects	New/Existing
OA 10	Seismically retrofit or upgrade seismically deficient government facilities and pre-identified shelter facilities.	Earthquake	Structure and Infrastructure Projects	Existing

**Table P-9. City of Ventura, Potential Mitigation Actions**

No.	Description	Hazard	Mitigation Category	New or Existing Construction
OA 11	Develop and implement plans to increase the building owner's general knowledge of and appreciation for the value of seismic upgrading of the building's structural and nonstructural elements.	Earthquake	Local Plans and Regulations & Awareness and Education	Existing
OA 12	Increase participation in the NFIP by entering the Community Rating System program which through enhanced floodplain management activities would allow property owners to receive a discount on their flood insurance.	Flood	All	New/Existing (Residential structures and critical facilities which are located within the 100-year floodplain)
OA 13*	Reinforce roads/bridges from flooding through protection activities, including elevating the roads/bridges and installing/widening culverts beneath the roads/bridges or upgrading storm drains.	Flood	Structure and Infrastructure Projects	Existing
OA 14*	Acquire, relocate, or elevate residential structures, in particular those that have been identified as RL properties, within the 100-year floodplain.	Flood	Structure and Infrastructure Projects	Existing
OA 15	Work with FEMA Region 9 to address any floodplain management issues that may have arisen/arise from the countywide DFIRM, Community Assessment Visits, and/or DWR.	Flood	Local Plans and Regulations	Not Applicable
OA 16*	Implement landslide stabilization and/or protection measures. Stabilization measures include grading the unstable portion of the slope to a lower gradient, construction of rock buttresses and retaining walls, and drainage improvements. Protection measures include containment and/or diversion of the moving debris, such as walls, berms, ditches and catchment basins.	Landslide	Structure and Infrastructure Projects, Natural Systems Protection	New/Existing
OA 17	Implement post-fire debris flow hillslope and channel treatments, such as seeding, mulching, check dams, and debris racks, as needed.	Post-Fire Debris Flow	Natural Systems Protection	New/Existing

**Table P-9. City of Ventura, Potential Mitigation Actions**

No.	Description	Hazard	Mitigation Category	New or Existing Construction
OA 18*	Continue to participate in the NWS TsunamiReady Program through continued implementation of Guideline 4: Community Preparedness measures, including public outreach material and curriculum.	Tsunami	Awareness and Education	Not Applicable
OA 19	Create a new vegetation management program that provides vegetation management services to elderly, disabled, or low-income property owners who lack the resources to remove flammable vegetation from around their homes.	Wildfire	Awareness and Education, Natural Systems Protection	Existing (Residential buildings in high wildfire severity zones)
OA 20	Implement a fuel modification program for new construction by requiring builders and developers to submit their plans, complete with proposed fuel modification zones, to the local fire department for review and approval prior to beginning construction.	Wildfire	Local Plans and Regulations	New (Residential and non-residential buildings located within high wildfire severity zones)
OA 21*	Develop a hazards fuel treatment program for areas that have been identified with overgrown/dead brush/trees to reduce the potential for tree-to-tree ignition. Ensure that a “maintenance now” component to provide continued fire resistance is part of the program.	Wildfire	Natural Systems Protection	New/Existing
OA 22	Develop a vegetation management program in areas within and adjacent to rights-of-way and in close proximity to critical facilities to reduce the risk of tree failure and property damage and avoid creation of wind acceleration corridors within vegetated areas.	Winter Storm	Awareness and Education, Natural Systems Protection	New/Existing

\* Recent/current FEMA, NWS and California Coastal Conservancy grant projects (nationwide)

OA = Overarching

**Table P-10. City of Ventura, Mitigation Action Plan**

No.	Description	Facility to be Mitigated (if Known and/or Applicable)	Funding Source	Department or Agency	Timeframe (0-5 Years)
OA 4	Relocate or reinforce bike trails, parking lots and other beach access amenities away from the shoreline to restore the beach/shoreline in sea-level rise/coastal erosion areas.	Not Applicable	HMGP, PDM	Building and Engineering Divisions	3-5 years
OA 9	Identify potentially vulnerable public and private utility systems including electric, gas, oil, water, sewer and communication. Upgrade vulnerable systems to ensure the operation and timely restoration of essential systems to reasonable levels of service.	Not Known	HMGP, PDM	Public Works Department	3-5 years
OA 11	Develop and implement plans to increase the building owner's general knowledge of and appreciation for the value of seismic upgrading of the building's structural and nonstructural elements.	Citywide	General Fund	Planning Division	1-2 years
OA 19	Create a new vegetation management program that provides vegetation management services to elderly, disabled, or low-income property owners who lack the resources to remove flammable vegetation from around their homes.	Citywide	HMGP, PDM or AFG	Planning Division and Fire Department	1-2 years

AFG = Assistance to Firefighters Grant program

HMGP = Hazard Mitigation Grant Program

PDM = Pre-Disaster Mitigation grant program

The Hazard Mitigation Assistance (HMA) Program requirements were used to guide choice of mitigation actions:

- Mitigation Planning
- Technical Feasibility and Effectiveness
- Floodplain Management and Protection of Wetlands
- Environmental Planning and Historic Review and Compliance
- Cost Effectiveness
- Cost Review
- General Program Requirements



*This page intentionally left blank*

Appendix Q  
Calleguas Municipal Water District

*This page intentionally left blank*

**Table Q-1. Calleguas Municipal Water District, Total Critical Facilities and Infrastructure**

Category	Name	Address	Value
Public Utility	Calleguas Conduit Surge Relief Facility	Corner of Madera Rd and Strathern Pl, Simi Valley, CA 93065	\$1,047,000
Public Utility	Calleguas Municipal Water District Main Office	2100 Olsen Rd. , Thousand Oaks, CA 93160	\$4,445,544
Public Utility	Conejo Generating Station	2100 Olsen Rd. , Thousand Oaks, CA 93160	\$4,075,332
Public Utility	Conejo Pump Station	2100 Olsen Road, Thousand Oaks, CA 93160	\$2,559,425
Public Utility	Conejo Reservoir	2100 Olsen Road, Thousand Oaks, CA 93160	\$6,205,503
Public Utility	Fairview Pump Station	7510 Walnut Canyon Rd. Moorpark, CA 93021	\$1,152,943
Public Utility	Grimes Canyon Reservoir	6811 Grimes Canyon Road, Moorpark, CA 93021	\$5,130,325
Public Utility	Lake Bard (Wood Ranch Reservoir)	2100 Olsen Road, Thousand Oaks, CA 93160	\$2,795,730
Public Utility	Lake Bard Water Filtration Plant	2100 Olsen Road, Thousand Oaks, CA 93160	\$22,925,016
Public Utility	Lake Sherwood Pump Station	493 Hillsborough Street, Thousand Oaks, CA 91362	\$268,859
Public Utility	Lake Sherwood Reservoir	1600 Janss Fire Road, Thousand Oaks, CA 91361	\$1,503,910
Public Utility	Lindero Pump Station	1900 W. Erbes, Thousand Oaks, CA 91362	\$2,526,679
Public Utility	Lindero Reservoir	496 1/2 Winn Castle, Simi Valley, CA 93065	\$2,176,372
Public Utility	Mesa Relief	East of Wendy Dr./ South of 101 Freeway, Newbury Park, CA 91320	\$2,187,000
Public Utility	Moorpark Pump Station	4764 Spring Road, Moorpark, CA 93021	\$5,344,699
Public Utility	Newburg Park Reservoir	521 1/2 American Oaks, Newbury Park, CA 91320	\$1,900,000
Public Utility	Oak Park Pump Station	6325 Conifer Street, Oak Park, CA 93177	\$710,596
Public Utility	Oak Park Reservoir	332 Savoy Court, Agoura, CA 91377	\$1,986,804
Public Utility	Regulating Station 1	2100 Olsen Road, Thousand Oaks, CA 91360	\$35,034
Public Utility	Regulating Station 1A	2100 Olsen Road, Thousand Oaks, CA 91360	\$35,034
Public Utility	Regulating Station 2	4766 Moorpark Road, Moorpark, CA 93021	\$183,797
Public Utility	Regulating Station 3	Los Angeles Ave/ Moorpark Rd., Moorpark, CA 93021	\$35,064
Public Utility	Regulating Station 5	N/S Las Posas/ Loma Ave, Moorpark, CA 93012	\$35,034
Public Utility	Regulating Station 6	2421 Paseo Noche, Camarillo, CA 93012	\$133,355

**Table Q-1. Calleguas Municipal Water District, Total Critical Facilities and Infrastructure**

Category	Name	Address	Value
Public Utility	Regulating Station 7	12650 Santa Rosa Road, Camarillo, CA 93010	\$35,034
Public Utility	Regulating Station 8	1300 Newbury Road, Newbury Park, CA 91320	\$35,034
Public Utility	Regulating Station 9	Lawrence/ Rancho Conejo, Newbury Park, CA 91320	\$43,356
Public Utility	Regulating Station 6A	10564 Santa Rosa Road, Santa Rosa, CA 93012	\$35,034
Public Utility	Regulation Station 4	Los Angeles Ave/ Balcolm Canyon, Moorpark, CA 93066	\$54,498
Public Utility	Santa Rosa Generating Station	12650 Santa Rosa Road, Camarillo, CA 93012	\$737,361
Public Utility	Springville Flow Control Facility	600 Via Zamora, Camarillo, CA 93010	\$1,440,415
Public Utility	Springville Generating Station	600 Via Zamora, Camarillo, CA 93010	\$2,577,868
Public Utility	Springville Reservoir A	833 Via Zamora, Camarillo, CA 93010	\$1,109,000
Public Utility	Springville Reservoir B	833 Via Zamora, Camarillo, CA 93010	\$4,139,655
Public Utility	Thousand Oaks Reservoir	568 Lone Oak Dr. Thousand Oaks, CA 91362	\$129,800,000
Public Utility	TOD Pump Station	2100 Olsen Road, Thousand Oaks, CA 93160	\$2,138,747
Public Utility	Well 1	5700 Grimes Canyon Road, Moorpark, CA 93021	\$640,813
Public Utility	Well 10	6811 Grimes Canyon Road, Moorpark, CA 93021	\$427,688
Public Utility	Well 11	6811 Grimes Canyon Road, Moorpark, CA 93021	\$347,420
Public Utility	Well 12	6811 Grimes Canyon Road, Moorpark, CA 93021	\$377,303
Public Utility	Well 13	6811 Grimes Canyon Road, Moorpark, CA 93021	\$375,339
Public Utility	Well 14	6811 Grimes Canyon Road, Moorpark, CA 93021	\$385,675
Public Utility	Well 15	6811 Grimes Canyon Road, Moorpark, CA 93021	\$299,761
Public Utility	Well 16	6811 Grimes Canyon Road, Moorpark, CA 93021	\$464,552
Public Utility	Well 17	6426 Grimes Canyon Road, Moorpark, CA 93021	\$453,970
Public Utility	Well 18	Maria Dr. 100 yards North of Grimes Canyon Rd., Moorpark, CA 93021	\$447,526
Public Utility	Well 2	5700 Grimes Canyon Road, Moorpark, CA 93021	\$640,813
Public Utility	Well 3	5700 Grimes Canyon Road, Moorpark, CA 93021	\$122,688

**Table Q-1. Calleguas Municipal Water District, Total Critical Facilities and Infrastructure**

Category	Name	Address	Value
Public Utility	Well 4	5700 Grimes Canyon Road, Moorpark, CA 93021	\$1,158,938
Public Utility	Well 5	6811 Grimes Canyon Road, Moorpark, CA 93021	\$375,339
Public Utility	Well 6	6811 Grimes Canyon Road, Moorpark, CA 93021	\$483,528
Public Utility	Well 7	6811 Grimes Canyon Road, Moorpark, CA 93021	\$481,918
Public Utility	Well 8	6811 Grimes Canyon Road, Moorpark, CA 93021	\$465,401
Public Utility	Well 9	6811 Grimes Canyon Road, Moorpark, CA 93021	\$496,510
Public Utility	Well Field 1 (property only)	5700 Grimes Canyon Rd. Moorpark, CA 93021	Unknown
Public Utility	Well Field 2 Disinfection Facility	6811 Grimes Canyon Road, Moorpark, CA 93021	\$2,534,959
Public Utility	Well Field 2 (property only)	6811 Grimes Canyon Rd. Moorpark CA, 93021	Unknown
Public Utility	West Portal Overflow Structure	East end of Smith Rd, Simi Valley, CA 93063	\$1,463,000
Public Utility	Westlake Reservoir	1575 Windy Mountain, Thousand Oaks, CA 91362	\$12,745,905
Public Utility	Wood Ranch Dam (Bard Reservoir)	Latitude and Longitude Coordinates	Unknown



**Table Q-2. Calleguas Municipal Water District, Summary of Impacts for Critical Facilities and Infrastructure**

Hazard	No. of Critical Facilities and Infrastructure	% of Critical Facilities and Infrastructure
Climate Change - Rising Tide	0	0.00%
Climate Change - Coastal Storm	0	0.00%
Dam Failure Inundation	7	11.67%
Earthquake Ground Shaking - Extreme	20	33.33%
Earthquake Ground Shaking - Violent	40	66.67%
Earthquake Ground Shaking - Severe	0	0.00%
Liquefaction	16	26.67%
Flood - 100 Year	7	11.67%
Flood - 500 Year	1	1.67%
Landslide Susceptibility Class VIII	8	13.33%
Landslide Susceptibility Class IX	6	10.00%
Landslide Susceptibility Class X	2	3.33%
Reduced Flood Risks Due to Levees	0	0.00%
Tsunami Evacuation Area - Phase 3	0	0.00%
Tsunami Evacuation Area - Max	0	0.00%
Wildfire - High	0	0.00%
Wildfire - Very High	35	58.33%

**Table Q-3. Calleguas Municipal Water District, Human and Technical Resources for Hazard Mitigation**

Staff/Personnel Resources	Department or Agency	Principal Activities Related to Hazard Mitigation
Engineers, construction project managers, and supporting technical staff.	Engineering Division	Provides direct or contract civil, structural, and mechanical engineering services, including contract, project, and construction management.
Engineer(s), project manager(s), technical staff, equipment operators, and maintenance and construction staff.	Engineering and Operations and Maintenance Divisions	Maintains and operates of a wide range of local equipment and facilities as well as providing assistance to other public agencies. These facilities provide supplemental potable and reclaimed water for the region.
Emergency Manager	Manager of Operations and Maintenance and Personnel and Risk Manager	Maintains and updates the Emergency Operations Plan for the local jurisdiction. In addition, coordinates local response and relief activities within the Emergency Operation Center, and works closely with County, state, and federal partners to support planning and training and to provide information and coordinate assistance.
Procurement Services Manager	Accounting Division and Operations Support Branch of Operations and Maintenance Division	Provides a full range of municipal financial services, administers several licensing measures, and functions as the local jurisdiction's Procurement Services Manager.

**Table Q-4. Calleguas Municipal Water District, Financial Resources for Hazard Mitigation**

Type	Subtype	Administrator	Purpose	Amount
<b>Local</b>	General Fund/ Construction Fund	Calleguas Municipal Water District	Program operations and specific projects.	Variable. [See specific project for costs]
	General Obligation (GO) Bonds	No Action to use this type of funding has been considered but may be considered in future.	GO Bonds are appropriately used for the construction and/or acquisition of improvements to real property broadly available to residents and visitors. Such facilities include, but are not limited to, libraries, hospitals, parks, public safety facilities, and cultural and educational facilities.	None
	Public-Private Partnerships	No Action to use this type of funding has been considered but may be considered in future	Includes the use of local professionals, business owners, residents, and civic groups and trade associations, generally for the study of issues and the development of guidance and recommendations.	Project-specific.
<b>Federal</b>	Hazard Mitigation Grant Program (HMGP)	Federal Emergency Management Agency (FEMA)	Supports pre- and post-disaster mitigation plans and projects.	Available to California communities after a Presidentially declared disaster has occurred in California. Grant award based on specific projects as they are identified by eligible applicants.
	Pre-Disaster Mitigation (PDM) grant program	FEMA	Supports pre-disaster mitigation plans and projects.	Available on an annual basis as a nationally competitive grant. Grant award based on specific projects as they are identified (no more than \$3M federal share for projects).
	Flood Mitigation Assistance (FMA) grant program	FEMA	Mitigates repetitively flooded structures and infrastructure.	Available on an annual basis, distributed to California communities by the California Governor's Office of Emergency Services (Cal OES). Grant award based on specific projects as they are identified.

**Table Q-4. Calleguas Municipal Water District, Financial Resources for Hazard Mitigation**

Type	Subtype	Administrator	Purpose	Amount
<b>Federal (cont.)</b>	Community Action for a Renewed Environment (CARE)	U.S. Environmental Protection Agency (EPA)	Through financial and technical assistance offers an innovative way for a community to organize and take action to reduce toxic pollution (i.e., stormwater) in its local environment. Through CARE, a community creates a partnership that implements solutions to reduce releases of toxic pollutants and minimize people's exposure to them.	Competitive grant program. Grant award based on specific projects as they are identified.
	Clean Water State Revolving Fund (CWSRF)	EPA	The CWSRF is a loan program that provides low-cost financing to eligible entities within state and tribal lands for water quality projects, including all types of non-point source, watershed protection or restoration, estuary management projects, and more traditional municipal wastewater treatment projects.	CWSRF programs provided more than \$5 billion annually to fund water quality protection projects for wastewater treatment, non-point source pollution control, and watershed and estuary management.
	Homeland Security Preparedness Technical Assistance Program (HSPTAP)	FEMA/DHS	Build and sustain preparedness technical assistance activities in support of the four homeland security mission areas (prevention, protection, response, recovery) and homeland security program management.	Technical assistance services developed and delivered to state and local homeland security personnel. Grant award based on specific projects as they are identified.

**Table Q-5. Calleguas Municipal Water District, Legal and Regulatory Resources for Hazard Mitigation**

<b>Regulatory Tool</b>	<b>Name</b>	<b>Description (Effect on Hazard Mitigation)</b>	<b>Hazards Addressed</b>	<b>Mitigation, Preparedness, Response, or Recovery</b>	<b>Affects Development in Hazard Areas?</b>
<b>Plans</b>	Emergency Response Plan (2003)	Describes what the special district's actions will be during a response to an emergency. Includes annexes that describe in more detail the actions required of the local jurisdiction's departments/agencies. Further, this plan describes the role of the Emergency Operation Center (EOC) and the coordination that occurs between the EOC and the local jurisdiction's departments and other response agencies. Finally, this plan describes how the EOC serves as the focal point among local, state, and federal governments in times of disaster.	Wildfire, Dam Failure, Earthquake, Flooding and other hazards not included in this HMP	Response	No
	Risk Management Plan/ California Accidental Release Program	Plan required by Federal and State mandates for Hazardous Materials in use at Lake Bard and Wellfield 2.	Hazards not included in this HMP (Chlorine and Ammonia Release)	Mitigation, Response and Recovery	No

**Table Q-6. Calleguas Municipal Water District, Current and Completed Hazard Mitigation Projects and Programs**

Status (Current or Complete)	Project / Program Name	Description	Year(s)
Complete	Thousand Oaks Reservoir Replacement	Replaces the existing 7 million gallon steel tank that does not meet current seismic standards with a 7 million gallon concrete tank that meets current seismic standards. Cost \$17 million.	2009 - 2012
Complete	Emergency Pipe Procurement and Storage	Replaces and expands the emergency stock of large diameter pipe, liners and unique emergency repair appurtenances and parts. This stock dramatically decreases the time required to repair distribution pipelines and return water service in an emergency. Cost \$5 million.	2010 -2012
Complete	Springville Reservoir Seismic Rehabilitation	Structural modifications to reservoir roof and walls to comply with seismic standards, the addition of flexible pipe couplings, security improvements and replacement of aging electrical conduits and cabinets. Cost \$7 million.	2010 - 2013
Complete	Moorpark Pump Station Phase 2	Construct a facility with; pumps to convey water from the wellfield to the higher pressure zones in the Cities of Thousand Oaks, Simi Valley and Oak Park, emergency power generators to allow the pumps from phase 1 (providing water to the Cities of Moorpark, Oxnard, and Camarillo) and 2 to operate in an emergency if electrical power is disrupted; and a regulating facility to control the pressure and distribution of water throughout the region. Cost \$27 million.	2010 - 2015
Complete	Wellfield 2 Tree Pruning and Removal	Remove, top or prune mature Eucalyptus trees growing between Calleguas wellfield and Grimes Canyon Road. These trees pose a danger to traffic along Grimes Canyon Road during a wind or rain storm event. This project is designed to mitigate the public risk caused by these trees.	2010 - 2013



**Table Q-6. Calleguas Municipal Water District, Current and Completed Hazard Mitigation Projects and Programs**

Status (Current or Complete)	Project / Program Name	Description	Year(s)
Unknown	Structural Retrofitting	Seismic non-structural and structural retrofit critical facilities and infrastructure.	Unknown
Unknown	Vegetation Management	Manage vegetation in areas within and adjacent to rights-of-way and in close proximity to critical facilities in order to reduce the risk of tree failure and property damage and avoid creation of wind acceleration corridors within vegetated areas.	Unknown
Unknown	Inventory Increase – Emergency Pipeline	Expand the inventory of Emergency Pipeline Repair Large Diameter Pipe, liners and unique appurtenances and parts.	Unknown
Unknown	Emergency Water Supply	Establish emergency water supply capability to provide water supply from the wellfield to all cities in the service area.	Unknown

**Table Q-7. Calleguas Municipal Water District, Potential Mitigation Actions**

No.	Description	Hazard	Mitigation Category	New or Existing Construction
OA 1	Integrate the hazard analysis and mitigation strategy into the General Plan's Safety Element.	All	Local Plans and Regulations	Not Applicable
OA 2	Ensure that existing monitoring capabilities at the state and County level are integrated to provide an early warning of increased or new infestations.*	Agricultural (Insect Pests/Invasive Species)	Natural Systems Protection	Not Applicable
OA 3	Implement an infestation public awareness and educational campaign.	Agricultural (Insect Pests/Invasive Species)	Education and Awareness	Not Applicable
OA 4*	Relocate or reinforce bike trails, parking lots and other beach access amenities away from the shoreline to restore the beach/shoreline in sea-level rise/coastal erosion areas.	Climate Change	Natural Systems Protection	Existing
OA 5*	Restore habitat and improve flood protection for low-lying areas by employing innovative techniques such as constructing levees coupled with gently sloping tidal marshes to help protect from storm wave action and tidal surge.	Climate Change	Natural Systems Protection	New/Existing
OA 6	Develop a public outreach program that informs property owners located in the dam and levee failure inundation areas about voluntary flood insurance.	Dam and Levee Failure Inundation	Education and Awareness	Existing
OA 7	Develop a water conservation public outreach program to increase awareness about the drought, fines and penalties for overuse and solutions for conserving water.	Drought	Education and Awareness	New/Existing
OA 8	Adopt emergency water conservation measures and/or water conservation ordinance to limit irrigation.	Drought	Local Plans and Regulations	New/Existing
OA 9	Identify potentially vulnerable public and private utility systems including electric, gas, oil, water, sewer and communication. Upgrade vulnerable systems to ensure the operation and timely restoration of essential systems to reasonable levels of service.	Earthquake	Structure and Infrastructure Projects	New/Existing
OA 10	Seismically retrofit or upgrade seismically deficient government facilities and pre-identified shelter facilities.	Earthquake	Structure and Infrastructure Projects	Existing

**Table Q-7. Calleguas Municipal Water District, Potential Mitigation Actions**

No.	Description	Hazard	Mitigation Category	New or Existing Construction
OA 11	Develop and implement plans to increase the building owner's general knowledge of and appreciation for the value of seismic upgrading of the building's structural and nonstructural elements.	Earthquake	Local Plans and Regulations & Awareness and Education	Existing
OA 12	Increase participation in the NFIP by entering the Community Rating System program which through enhanced floodplain management activities would allow property owners to receive a discount on their flood insurance.	Flood	All	New/Existing (Residential structures and critical facilities which are located within the 100-year floodplain)
OA 13*	Reinforce roads/bridges from flooding through protection activities, including elevating the roads/bridges and installing/widening culverts beneath the roads/bridges or upgrading storm drains.	Flood	Structure and Infrastructure Projects	Existing
OA 14*	Acquire, relocate, or elevate residential structures, in particular those that have been identified as RL properties, within the 100-year floodplain.	Flood	Structure and Infrastructure Projects	Existing
OA 15	Work with FEMA Region 9 to address any floodplain management issues that may have arisen/arise from the countywide DFIRM, Community Assessment Visits, and/or DWR.	Flood	Local Plans and Regulations	Not Applicable
OA 16*	Implement landslide stabilization and/or protection measures. Stabilization measures include grading the unstable portion of the slope to a lower gradient, construction of rock buttresses and retaining walls, and drainage improvements. Protection measures include containment and/or diversion of the moving debris, such as walls, berms, ditches and catchment basins.	Landslide	Structure and Infrastructure Projects, Natural Systems Protection	New/Existing
OA 17	Implement post-fire debris flow hillslope and channel treatments, such as seeding, mulching, check dams, and debris racks, as needed.	Post-Fire Debris Flow	Natural Systems Protection	New/Existing

**Table Q-7. Calleguas Municipal Water District, Potential Mitigation Actions**

No.	Description	Hazard	Mitigation Category	New or Existing Construction
OA 18*	Continue to participate in the NWS TsunamiReady Program through continued implementation of Guideline 4: Community Preparedness measures, including public outreach material and curriculum.	Tsunami	Awareness and Education	Not Applicable
OA 19	Create a new vegetation management program that provides vegetation management services to elderly, disabled, or low-income property owners who lack the resources to remove flammable vegetation from around their homes.	Wildfire	Awareness and Education, Natural Systems Protection	Existing (Residential buildings in high wildfire severity zones)
OA 20	Implement a fuel modification program for new construction by requiring builders and developers to submit their plans, complete with proposed fuel modification zones, to the local fire department for review and approval prior to beginning construction.	Wildfire	Local Plans and Regulations	New (Residential and non-residential buildings located within high wildfire severity zones)
OA 21*	Develop a hazards fuel treatment program for areas that have been identified with overgrown/dead brush/trees to reduce the potential for tree-to-tree ignition. Ensure that a “maintenance now” component to provide continued fire resistance is part of the program.	Wildfire	Natural Systems Protection	New/Existing
OA 22	Develop a vegetation management program in areas within and adjacent to rights-of-way and in close proximity to critical facilities to reduce the risk of tree failure and property damage and avoid creation of wind acceleration corridors within vegetated areas.	Winter Storm	Awareness and Education, Natural Systems Protection	New/Existing

\* Recent/current FEMA, NWS and California Coastal Conservancy grant projects (nationwide)

OA = Overarching

**Table Q-8. Calleguas Municipal Water District, Mitigation Action Plan**

No.	Description	Facility to be Mitigated (if Known and/or Applicable)	Funding Source	Department or Agency	Timeframe (0-5 Years)
OA 9	Identify potentially vulnerable aspects of the water systems. Upgrade vulnerabilities to ensure the operation and timely restoration of essential systems to reasonable levels of service.	Not Known	HMGP or PDM	Engineering and Operations and Maintenance Divisions	3-5 years
OA 16*	Implement landslide stabilization and/or protection measures. Stabilization measures include grading the unstable portion of the slope to a lower gradient, construction of rock buttresses and retaining walls, and drainage improvements. Protection measures include containment and/or diversion of the moving debris, such as walls, berms, ditches and catchment basins.	Not Known	HMGP or PDM	Engineering Division	3-5 years
OA 21*	Develop a hazards fuel treatment program for areas that have been identified with overgrown/dead brush/trees to reduce the potential for tree-to-tree ignition. Ensure that a “maintenance now” component to provide continued fire resistance is part of the program.	Not Known	HMGP or PDM	Engineering and Operations and Maintenance Divisions	1-3 years

\* Recent/current FEMA, NWS and California Coastal Conservancy grant projects (nationwide)

HMGP = Hazard Mitigation Grant Program

PDM = Pre-Disaster Mitigation grant program

The Hazard Mitigation Assistance (HMA) Program requirements were used to guide choice of mitigation actions:

- Mitigation Planning
- Technical Feasibility and Effectiveness
- Floodplain Management and Protection of Wetlands
- Environmental Planning and Historic Review and Compliance
- Cost Effectiveness
- Cost Review
- General Program Requirements

Appendix R  
Casitas Municipal Water District



*This page intentionally left blank*

**Table R-1. Casitas Municipal Water District, Total Critical Facilities and Infrastructure**

Category	Name	Address	Value
Public Utility	3M Pump Plant	Latitude and Longitude Coordinates	Unknown
Public Utility	3M Reservoir	Latitude and Longitude Coordinates	Unknown
Public Utility	Casitas Dam	Latitude and Longitude Coordinates	Unknown
Public Utility	Casitas Dam Stream Gage	Latitude and Longitude Coordinates	Unknown
Public Utility	Casitas Municipal Water District Office	1055 Ventura Ave, Oak View, CA 93022	\$39,294,000
Public Utility	Casitas Municipal Water District Treatment Plant, Chlorination and Ammonia Station	1890 Casitas Vista Road, Ventura, CA	Unknown
Public Utility	Coyote Creek nr Oak View Stream Gage	Latitude and Longitude Coordinates	Unknown
Public Utility	Fairview Pump Plant	Latitude and Longitude Coordinates	Unknown
Public Utility	Fairview Reservoir - East of Maricopa Hwy	Latitude and Longitude Coordinates	Unknown
Public Utility	Fortress Pumping Plant	Latitude and Longitude Coordinates	Unknown
Public Utility	Fortress Tanks	Latitude and Longitude Coordinates	Unknown
Public Utility	Matilija Dam Stream Gage	Latitude and Longitude Coordinates	Unknown
Public Utility	Oak View Reservoirs	Latitude and Longitude Coordinates	Unknown
Public Utility	Ojai 4M Pump Plant	Latitude and Longitude Coordinates	Unknown
Public Utility	Ojai 4M Reservoirs	Latitude and Longitude Coordinates	Unknown
Public Utility	Ojai East Reservoir	Latitude and Longitude Coordinates	Unknown
Public Utility	Ojai Valley Pump Plant	Latitude and Longitude Coordinates	Unknown
Public Utility	Rincon Balancing Reservoirs	Latitude and Longitude Coordinates	Unknown
Public Utility	Rincon Control Tank	Latitude and Longitude Coordinates	Unknown
Public Utility	Rincon Pump Plant	Latitude and Longitude Coordinates	Unknown
Public Utility	Robles Casitas Canal - Parsh Flume Stream Gage	Latitude and Longitude Coordinates	Unknown
Public Utility	Santa Ana Cr nr Oak View Stream Gage	Latitude and Longitude Coordinates	Unknown
Public Utility	Upper Ojai Reservoir	Latitude and Longitude Coordinates	Unknown
Public Utility	Ventura Ave. No. 1 Pump Plant	Latitude and Longitude Coordinates	Unknown
Public Utility	Ventura Ave. No. 2 Pump Plant	Latitude and Longitude Coordinates	Unknown

**Table R-1. Casitas Municipal Water District, Total Critical Facilities and Infrastructure**

Category	Name	Address	Value
Public Utility	Ventura River nr Meiners Oaks Stream Gage	Latitude and Longitude Coordinates	Unknown
Public Utility	Villanova Reservoir	Latitude and Longitude Coordinates	Unknown

**Table R-2. Casitas Municipal Water District, Summary of Impacts for Critical Facilities and Infrastructure**

<b>Hazard</b>	<b>No. of Critical Facilities and Infrastructure</b>	<b>% of Critical Facilities and Infrastructure</b>
Climate Change - Rising Tide	0	0.00%
Climate Change - Coastal Storm	0	0.00%
Dam Failure Inundation	6	22.22%
Earthquake Ground Shaking - Extreme	9	33.33%
Earthquake Ground Shaking - Violent	18	66.67%
Earthquake Ground Shaking - Severe	0	0.00%
Liquefaction	6	22.22%
Flood - 100 Year	6	22.22%
Flood - 500 Year	1	3.70%
Landslide Susceptibility Class VIII	3	11.11%
Landslide Susceptibility Class IX	0	0.00%
Landslide Susceptibility Class X	4	14.81%
Reduced Flood Risks Due to Levees	0	0.00%
Tsunami Evacuation Area - Phase 3	0	0.00%
Tsunami Evacuation Area - Max	0	0.00%
Wildfire - High	4	14.81%
Wildfire - Very High	5	18.52%

**Table R-3. Casitas Municipal Water District, Human and Technical Resources for Hazard Mitigation**

Staff/Personnel Resources	Department or Agency	Principal Activities Related to Hazard Mitigation
General Manager	Casitas Municipal Water District	Oversees and authorizes all District activities
Human Resources/Risk Manager	Casitas Municipal Water District	Plans, coordinates, manages personnel activities, and Risk Management/Safety functions
Accounting Manager	Casitas Municipal Water District	Provides a full range of municipal financial services, administers several licensing measures, and functions as the district's Procurement Services Manager.
Principal Civil Engineer	Casitas Municipal Water District	Provides direct or contract civil, structural, and mechanical engineering services, including contract, project, and construction management.
Water Conservation/Public Information Coordinator	Casitas Municipal Water District	Maintains contacts with staff and the public on all necessary issues.
Water Quality/Laboratory Supervisor	Casitas Municipal Water District	Oversees laboratory activity for the district.
Treatment Plant Manager	Casitas Municipal Water District	Responsible for Operations and Maintenance activities
Distribution Foreperson	Casitas Municipal Water District	Responsible for the maintenance and distribution of district resources.
Maintenance Foreperson	Casitas Municipal Water District	Responsible for the maintenance and operation of a wide range of equipment and facilities.
Assistant Engineer	Casitas Municipal Water District	Provides direct or contract civil, structural, and mechanical engineering services, including contract, project, and construction management.
Electrical/Mechanical Supervisor	Casitas Municipal Water District	Oversees all electrical and mechanical activity for the district.

**Table R-4. Casitas Municipal Water District, Financial Resources for Hazard Mitigation**

Type	Subtype	Administrator	Purpose	Amount
<b>Local</b>	Water Rates	Casitas Municipal Water District (MWD)	Operate, maintain, deliver, potable and agricultural water	Variable. Based on water sales
	Proposition 1A	Casitas MWD	Program operations and Capital Projects	Variable.
<b>Federal</b>	Hazard Mitigation Grant Program (HMGP)	Federal Emergency Management Agency (FEMA)	Supports pre- and post-disaster mitigation plans and projects.	Available to California communities after a Presidentially declared disaster has occurred in California. Grant award based on specific projects as they are identified by eligible applicants.
	Pre-Disaster Mitigation (PDM) grant program	FEMA	Supports pre-disaster mitigation plans and projects.	Available on an annual basis as a nationally competitive grant. Grant award based on specific projects as they are identified (no more than \$3M federal share for projects).
	Flood Mitigation Assistance (FMA) grant program	FEMA	Mitigates repetitively flooded structures and infrastructure.	Available on an annual basis, distributed to California communities by the California Governor's Office of Emergency Services (Cal OES). Grant award based on specific projects as they are identified.
	Community Action for a Renewed Environment (CARE)	U.S. Environmental Protection Agency (EPA)	Through financial and technical assistance offers an innovative way for a community to organize and take action to reduce toxic pollution (i.e., stormwater) in its local environment. Through CARE, a community creates a partnership that implements solutions to reduce releases of toxic pollutants and minimize people's exposure to them.	Competitive grant program. Grant award based on specific projects as they are identified.



**Table R-4. Casitas Municipal Water District, Financial Resources for Hazard Mitigation**

Type	Subtype	Administrator	Purpose	Amount
<b>Federal (cont.)</b>	Clean Water State Revolving Fund (CWSRF)	EPA	The CWSRF is a loan program that provides low-cost financing to eligible entities within state and tribal lands for water quality projects, including all types of non-point source, watershed protection or restoration, estuary management projects, and more traditional municipal wastewater treatment projects.	CWSRF programs provided more than \$5 billion annually to fund water quality protection projects for wastewater treatment, non-point source pollution control, and watershed and estuary management.
	Homeland Security Preparedness Technical Assistance Program (HSPTAP)	FEMA/DHS	Build and sustain preparedness technical assistance activities in support of the four homeland security mission areas (prevention, protection, response, recovery) and homeland security program management.	Technical assistance services developed and delivered to state and local homeland security personnel. Grant award based on specific projects as they are identified.

**Table R-5. Casitas Municipal Water District, Legal and Regulatory Resources for Hazard Mitigation**

<b>Regulatory Tool</b>	<b>Name</b>	<b>Description (Effect on Hazard Mitigation)</b>	<b>Hazards Addressed</b>	<b>Mitigation, Preparedness, Response, or Recovery</b>	<b>Affects Development in Hazard Areas?</b>
<b>Plans</b>	Emergency Response Plan	Describes what the special district's actions will be during a response to an emergency. Includes annexes that describe in more detail the actions required of the local jurisdiction's departments/agencies. Further, this plan describes the role of the Emergency Operation Center (EOC) and the coordination that occurs between the EOC and the local jurisdiction's departments and other response agencies. Finally, this plan describes how the EOC serves as the focal point among local, state, and federal governments in times of disaster.	Contamination, sabotage,, flooding, earthquake, EPA alerts, etc.	Response	No
	Emergency Action Plan – Casitas Dam	Describes what the special district's actions will be during a response to an emergency involving Casitas Dam. Includes annexes that describe in more detail the actions required of the local jurisdiction's departments/agencies. Further, this plan describes the role of the Emergency Operation Center (EOC) and the coordination that occurs between the EOC and the local jurisdiction's departments and other response agencies. Finally, this plan describes how the EOC serves as the focal point among local, state, and federal governments in times of disaster.	Seepage, earthquake, hydrologic event, hazardous substance, sabotage, ground settlement, equipment failure, etc.	Response	No

**Table R-6. Casitas Municipal Water District, Current and Completed Hazard Mitigation Projects and Programs**

Status (Current or Complete)	Project / Program Name	Description	Year(s)
Complete	Rincon 2(m) Pipeline Replacement	Replace a portion of the Rincon 2(m) pipeline that is vulnerable to storm damage.	2008-2011
Current	Seismic retrofit of steel reservoirs	Improve steel reservoirs ability to operate after an earthquake.	2018 (anticipated completion)
Unknown	Stability Improvement	Stabilize landslide/liquefaction-prone areas through stability improvement measures, including interceptor drains, in situ soil piles, drained earth buttresses, and subdrains.	Unknown
Unknown	Critical Facilities in the 100-year floodplain	Acquire, relocate, elevate, and/or floodproof critical facilities located within the 100-year floodplain.	Unknown
Unknown	Seismic Retrofitting	Seismic non-structural and structural retrofit of critical facilities and infrastructure.	Unknown
Unknown	Fuel Reduction Program	Implement a fuel reduction program, such as the collection and disposal of dead fuel, within open spaces and around critical facilities located within a SRA or LRA high or very high wildfire zone.	Unknown

**Table R-7. Casitas Municipal Water District, Potential Mitigation Actions**

No.	Description	Hazard	Mitigation Category	New or Existing Construction
OA 1	Integrate the hazard analysis and mitigation strategy into the General Plan's Safety Element.	All	Local Plans and Regulations	Not Applicable
OA 2	Ensure that existing monitoring capabilities at the state and County level are integrated to provide an early warning of increased or new infestations.*	Agricultural (Insect Pests/Invasive Species)	Natural Systems Protection	Not Applicable
OA 3	Implement an infestation public awareness and educational campaign.	Agricultural (Insect Pests/Invasive Species)	Education and Awareness	Not Applicable
OA 4*	Relocate or reinforce bike trails, parking lots and other beach access amenities away from the shoreline to restore the beach/shoreline in sea-level rise/coastal erosion areas.	Climate Change	Natural Systems Protection	Existing
OA 5*	Restore habitat and improve flood protection for low-lying areas by employing innovative techniques such as constructing levees coupled with gently sloping tidal marshes to help protect from storm wave action and tidal surge.	Climate Change	Natural Systems Protection	New/Existing
OA 6	Develop a public outreach program that informs property owners located in the dam and levee failure inundation areas about voluntary flood insurance.	Dam and Levee Failure Inundation	Education and Awareness	Existing
OA 7	Develop a water conservation public outreach program to increase awareness about the drought, fines and penalties for overuse and solutions for conserving water.	Drought	Education and Awareness	New/Existing
OA 8	Adopt emergency water conservation measures and/or water conservation ordinance to limit non-agricultural irrigation.	Drought	Local Plans and Regulations	New/Existing
OA 9	Identify potentially vulnerable public and private utility systems including electric, gas, oil, water, sewer, sanitary sewer and communication. Upgrade vulnerable systems to ensure the operation and timely restoration of essential systems to reasonable levels of service.	Earthquake	Structure and Infrastructure Projects	New/Existing
OA 10	Seismically retrofit or upgrade seismically deficient government facilities and pre-identified shelter facilities.	Earthquake	Structure and Infrastructure Projects	Existing

**Table R-7. Casitas Municipal Water District, Potential Mitigation Actions**

No.	Description	Hazard	Mitigation Category	New or Existing Construction
OA 11	Develop and implement plans to increase the building owner's general knowledge of and appreciation for the value of seismic upgrading of the building's structural and nonstructural elements.	Earthquake	Local Plans and Regulations & Awareness and Education	Existing
OA 12	Increase participation in the NFIP by entering the Community Rating System program which through enhanced floodplain management activities would allow property owners to receive a discount on their flood insurance.	Flood	All	New/Existing (Residential structures and critical facilities which are located within the 100-year floodplain)
OA 13*	Reinforce roads/bridges from flooding through protection activities, including elevating the roads/bridges and installing/widening culverts beneath the roads/bridges or upgrading storm drains.	Flood	Structure and Infrastructure Projects	Existing
OA 14*	Acquire, relocate, or elevate residential structures, in particular those that have been identified as RL properties, within the 100-year floodplain.	Flood	Structure and Infrastructure Projects	Existing
OA 15	Work with FEMA Region 9 to address any floodplain management issues that may have arisen/arise from the countywide DFIRM, Community Assessment Visits, and/or DWR.	Flood	Local Plans and Regulations	Not Applicable
OA 16*	Implement landslide stabilization and/or protection measures. Stabilization measures include grading the unstable portion of the slope to a lower gradient, construction of rock buttresses and retaining walls, and drainage improvements. Protection measures include containment and/or diversion of the moving debris, such as walls, berms, ditches and catchment basins.	Landslide	Structure and Infrastructure Projects, Natural Systems Protection	New/Existing
OA 17	Implement post-fire debris flow hillslope and channel treatments, such as seeding, mulching, check dams, and debris racks, as needed.	Post-Fire Debris Flow	Natural Systems Protection	New/Existing

**Table R-7. Casitas Municipal Water District, Potential Mitigation Actions**

No.	Description	Hazard	Mitigation Category	New or Existing Construction
OA 18*	Continue to participate in the NWS TsunamiReady Program through continued implementation of Guideline 4: Community Preparedness measures, including public outreach material and curriculum.	Tsunami	Awareness and Education	Not Applicable
OA 19	Create a new vegetation management program that provides vegetation management services to elderly, disabled, or low-income property owners who lack the resources to remove flammable vegetation from around their homes.	Wildfire	Awareness and Education, Natural Systems Protection	Existing (Residential buildings in high wildfire severity zones)
OA 20	Implement a fuel modification program for new construction by requiring builders and developers to submit their plans, complete with proposed fuel modification zones, to the local fire department for review and approval prior to beginning construction.	Wildfire	Local Plans and Regulations	New (Residential and non-residential buildings located within high wildfire severity zones)
OA 21*	Develop a hazards fuel treatment program for areas that have been identified with overgrown/dead brush/trees to reduce the potential for tree-to-tree ignition. Ensure that a “maintenance now” component to provide continued fire resistance is part of the program.	Wildfire	Natural Systems Protection	New/Existing
OA 22	Develop a vegetation management program in areas within and adjacent to rights-of-way and in close proximity to critical facilities to reduce the risk of tree failure and property damage and avoid creation of wind acceleration corridors within vegetated areas.	Winter Storm	Awareness and Education, Natural Systems Protection	New/Existing
CMWD 1	Identify and develop additional long term water storage	Multiple	Structure and Infrastructure Projects	Not Applicable
CMWD 2	Construct an additional supply pipe to provide looped system in vulnerable areas	Landslide and Earthquake	Structure and Infrastructure Projects	Not Applicable
CMWD 3	Replace and relocate pipes in vulnerable areas	Landslide and Earthquake	Structure and Infrastructure Projects	Not Applicable



**Table R-7. Casitas Municipal Water District, Potential Mitigation Actions**

No.	Description	Hazard	Mitigation Category	New or Existing Construction
CMWD 4	Seismic retrofit of Ojai East and Rincon Control Reservoirs	Earthquake	Structure and Infrastructure Projects	Not Applicable

\* Recent/current FEMA, NWS and California Coastal Conservancy grant projects (nationwide)

OA = Overarching

CMWD = Casitas Municipal Water District (potential mitigation action is specific to Casitas Municipal Water District)

**Table R-8. Casitas Municipal Water District, Mitigation Action Plan**

No.	Description	Facility to be Mitigated (if Known and/or Applicable)	Funding Source	Department or Agency	Timeframe (0-5 Years)
CMWD 3	Replace and relocate pipes in vulnerable areas	Rincon Main	HMGP, PDM	Casitas Municipal Water District	3-5 years
CMWD 4	Seismic retrofit of Ojai East and Rincon Control Reservoirs	Ojai East Reservoirs	HMGP, PDM	Casitas Municipal Water District	3-5 years

HMGP = Hazard Mitigation Grant Program

PDM = Pre-Disaster Mitigation grant program

The Hazard Mitigation Assistance (HMA) Program requirements were used to guide choice of mitigation actions:

- Mitigation Planning
- Technical Feasibility and Effectiveness
- Floodplain Management and Protection of Wetlands
- Environmental Planning and Historic Review and Compliance
- Cost Effectiveness
- Cost Review
- General Program Requirements

## Appendix S

Channel Islands Beach Community Services District

*This page intentionally left blank*

**Table S-1. Channel Islands Beach Community Services District, Total Critical Facilities and Infrastructure**

Category	Name	Address	Value
Public Utility	CIBCSD - A Station	2304 Roosevelt Boulevard, Oxnard, CA 93035	Unknown
Public Utility	CIBCSD - B Station	3765 Ocean Drive, Oxnard, CA 93035	Unknown
Public Utility	CIBCSD - District Office and Public Works	353 Santa Monica Drive, Oxnard, CA 93035	Unknown
Public Utility	CIBCSD - H Station	3850 Channel Islands Boulevard, Oxnard, CA 93035	Unknown
Public Utility	CIBCSD - Hollywood Station	529 Ocean Drive, Oxnard, CA 93035	Unknown
Public Utility	CIBCSD - Hueneme Station	1729 Ocean Drive, Oxnard, CA 93035	Unknown
Public Utility	CIBCSD - Los Robles Station	3385 Ocean Drive, Oxnard, CA 93035	Unknown
Public Utility	CIBCSD - Panama Station	408 Highland Drive, Oxnard, CA 93035	Unknown

**Table S-2. Channel Islands Beach Community Services District, Summary of Impacts for Critical Facilities and Infrastructure**

Hazard	No. of Critical Facilities and Infrastructure	% of Critical Facilities and Infrastructure
Climate Change - Rising Tide	0	0.00%
Climate Change - Coastal Storm	4	50.00%
Dam Failure Inundation	8	100.00%
Earthquake Ground Shaking - Extreme	1	12.50%
Earthquake Ground Shaking - Violent	7	87.50%
Earthquake Ground Shaking - Severe	0	0.00%
Liquefaction	8	100.00%
Flood - 100 Year	0	0.00%
Flood - 500 Year	8	100.00%
Landslide Susceptibility Class VIII	0	0.00%
Landslide Susceptibility Class IX	0	0.00%
Landslide Susceptibility Class X	0	0.00%
Reduced Flood Risks Due to Levees	0	0.00%
Tsunami Evacuation Area - Phase 3	7	87.50%
Tsunami Evacuation Area - Max	8	100.00%
Wildfire - High	0	0.00%
Wildfire - Very High	0	0.00%

**Table S-3. Channel Islands Beach Community Services District, Human and Technical Resources for Hazard Mitigation**

Staff/Personnel Resources	Department or Agency	Principal Activities Related to Hazard Mitigation
Engineers, construction project managers, and supporting technical staff.	Channel Islands Beach Community Services District through outside consultants on a project by project basis	Provides direct or contract civil, structural, and mechanical engineering services, including contract, project, and construction management.
Engineer(s), project manager(s), technical staff, equipment operators, and maintenance and construction staff.	Channel Islands Beach Community Services District Operations Division	Maintains and operates of a wide range of local equipment and facilities as well as providing assistance to members of the public. These include providing sufficient clean fresh water, reliable sewer services, and solid waste disposal
Emergency Manager	Channel Islands Beach Community Services District Operations Division and Management Personnel	Maintains and updates the Emergency Operations Plan for the local jurisdiction. In addition, coordinates local response and relief activities within the Emergency Operation Center, and works closely with County, state, and federal partners to support planning and training and to provide information and coordinate assistance.



**Table S-4. Channel Islands Beach Community Services District, Financial Resources for Hazard Mitigation**

Type	Subtype	Administrator	Purpose	Amount
<b>Local</b>	General Fund	Channel Islands Beach Community Services District	Program operations and specific projects.	Variable. Currently funds are not specifically identified for this purpose. Potential funding could be earmarked from reserve accounts. Current reserve monies total 2.1 million.
	Public-Private Partnerships	Channel Islands Beach Emergency Response Team (CIBERT)	Includes the use of local professionals, business owners, residents, and civic groups and trade associations, generally for the study of issues and the development of guidance and recommendations.	Project-specific.
<b>Federal</b>	Hazard Mitigation Grant Program (HMGP)	Federal Emergency Management Agency (FEMA)	Supports pre- and post-disaster mitigation plans and projects.	Available to California communities after a Presidentially declared disaster has occurred in California. Grant award based on specific projects as they are identified by eligible applicants.
	Pre-Disaster Mitigation (PDM) grant program	FEMA	Supports pre-disaster mitigation plans and projects.	Available on an annual basis as a nationally competitive grant. Grant award based on specific projects as they are identified (no more than \$3M federal share for projects).
	Flood Mitigation Assistance (FMA) grant program	FEMA	Mitigates repetitively flooded structures and infrastructure.	Available on an annual basis, distributed to California communities by the California Governor's Office of Emergency Services (Cal OES). Grant award based on specific projects as they are identified.

**Table S-4. Channel Islands Beach Community Services District, Financial Resources for Hazard Mitigation**

Type	Subtype	Administrator	Purpose	Amount
	Community Action for a Renewed Environment (CARE)	U.S. Environmental Protection Agency (EPA)	Through financial and technical assistance offers an innovative way for a community to organize and take action to reduce toxic pollution (i.e., stormwater) in its local environment. Through CARE, a community creates a partnership that implements solutions to reduce releases of toxic pollutants and minimize people's exposure to them.	Competitive grant program. Grant award based on specific projects as they are identified.
<b>Federal (cont.)</b>	Clean Water State Revolving Fund (CWSRF)	EPA	The CWSRF is a loan program that provides low-cost financing to eligible entities within state and tribal lands for water quality projects, including all types of non-point source, watershed protection or restoration, estuary management projects, and more traditional municipal wastewater treatment projects.	CWSRF programs provided more than \$5 billion annually to fund water quality protection projects for wastewater treatment, non-point source pollution control, and watershed and estuary management.
	Homeland Security Preparedness Technical Assistance Program (HSPTAP)	FEMA/DHS	Build and sustain preparedness technical assistance activities in support of the four homeland security mission areas (prevention, protection, response, recovery) and homeland security program management.	Technical assistance services developed and delivered to state and local homeland security personnel. Grant award based on specific projects as they are identified.

**Table S-5. Channel Islands Beach Community Services District, Legal and Regulatory Resources for Hazard Mitigation**

<b>Regulatory Tool</b>	<b>Name</b>	<b>Description (Effect on Hazard Mitigation)</b>	<b>Hazards Addressed</b>	<b>Mitigation, Preparedness, Response, or Recovery</b>	<b>Affects Development in Hazard Areas?</b>
<b>Plans</b>	Channel Islands Beach Emergency Response Plan 2004 (updated every 5 years)	Describes what the special district's actions will be during a response to an emergency. Includes annexes that describe in more detail the actions required of the local jurisdiction's departments/agencies. Further, this plan describes the role of the Emergency Operation Center (EOC) and the coordination that occurs between the EOC and the local jurisdiction's departments and other response agencies. Finally, this plan describes how the EOC serves as the focal point among local, state, and federal governments in times of disaster.	Multiple, including Earthquake, Flooding and Wildfire.	Response	No
	Sanitary Sewer Management Plan	Addresses routine operational emergency response plans but does not address HMP related recovery action plans.	Environmental and human concerns associated with Waste Water Spills	Mitigation, Preparedness & Response	No

**Table S-6. Channel Islands Beach Community Services District, Current and Completed Hazard Mitigation Projects and Programs**

Status (Current or Complete)	Project / Program Name	Description	Year(s)
Complete	Channel Islands Beach Community Services District Water Conservation and Water Supply Shortage Program.	Establishes permanent water conservation standards intended to alter behavior related to water use efficiency during non-shortage conditions, and further establishes three levels of water supply shortage response actions to be implemented during times of declared water shortage or declared water shortage emergency. Each progressive level increases restrictions on water use in response to worsening drought or emergency conditions and decreasing supplies.	2009
Complete	Utility System upgrades	Completed 2.5 million dollar rehabilitation of forced sewer mains district wide including two bridge crossings.	2014

**Table S-7. Channel Islands Beach Community Services District, Potential Mitigation Actions**

No.	Description	Hazard	Mitigation Category	New or Existing Construction
OA 1	Integrate the hazard analysis and mitigation strategy into the General Plan's Safety Element.	All	Local Plans and Regulations	Not Applicable
OA 2	Ensure that existing monitoring capabilities at the state and County level are integrated to provide an early warning of increased or new infestations.*	Agricultural (Insect Pests/Invasive Species)	Natural Systems Protection	Not Applicable
OA 3	Implement an infestation public awareness and educational campaign.	Agricultural (Insect Pests/Invasive Species)	Education and Awareness	Not Applicable

**Table S-7. Channel Islands Beach Community Services District, Potential Mitigation Actions**

No.	Description	Hazard	Mitigation Category	New or Existing Construction
OA 4*	Relocate or reinforce bike trails, parking lots and other beach access amenities away from the shoreline to restore the beach/shoreline in sea-level rise/coastal erosion areas.	Climate Change	Natural Systems Protection	Existing
OA 5*	Restore habitat and improve flood protection for low-lying areas by employing innovative techniques such as constructing levees coupled with gently sloping tidal marshes to help protect from storm wave action and tidal surge.	Climate Change	Natural Systems Protection	New/Existing
OA 6	Develop a public outreach program that informs property owners located in the dam and levee failure inundation areas about voluntary flood insurance.	Dam and Levee Failure Inundation	Education and Awareness	Existing
OA 7	Develop a water conservation public outreach program to increase awareness about the drought, fines and penalties for overuse and solutions for conserving water.	Drought	Education and Awareness	New/Existing
OA 8	Adopt emergency water conservation measures and/or water conservation ordinance to limit irrigation.	Drought	Local Plans and Regulations	New/Existing
OA 9	Identify potentially vulnerable public and private utility systems including electric, gas, oil, water, sewer and communication. Upgrade vulnerable systems to ensure the operation and timely restoration of essential systems to reasonable levels of service.	Earthquake	Structure and Infrastructure Projects	New/Existing
OA 10	Seismically retrofit or upgrade seismically deficient government facilities and pre-identified shelter facilities.	Earthquake	Structure and Infrastructure Projects	Existing
OA 11	Develop and implement plans to increase the building owner's general knowledge of and appreciation for the value of seismic upgrading of the building's structural and nonstructural elements.	Earthquake	Local Plans and Regulations & Awareness and Education	Existing
OA 12	Increase participation in the NFIP by entering the Community Rating System program which through enhanced floodplain management activities would allow property owners to receive a discount on their flood insurance.	Flood	All	New/Existing (Residential structures and critical facilities which are located within the 100-year floodplain)

**Table S-7. Channel Islands Beach Community Services District, Potential Mitigation Actions**

No.	Description	Hazard	Mitigation Category	New or Existing Construction
OA 13*	Reinforce roads/bridges from flooding through protection activities, including elevating the roads/bridges and installing/widening culverts beneath the roads/bridges or upgrading storm drains.	Flood	Structure and Infrastructure Projects	Existing
OA 14*	Acquire, relocate, or elevate residential structures, in particular those that have been identified as RL properties, within the 100-year floodplain.	Flood	Structure and Infrastructure Projects	Existing
OA 15	Work with FEMA Region 9 to address any floodplain management issues that may have arisen/arise from the countywide DFIRM, Community Assessment Visits, and/or DWR.	Flood	Local Plans and Regulations	Not Applicable
OA 16*	Implement landslide stabilization and/or protection measures. Stabilization measures include grading the unstable portion of the slope to a lower gradient, construction of rock buttresses and retaining walls, and drainage improvements. Protection measures include containment and/or diversion of the moving debris, such as walls, berms, ditches and catchment basins.	Landslide	Structure and Infrastructure Projects, Natural Systems Protection	New/Existing
OA 17	Implement post-fire debris flow hillslope and channel treatments, such as seeding, mulching, check dams, and debris racks, as needed.	Post-Fire Debris Flow	Natural Systems Protection	New/Existing
OA 18*	Continue to participate in the NWS TsunamiReady Program through continued implementation of Guideline 4: Community Preparedness measures, including public outreach material and curriculum.	Tsunami	Awareness and Education	Not Applicable
OA 19	Create a new vegetation management program that provides vegetation management services to elderly, disabled, or low-income property owners who lack the resources to remove flammable vegetation from around their homes.	Wildfire	Awareness and Education, Natural Systems Protection	Existing (Residential buildings in high wildfire severity zones)



**Table S-7. Channel Islands Beach Community Services District, Potential Mitigation Actions**

No.	Description	Hazard	Mitigation Category	New or Existing Construction
OA 20	Implement a fuel modification program for new construction by requiring builders and developers to submit their plans, complete with proposed fuel modification zones, to the local fire department for review and approval prior to beginning construction.	Wildfire	Local Plans and Regulations	New (Residential and non-residential buildings located within high wildfire severity zones)
OA 21*	Develop a hazards fuel treatment program for areas that have been identified with overgrown/dead brush/trees to reduce the potential for tree-to-tree ignition. Ensure that a “maintenance now” component to provide continued fire resistance is part of the program.	Wildfire	Natural Systems Protection	New/Existing
OA 22	Develop a vegetation management program in areas within and adjacent to rights-of-way and in close proximity to critical facilities to reduce the risk of tree failure and property damage and avoid creation of wind acceleration corridors within vegetated areas.	Winter Storm	Awareness and Education, Natural Systems Protection	New/Existing
CIBCSD 1	Replace and relocate pipes in vulnerable areas	Landslide and Earthquake	Structure and Infrastructure Projects	Not Applicable

\* Recent/current FEMA, NWS and California Coastal Conservancy grant projects (nationwide)

CIBCSD = Channel Islands Beach Community Services District

OA = Overarching

**Table S-8. Channel Islands Beach Community Services District, Mitigation Action Plan**

No.	Description	Facility to be Mitigated (if Known and/or Applicable)	Funding Source	Department or Agency	Timeframe (0-5 Years)
OA 9	Continue to identify potentially vulnerable public and private utility. Upgrade vulnerable systems to ensure the operation and timely restoration of essential systems to reasonable levels of service.	Not Known	HMGP or PDM	Channel Islands Beach Community Services District through outside consultants on a project by project basis	3-5 years
OA 18*	Continue to participate in the NWS TsunamiReady Program through continued implementation of Guideline 4: Community Preparedness measures, including public outreach material and curriculum.	District-wide	General Fund	Channel Islands Beach Community Services District Operations Division	Ongoing
CIBCSD 1	Replace and relocate pipes in vulnerable areas	Not Known	HMGP or PDM	Channel Islands Beach Community Services District through outside consultants on a project by project basis	3-5 years

\* Recent/current FEMA, NWS and California Coastal Conservancy grant projects (nationwide)

HMGP = Hazard Mitigation Grant Program

PDM = Pre-Disaster Mitigation grant program

The Hazard Mitigation Assistance (HMA) Program requirements were used to guide choice of mitigation actions:

- Mitigation Planning
- Technical Feasibility and Effectiveness
- Floodplain Management and Protection of Wetlands
- Environmental Planning and Historic Review and Compliance
- Cost Effectiveness
- Cost Review
- General Program Requirements

*This page intentionally left blank*

## Appendix T

United Water Conservation District

*This page intentionally left blank*

**Table T-1. United Water Conservation District, Total Critical Facilities and Infrastructure**

Category	Name	Address	Value
Public Utility	El Rio Facility and Well Field	3561 North Rose Avenue, Oxnard, CA 93030	Unknown
Public Utility	Freeman Diversion Channel near Saticoy Stream Gage	Latitude and Longitude Coordinates	Unknown
Public Utility	Freeman Diversion Dam	Latitude and Longitude Coordinates	Unknown
Public Utility	Lake Piru Recreation Area (includes water treatment facilities)	4780 Piru Canyon, Piru, CA 93040	Unknown
Public Utility	Oxnard Hueneme Pipeline <sup>+</sup>	Not Applicable	Unknown
Public Utility	Santa Felicia Dam (includes instrumentation, spillway structure, intake/outlet works structure, hydroplant, maintenance yards, offices, dam tender's residence)	Latitude and Longitude Coordinates	Unknown
Public Utility	Santa Felicia Reservoir	3838 Piru Canyon Road, Fillmore, CA 93015	Unknown
Public Utility	Saticoy Recharge Facility (includes canals, pipelines, desalting basin, recharge basins, offices, maintenance yard and well field)	2641-2 W. Los Angeles Avenue, Oxnard, CA 93036	Unknown
Public Utility	United Water Conservation District	106 N 8th St., Santa Paula, CA 93060	Unknown

<sup>+</sup>Critical Facility or Infrastructure not included in the vulnerability analysis



**Table T-2. United Water Conservation District, Summary of Impacts for Critical Facilities and Infrastructure**

<b>Hazard</b>	<b>No. of Critical Facilities and Infrastructure</b>	<b>% of Critical Facilities and Infrastructure</b>
Climate Change - Rising Tide	0	0.00%
Climate Change - Coastal Storm	1	12.50%
Dam Failure Inundation	8	100.00%
Earthquake Ground Shaking - Extreme	8	100.00%
Earthquake Ground Shaking - Violent	0	0.00%
Earthquake Ground Shaking - Severe	0	0.00%
Liquefaction	5	62.50%
Flood - 100 Year	1	12.50%
Flood - 500 Year	1	12.50%
Landslide Susceptibility Class VIII	0	0.00%
Landslide Susceptibility Class IX	0	0.00%
Landslide Susceptibility Class X	2	25.00%
Reduced Flood Risks Due to Levees	0	0.00%
Tsunami Evacuation Area - Phase 3	0	0.00%
Tsunami Evacuation Area - Max	0	0.00%
Wildfire - High	1	12.50%
Wildfire - Very High	1	12.50%

**Table T-3. United Water Conservation District, Human and Technical Resources for Hazard Mitigation**

Staff/Personnel Resources	Department or Agency	Principal Activities Related to Hazard Mitigation
General Manager	United Water Conservation District	Oversees and authorizes all District activities
Deputy General Manager	United Water Conservation District	Oversees the Recreation, Environmental, Engineering, and Operations and Maintenance Departments
Manager of Operations and Maintenance	Operations and Maintenance Department	Responsible for Operations and Maintenance activities including oversight of potable water facilities
Chief Water Treatment Operator	Operations and Maintenance Department	Responsible for Operations and Maintenance activities in the absence of Manager of Operations and Maintenance
Operations and Maintenance	Operations and Maintenance Department	Lead emergency response coordinator
Dam Tender, Operations and Maintenance	Operations and Maintenance Department	On-site responder to assess conditions and facilitate activities at the Santa Felicia Dam
Supervising Park Services Officer	Recreation Department	On-site responder to assess conditions and facilitate activities at Lake Piru Recreation Area
Engineering Manager	Engineering Department	Structural assessment and response
Chief Financial Officer	United Water Conservation District	Oversees the Finance and Administrative Services Departments
Deputy General Manager/Groundwater and Water Resources Manager	Groundwater Department	Responsible for responding to release of hazardous materials that have the potential to enter groundwater sources
Controller	Finance Department	Management of District finances
Environmental Planning and Conservation Manager	Environmental Planning and Conservation Department	Oversees the Environmental Planning and Conservation Department.

**Table T-4. United Water Conservation District, Financial Resources for Hazard Mitigation**

Type	Subtype	Administrator	Purpose	Amount
<b>Local</b>	General Fund	United Water Conservation District	Program operations and specific projects.	Variable.
	General Obligation (GO) Bonds	United Water Conservation District	GO Bonds are appropriately used for the construction and/or acquisition of improvements to real property broadly available to residents and visitors. Such facilities include, but are not limited to, libraries, hospitals, parks, public safety facilities, and cultural and educational facilities.	Variable.
	Lease Revenue Bonds	United Water Conservation District	Lease revenue bonds are used to finance capital projects that (1) have an identified budgetary stream for repayment (e.g., specified fees, tax receipts, etc.), (2) generate project revenue but rely on a broader pledge of general fund revenues to reduce borrowing costs, or (3) finance the acquisition and installation of equipment for the local jurisdiction's general governmental purposes.	Variable.
	Public-Private Partnerships	United Water Conservation District	Includes the use of local professionals, business owners, residents, and civic groups and trade associations, generally for the study of issues and the development of guidance and recommendations.	Project-specific.
<b>Federal</b>	Hazard Mitigation Grant Program (HMGP)	Federal Emergency Management Agency (FEMA)	Supports pre- and post-disaster mitigation plans and projects.	Available to California communities after a Presidentially declared disaster has occurred in California. Grant award based on specific projects as they are identified by eligible applicants.

**Table T-4. United Water Conservation District, Financial Resources for Hazard Mitigation**

Type	Subtype	Administrator	Purpose	Amount
<b>Federal (cont.)</b>	Pre-Disaster Mitigation (PDM) grant program	FEMA	Supports pre-disaster mitigation plans and projects.	Available on an annual basis as a nationally competitive grant. Grant award based on specific projects as they are identified (no more than \$3M federal share for projects).
	Flood Mitigation Assistance (FMA) grant program	FEMA	Mitigates repetitively flooded structures and infrastructure.	Available on an annual basis, distributed to California communities by the California Governor's Office of Emergency Services (Cal OES). Grant award based on specific projects as they are identified.
	Clean Water State Revolving Fund (CWSRF)	EPA	The CWSRF is a loan program that provides low-cost financing to eligible entities within state and tribal lands for water quality projects, including all types of non-point source, watershed protection or restoration, estuary management projects, and more traditional municipal wastewater treatment projects.	CWSRF programs provided more than \$5 billion annually to fund water quality protection projects for wastewater treatment, non-point source pollution control, and watershed and estuary management.
	Homeland Security Preparedness Technical Assistance Program (HSPTAP)	FEMA/DHS	Build and sustain preparedness technical assistance activities in support of the four homeland security mission areas (prevention, protection, response, recovery) and homeland security program management.	Technical assistance services developed and delivered to state and local homeland security personnel. Grant award based on specific projects as they are identified.

**Table T-5. United Water Conservation District, Legal and Regulatory Resources for Hazard Mitigation**

<b>Regulatory Tool</b>	<b>Name</b>	<b>Description (Effect on Hazard Mitigation)</b>	<b>Hazards Addressed</b>	<b>Mitigation, Preparedness, Response, or Recovery</b>	<b>Affects Development in Hazard Areas?</b>
<b>Plans</b>	Santa Felicia Dam Emergency Action Plan January 30, 2015 rev. 5.2	Describes protocol for response activities to be conducted in the event of an emergency that threatens or damages the structural integrity of the Santa Felicia Dam. Includes procedures for training and preparedness, and notification and response actions to be conducted in the event of an emergency including procedures for coordination with outside agencies.	Threats to the structural integrity of the Santa Felicia Dam (dangerous conditions, failure or imminent failure)	Preparedness and response	No
	Drinking Water Emergency Response Plan	Describes protocol for response activities to be conducted in the event of an emergency that threatens or damages the El Rio Facility and the Oxnard-Hueneme Pipeline. Includes procedures for decontamination, pipeline isolation, and notification and response actions to be conducted in the event of an emergency.	Threats to the integrity of the El Rio Facility and the Oxnard-Hueneme Pipeline	Preparedness and response	No

**Table T-6. United Water Conservation District, Current and Completed Hazard Mitigation Projects and Programs**

Status (Current or Complete)	Project / Program Name	Description	Year(s)
Complete	Acquisition of real property for conversion to open space/ groundwater recharge basin	Purchase of the Ferro Property in Oxnard	Unknown
Complete	Santa Felicia Dam Slope Stabilization; Santa Felicia Dam East Abutment Repair; Santa Felicia Dam West Abutment Repair	Stabilize landslide-prone areas through stability improvement measures.	2007; 2013; 2014
Complete	El Rio Gas Booster Pumphouse Seismic Retrofit Project (completed)	Protective measures for utilities, water, sanitary sewer systems, and/or infrastructure.	2011
Complete	Santa Felicia Dam Outlet Works Tower and Penstock Seismic Analysis; Santa Felicia Dam Spillway Alternatives Study	Hydrologic and hydraulic studies/analysis, engineering studies, and drainage studies for the purpose of project design and feasibility	2015; 2015
Current	Santa Felicia Dam Outlet Works Modification Project (ongoing) Santa Felicia Dam Spillway Project (ongoing)	Seismic non-structural and structural retrofit of critical facilities and infrastructure.	Ongoing
Current	Vegetation Management	Manage vegetation in areas within and adjacent to infrastructure and facilities in order to reduce the risk of property damage in general and prevent impacts of wildfires	Ongoing
Current	Storm Water Management	Storm water management projects to reduce or eliminate long-term risk from flood hazards.	Ongoing
Current	Protective Measures for Utilities	Protective measures for utilities, water, sanitary sewer systems, and/or infrastructure.	Ongoing (additional projects may be completed within this description in the next 5 years)



**Table T-6. United Water Conservation District, Current and Completed Hazard Mitigation Projects and Programs**

Status (Current or Complete)	Project / Program Name	Description	Year(s)
Current	Studies	Hydrologic and hydraulic studies/analysis, engineering studies, and drainage studies for the purpose of project design and feasibility	Ongoing (additional studies to be completed in within this description over the next 5 years)

**Table T-7. United Water Conservation District, Potential Mitigation Actions**

No.	Description	Hazard	Mitigation Category	New or Existing Construction
OA 1	Integrate the hazard analysis and mitigation strategy into the General Plan's Safety Element.	All	Local Plans and Regulations	Not Applicable
OA 2	Ensure that existing monitoring capabilities at the state and County level are integrated to provide an early warning of increased or new infestations.*	Agricultural (Insect Pests/Invasive Species)	Natural Systems Protection	Not Applicable
OA 3	Implement an infestation public awareness and educational campaign.	Agricultural (Insect Pests/Invasive Species)	Education and Awareness	Not Applicable
OA 4*	Relocate or reinforce bike trails, parking lots and other beach access amenities away from the shoreline to restore the beach/shoreline in sea-level rise/coastal erosion areas.	Climate Change	Natural Systems Protection	Existing
OA 5*	Restore habitat and improve flood protection for low-lying areas by employing innovative techniques such as constructing levees coupled with gently sloping tidal marshes to help protect from storm wave action and tidal surge.	Climate Change	Natural Systems Protection	New/Existing
OA 6	Develop a public outreach program that informs property owners located in the dam and levee failure inundation areas about voluntary flood insurance.	Dam and Levee Failure Inundation	Education and Awareness	Existing

**Table T-7. United Water Conservation District, Potential Mitigation Actions**

No.	Description	Hazard	Mitigation Category	New or Existing Construction
OA 7	Develop a water conservation public outreach program to increase awareness about the drought, fines and penalties for overuse and solutions for conserving water.	Drought	Education and Awareness	New/Existing
OA 8	Adopt emergency water conservation measures and/or water conservation ordinance to limit irrigation.	Drought	Local Plans and Regulations	New/Existing
OA 9	Identify potentially vulnerable public and private utility systems including electric, gas, oil, water, sewer and communication. Upgrade vulnerable systems to ensure the operation and timely restoration of essential systems to reasonable levels of service.	Earthquake	Structure and Infrastructure Projects	New/Existing
OA 10	Seismically retrofit or upgrade seismically deficient government facilities and pre-identified shelter facilities.	Earthquake	Structure and Infrastructure Projects	Existing
OA 11	Develop and implement plans to increase the building owner's general knowledge of and appreciation for the value of seismic upgrading of the building's structural and nonstructural elements.	Earthquake	Local Plans and Regulations & Awareness and Education	Existing
OA 12	Increase participation in the NFIP by entering the Community Rating System program which through enhanced floodplain management activities would allow property owners to receive a discount on their flood insurance.	Flood	All	New/Existing (Residential structures and critical facilities which are located within the 100-year floodplain)
OA 13*	Reinforce roads/bridges from flooding through protection activities, including elevating the roads/bridges and installing/widening culverts beneath the roads/bridges or upgrading storm drains.	Flood	Structure and Infrastructure Projects	Existing
OA 14*	Acquire, relocate, or elevate residential structures, in particular those that have been identified as RL properties, within the 100-year floodplain.	Flood	Structure and Infrastructure Projects	Existing
OA 15	Work with FEMA Region 9 to address any floodplain management issues that may have arisen/arise from the countywide DFIRM, Community Assessment Visits, and/or DWR.	Flood	Local Plans and Regulations	Not Applicable

**Table T-7. United Water Conservation District, Potential Mitigation Actions**

No.	Description	Hazard	Mitigation Category	New or Existing Construction
OA 16*	Implement landslide stabilization and/or protection measures. Stabilization measures include grading the unstable portion of the slope to a lower gradient, construction of rock buttresses and retaining walls, and drainage improvements. Protection measures include containment and/or diversion of the moving debris, such as walls, berms, ditches and catchment basins.	Landslide	Structure and Infrastructure Projects, Natural Systems Protection	New/Existing
OA 17	Implement post-fire debris flow hillslope and channel treatments, such as seeding, mulching, check dams, and debris racks, as needed.	Post-Fire Debris Flow	Natural Systems Protection	New/Existing
OA 18*	Continue to participate in the NWS TsunamiReady Program through continued implementation of Guideline 4: Community Preparedness measures, including public outreach material and curriculum.	Tsunami	Awareness and Education	Not Applicable
OA 19	Create a new vegetation management program that provides vegetation management services to elderly, disabled, or low-income property owners who lack the resources to remove flammable vegetation from around their homes.	Wildfire	Awareness and Education, Natural Systems Protection	Existing (Residential buildings in high wildfire severity zones)
OA 20	Implement a fuel modification program for new construction by requiring builders and developers to submit their plans, complete with proposed fuel modification zones, to the local fire department for review and approval prior to beginning construction.	Wildfire	Local Plans and Regulations	New (Residential and non-residential buildings located within high wildfire severity zones)
OA 21*	Develop a hazards fuel treatment program for areas that have been identified with overgrown/dead brush/trees to reduce the potential for tree-to-tree ignition. Ensure that a “maintenance now” component to provide continued fire resistance is part of the program.	Wildfire	Natural Systems Protection	New/Existing
OA 22	Develop a vegetation management program in areas within and adjacent to rights-of-way and in close proximity to critical facilities to reduce the risk of tree failure and property damage and avoid creation of wind acceleration corridors within vegetated areas.	Winter Storm	Awareness and Education, Natural Systems Protection	New/Existing

**Table T-7. United Water Conservation District, Potential Mitigation Actions**

No.	Description	Hazard	Mitigation Category	New or Existing Construction
UWCD1	Protective measures for utilities, water, sanitary sewer systems, and/or infrastructure	Flood	Structure and Infrastructure Projects	New/Existing
UWCD 2	Engineering studies relating to the analysis and evaluation of Santa Felicia Dam	Flood/Earthquake	Hazard Mitigation Planning	New/Existing
UWCD 3	Evaluate and develop a public outreach program that informs and educates the public located in the inundation zone directly downstream of Santa Felicia Dam	Flood/Earthquake	Awareness and Education	Not Applicable

\* Recent/current FEMA, NWS and California Coastal Conservancy grant projects (nationwide)

OA = Overarching

UWCD = United Water Conservation District (potential mitigation action is specific to United Water Conservation District)

**Table T-8. United Water Conservation District, Mitigation Action Plan**

No.	Description	Facility to be Mitigated (if Known and/or Applicable)	Funding Source	Department or Agency	Timeframe (0-5 Years)
OA10	SFD Outlet Works Rehab – Replace the nearly buried and seismic-deficient intake tower at Santa Felicia Dam with a robust facility with higher elevation point(s) of intake. Replace the seismically marginal penstock with appropriate new materials.	Santa Felicia Dam – Intake tower and penstock	HMGP, PDM	United Water Conservation District	5 Years
OA10	SFD PMF Containment – The Probable Maximum Flood (PMF at all dams must be confined to the structure and spillway. Overtopping earthen dams will almost certainly lead to failure. UWCD will need to steepen or widen the spillway, raise the height of the dam crest, construct auxiliary spillways, or construct auxiliary tunnel spillway.	Santa Felicia Dam – spillway	General Fund, other grant (non HMA program grant)	United Water Conservation District	5 Years
UWCD 2	Part 12D Dam Safety Report – An independent consultant will be hired to perform the FERC Part 12D safety inspection and review of Santa Felicia Dam. This process includes reviewing the Potential Failure Mode Analysis (completed in 2007) and the Supporting Technical Information Document; and updating the documents as necessary.	Santa Felicia Dam	General Fund	United Water Conservation District	2 Years
UWCD 3	UWCD will re-evaluate current public outreach efforts and develop a program to educate and inform the public within the inundation zone directly downstream of Santa Felicia Dam.	Not Applicable	HMGP, FMA, PDM	United Water Conservation District	5 Years

**Table T-8. United Water Conservation District, Mitigation Action Plan**

No.	Description	Facility to be Mitigated (if Known and/or Applicable)	Funding Source	Department or Agency	Timeframe (0-5 Years)
UWCD 1	UWCD will install a generator at the Saticoy Recharge Facility.	Saticoy Recharge Facility	HMGP, PDM	United Water Conservation District	5 Years

FMA = Flood Mitigation Assistance grant program

HMA = Hazard Mitigation Assistance Program

HMGP = Hazard Mitigation Grant Program

PDM = Pre-Disaster Mitigation grant program

The HMA Program requirements were used to guide choice of mitigation actions:

- Mitigation Planning
- Technical Feasibility and Effectiveness
- Floodplain Management and Protection of Wetlands
- Environmental Planning and Historic Review and Compliance
- Cost Effectiveness
- Cost Review
- General Program Requirements



*This page intentionally left blank*

## Appendix U

Ventura County Fire Protection District

*This page intentionally left blank*

**Table U-1. Ventura County Fire Protection District, Total Critical Facilities and Infrastructure**

Category	Name	Address	Value
Emergency Response	Ventura County FD Station # 47	2901 Erringer Rd., Simi Valley, CA 93063	\$708,000
Emergency Response	Ventura County FD Station #20	12727 Santa Paula-Ojai Rd., Santa Paula, CA 93060	\$708,000
Emergency Response	Ventura County FD Station #21	1201 Ojai Ave. , Ojai, CA 93023	\$708,000
Emergency Response	Ventura County FD Station #22	466 S. La Luna Ave., Ojai, CA 93023	\$708,000
Emergency Response	Ventura County FD Station #23	15 Kunkie St., Oak View, CA 93022	\$708,000
Emergency Response	Ventura County FD Station #25	5674W. Pacific Coast Hyw., Ventura, CA 93001	\$708,000
Emergency Response	Ventura County FD Station #26	12391 W. Telegraph Rd., Santa Paula, CA 93060	\$708,000
Emergency Response	Ventura County FD Station #27	613 Old Telegraph Rd., Fillmore , CA 93015	\$708,000
Emergency Response	Ventura County FD Station #28	513 N. Church St., Piru, CA 93040	\$708,000
Emergency Response	Ventura County FD Station #30	325 W. Hillcrest Dr., Thousand Oaks, CA 91360	\$708,000
Emergency Response	Ventura County FD Station #31	151 Duesenberg Dr., Thousand Oaks, CA 91360	\$708,000
Emergency Response	Ventura County FD Station #32	830 S. Reino Rd., Newbury Park, CA 91320	\$708,000
Emergency Response	Ventura County FD Station #33	33 Lake Sherwood Dr., Thousand Oaks, CA 91361	\$708,000
Emergency Response	Ventura County FD Station #34	555 Avendia De Los Arboles, Thousand Oaks, CA 9136	\$708,000
Emergency Response	Ventura County FD Station #35	2500 W. Hillcrest DR., Newbury Park, CA 91320	\$708,000
Emergency Response	Ventura County FD Station #36	855 N. Deerhill , Agoura, CA 91301	\$708,000
Emergency Response	Ventura County FD Station #37	2010 Upper Ranch Rd., Thousand Oaks, CA 91362	\$708,000
Emergency Response	Ventura County FD Station #40	4185 Cedar Springs St., Moorpark, CA 93021	\$708,000
Emergency Response	Ventura County FD Station #41	1910 Church St., Simi Valley , CA 93065	\$708,000
Emergency Response	Ventura County FD Station #42	782 Moorpark Ave., Moorpark, CA 93021	\$708,000
Emergency Response	Ventura County FD Station #43	5874 Los Angeles Avenue, Simi Valley , CA 93063	\$708,000
Emergency Response	Ventura County FD Station #44	1050 Country Club Dr., Simi Valley, CA 93065	\$708,000
Emergency Response	Ventura County FD Station #45	790 Pacific Ave. , Simi Valley, CA 93065	\$708,000
Emergency Response	Ventura County FD Station #46	3265 N. Tapo St., Simi Valley, CA 93063	\$708,000
Emergency Response	Ventura County FD Station #50	615 Aviation Way, Camarillo, CA 93010	\$708,000
Emergency Response	Ventura County FD Station #51	680 El. Rio Dr., Oxnard, CA 93030	\$708,000

**Table U-1. Ventura County Fire Protection District, Total Critical Facilities and Infrastructure**

Category	Name	Address	Value
Emergency Response	Ventura County FD Station #52	5353 Santa Rosa Rd., Camarillo, CA 93012	\$708,000
Emergency Response	Ventura County FD Station #53	304 Second St., Port Hueneme, CA 93041	\$708,000
Emergency Response	Ventura County FD Station #54	2160 Pickwick Dr., Camarillo, CA 93010	\$708,000
Emergency Response	Ventura County FD Station #55	403 Valley Vista Dr., Camarillo, CA 93010	\$708,000
Emergency Response	Ventura County FD Station #56	11677 E. Pacific Coast Hwy, Malibu, CA 90265	\$708,000
Emergency Response	Ventura County FD Station #57	3356 Somis Rd., P.O. Box 347, Somis , CA 93066	\$708,000
Emergency Response	Ventura County FD Support Complex	2451 Latigo Ave., Oxnard, CA 93030	Unknown
Emergency Response	Ventura County Fire Protection District	165 Durley AVE, Camarillo, CA 93010	\$708,000
Emergency Response	Ventura County Regional Fire Communications Center	160 Durley Ave., Camarillo, CA, 93010	Unknown
Public Utility	East County Sheriff's Station (EVSO) Microwave Tower	Latitude and Longitude Coordinates	\$312,500
Public Utility	Fire Communications Center (FCC) Microwave Tower	Latitude and Longitude Coordinates	\$312,500
Public Utility	Fire Station 25 Microwave Tower	Latitude and Longitude Coordinates	\$312,500
Public Utility	Fire Station 28 Microwave Tower	513 N. Church St., Piru, CA 93040	\$312,500
Public Utility	Fire Station 31 Microwave Tower	151 Duesenberg Dr., Thousand Oaks, CA 91360	\$312,500
Public Utility	Fire Station 35 Microwave Tower	2500 W. Hillcrest DR., Newbury Park, CA 91320	\$312,500
Public Utility	Fire Station 46 Microwave Tower	Latitude and Longitude Coordinates	\$312,500
Public Utility	Fire Station 41 Microwave Tower	1910 Church St., Simi Valley , CA 93065	\$312,500
Public Utility	Fire Station 51 Microwave Tower	680 El. Rio Dr., Oxnard, CA 93030	\$312,500
Public Utility	Government Center Microwave Tower	Latitude and Longitude Coordinates	\$312,500
Public Utility	Hall Mountain Microwave Tower	Latitude and Longitude Coordinates	\$312,500
Public Utility	Laguna Peak Microwave Tower	Latitude and Longitude Coordinates	\$312,500
Public Utility	Mt. McCoy Microwave Tower	Latitude and Longitude Coordinates	\$312,500
Public Utility	Point Mugu Microwave Tower	Latitude and Longitude Coordinates	\$312,500

**Table U-1. Ventura County Fire Protection District, Total Critical Facilities and Infrastructure**

Category	Name	Address	Value
Public Utility	Rasnow Peak (East) Microwave Tower	Latitude and Longitude Coordinates	\$312,500
Public Utility	Red Mountain Microwave Tower	Latitude and Longitude Coordinates	\$312,500
Public Utility	Rincon Peak Microwave Tower	Latitude and Longitude Coordinates	\$312,500
Public Utility	Rocketdyne Microwave Tower	Latitude and Longitude Coordinates	\$312,500
Public Utility	Santa Susanna Pass Microwave Tower	Latitude and Longitude Coordinates	\$312,500
Public Utility	Sisar Peak Microwave Tower	Latitude and Longitude Coordinates	\$312,500
Public Utility	South Mountain VCFD Microwave Tower	Latitude and Longitude Coordinates	\$312,500
Public Utility	Tarantula Hill Microwave Tower	Latitude and Longitude Coordinates	\$312,500
Public Utility	Torrey Mountain Microwave Tower	Latitude and Longitude Coordinates	\$312,500
Public Utility	Villanova Tank Microwave Tower	Latitude and Longitude Coordinates	\$312,500



**Table U-2. Ventura County Fire Protection District, Summary of Impacts for Critical Facilities and Infrastructure**

Hazard	No. of Critical Facilities and Infrastructure	% of Critical Facilities and Infrastructure
Climate Change - Rising Tide	0	0.00%
Climate Change - Coastal Storm	1	1.69%
Dam Failure Inundation	17	28.81%
Earthquake Ground Shaking - Extreme	20	33.90%
Earthquake Ground Shaking - Violent	39	66.10%
Earthquake Ground Shaking - Severe	0	0.00%
Liquefaction	19	32.20%
Flood - 100 Year	3	5.08%
Flood - 500 Year	11	18.64%
Landslide Susceptibility Class VIII	2	3.39%
Landslide Susceptibility Class IX	2	3.39%
Landslide Susceptibility Class X	1	1.69%
Reduced Flood Risks Due to Levees	4	6.78%
Tsunami Evacuation Area - Phase 3	1	1.69%
Tsunami Evacuation Area - Max	1	1.69%
Wildfire - High	2	3.39%
Wildfire - Very High	21	35.59%

**Table U-3. Ventura County Fire Protection District, Human and Technical Resources for Hazard Mitigation**

Staff/Personnel Resources	Department or Agency	Principal Activities Related to Hazard Mitigation
Planner(s), engineer(s) and technical staff with knowledge of land development, land management practices, and human-caused and natural hazards.	Fire Prevention Bureau	Builds partnerships with our communities to protect lives, property and the environment through education and the application of fire and building codes. Responsible for fires safety compliance and education as well as engineering and development. Supports the Community Emergency Response Team (CERT) Program; provides disaster preparedness training and basic disaster response skills to the public.
Engineer(s), Building Inspectors/Code Enforcement Officers or other professional(s) and technical staff trained in construction requirements and practices related to existing and new buildings.	Fire Prevention Bureau	Oversees the effective, efficient, fair, and safe enforcement of the California Building Code
Engineer(s), project manager(s), technical staff, equipment operators, and maintenance and construction staff.	Business Services Bureau	Provides fiscal services, manages capital projects, maintains District facilities, manages records and collects and analyzes data related to emergency response.
Emergency Manager	Fire Chief	Coordinates local response and relief activities and works closely with County, state, and federal partners to support planning and training and to provide information and coordinate assistance.
Personnel skilled in GIS and data management	Emergency Services Bureau	GIS mapping and fire investigation

**Table U-4. Ventura County Fire Protection District, Financial Resources for Hazard Mitigation**

Type	Subtype	Administrator	Purpose	Amount
<b>Local</b>	General Fund	Administrative & Fiscal Services Bureau	Program operations and specific projects.	Variable.
	General Obligation (GO) Bonds	Administrative & Fiscal Services Bureau	GO Bonds are appropriately used for the construction and/or acquisition of improvements to real property broadly available to residents and visitors. Such facilities include, but are not limited to, libraries, hospitals, parks, public safety facilities, and cultural and educational facilities.	Variable.
	Lease Revenue Bonds	Administrative & Fiscal Services Bureau	Lease revenue bonds are used to finance capital projects that (1) have an identified budgetary stream for repayment (e.g., specified fees, tax receipts, etc.), (2) generate project revenue but rely on a broader pledge of general fund revenues to reduce borrowing costs, or (3) finance the acquisition and installation of equipment for the local jurisdiction's general governmental purposes.	Variable.
	Public-Private Partnerships	Administrative & Fiscal Services Bureau	Includes the use of local professionals, business owners, residents, and civic groups and trade associations, generally for the study of issues and the development of guidance and recommendations.	Project-specific.
<b>Federal</b>	Hazard Mitigation Grant Program (HMGP)	Federal Emergency Management Agency (FEMA)	Supports pre- and post-disaster mitigation plans and projects.	Available to California communities after a Presidentially declared disaster has occurred in California. Grant award based on specific projects as they are identified by eligible applicants.

**Table U-4. Ventura County Fire Protection District, Financial Resources for Hazard Mitigation**

Type	Subtype	Administrator	Purpose	Amount
<b>Federal (cont.)</b>	Pre-Disaster Mitigation (PDM) grant program	FEMA	Supports pre-disaster mitigation plans and projects.	Available on an annual basis as a nationally competitive grant. Grant award based on specific projects as they are identified (no more than \$3M federal share for projects).
	Flood Mitigation Assistance (FMA) grant program	FEMA	Mitigates repetitively flooded structures and infrastructure.	Available on an annual basis, distributed to California communities by the California Governor's Office of Emergency Services (Cal OES). Grant award based on specific projects as they are identified.
	Assistance to Firefighters Grant (AFG) Program	FEMA/USFA (U.S. Fire Administration)	Provides equipment, protective gear, emergency vehicles, training, and other resources needed to protect the public and emergency personnel from fire and related hazards.	Available to fire departments and nonaffiliated emergency medical services providers. Grant awards based on specific projects as they are identified.
	Community Action for a Renewed Environment (CARE)	U.S. Environmental Protection Agency (EPA)	Through financial and technical assistance offers an innovative way for a community to organize and take action to reduce toxic pollution (i.e., stormwater) in its local environment. Through CARE, a community creates a partnership that implements solutions to reduce releases of toxic pollutants and minimize people's exposure to them.	Competitive grant program. Grant award based on specific projects as they are identified.
	Homeland Security Preparedness Technical Assistance Program (HSPTAP)	FEMA/DHS	Build and sustain preparedness technical assistance activities in support of the four homeland security mission areas (prevention, protection, response, recovery) and homeland security program management.	Technical assistance services developed and delivered to state and local homeland security personnel. Grant award based on specific projects as they are identified.

**Table U-5. Ventura County Fire Protection District, Legal and Regulatory Resources for Hazard Mitigation**

Regulatory Tool	Name	Description (Effect on Hazard Mitigation)	Hazards Addressed	Mitigation, Preparedness, Response, or Recovery	Affects Development in Hazard Areas?
<b>Plan</b>	Ventura County Community Wildfire Protection Plan (Ojai Valley Fire Safe Council - 2010)	Identifies wildfire risks and clarifies priorities for funding and programs to reduce impacts of wildfire on the communities at risk within Ventura County.	Wildfire	Mitigation and Preparedness	Yes

**Table U-6. Ventura County Fire Protection District, Current and Completed Hazard Mitigation Projects and Programs**

Status (Current or Complete)	Project / Program Name	Description	Year(s)
Complete	GIS-based pre-application review process	Create a GIS-based (Accella) pre-application review for new construction and major remodels in hazard areas, such levee break, high and/or very high wildfire areas.	2012
Complete	Integration of the 2010 HMP into current/future planning documents	Integrate the 2010 HMP, in particular the hazard analysis and mitigation strategy sections, into local planning documents, including general plans, emergency operations plans, and capital improvement plans.	Ongoing
Current	Fuel Reduction Program – Chipper Program	Implement a fuel reduction program, such as the collection and disposal of dead fuel, within open spaces and around critical facilities and residential structures located within a SRA or LRA high or very high wildfire zone.	Ongoing
Current	Post-Fire Debris Flow Treatments	Implement post-fire debris flow hillslope and channel treatments, such as mulching, check dams, and debris racks, as needed.	Ongoing

**Table U-6. Ventura County Fire Protection District, Current and Completed Hazard Mitigation Projects and Programs**

Status (Current or Complete)	Project / Program Name	Description	Year(s)
Current	Fuel Modification Program – Fire Hazard Reduction Program	Implement a fuel modification program, which also includes residential maintenance requirements and enforcement, plan submittal and approval process, guidelines for planting, and a listing of undesirable plant species. Require builders and developers to submit their plans, complete with proposed fuel modification zones, to the local fire department for review and approval prior to beginning construction.	Ongoing
Completed	Public Education Program – Ready, Set, Go	Develop and promote public education programs in wildland fire safety and survival for all residents adjacent to wildland areas.	2010
Completed	Water Reduction and Restrictions & Public Education	Implement water reduction and restrictions at district facilities; reduced or removed landscape vegetation and replaced it with drought tolerant vegetation. Also created a public viewing area at one station with a walking tour and plant identification for the public to use while planting their own yards.	2015

**Table U-7. Ventura County Fire Protection District, Potential Mitigation Actions**

No.	Description	Hazard	Mitigation Category	New or Existing Construction
OA 1	Integrate the hazard analysis and mitigation strategy into the General Plan's Safety Element.	All	Local Plans and Regulations	Not Applicable
OA 2	Ensure that existing monitoring capabilities at the state and County level are integrated to provide an early warning of increased or new infestations.*	Agricultural (Insect Pests/Invasive Species)	Natural Systems Protection	Not Applicable
OA 3	Implement an infestation public awareness and educational campaign.	Agricultural (Insect Pests/Invasive Species)	Education and Awareness	Not Applicable
OA 4*	Relocate or reinforce bike trails, parking lots and other beach access amenities away from the shoreline to restore the beach/shoreline in sea-level rise/coastal erosion areas.	Climate Change	Natural Systems Protection	Existing
OA 5*	Restore habitat and improve flood protection for low-lying areas by employing innovative techniques such as constructing levees coupled with gently sloping tidal marshes to help protect from storm wave action and tidal surge.	Climate Change	Natural Systems Protection	New/Existing
OA 6	Develop a public outreach program that informs property owners located in the dam and levee failure inundation areas about voluntary flood insurance.	Dam and Levee Failure Inundation	Education and Awareness	Existing
OA 7	Develop a water conservation public outreach program to increase awareness about the drought, fines and penalties for overuse and solutions for conserving water.	Drought	Education and Awareness	New/Existing
OA 8	Adopt emergency water conservation measures and/or water conservation ordinance to limit irrigation.	Drought	Local Plans and Regulations	New/Existing
OA 9	Identify potentially vulnerable public and private utility systems including electric, gas, oil, water, sewer and communication. Upgrade vulnerable systems to ensure the operation and timely restoration of essential systems to reasonable levels of service.	Earthquake	Structure and Infrastructure Projects	New/Existing
OA 10	Seismically retrofit or upgrade seismically deficient government facilities and pre-identified shelter facilities.	Earthquake	Structure and Infrastructure Projects	Existing



**Table U-7. Ventura County Fire Protection District, Potential Mitigation Actions**

No.	Description	Hazard	Mitigation Category	New or Existing Construction
OA 11	Develop and implement plans to increase the building owner's general knowledge of and appreciation for the value of seismic upgrading of the building's structural and nonstructural elements.	Earthquake	Local Plans and Regulations & Awareness and Education	Existing
OA 12	Increase participation in the NFIP by entering the Community Rating System program which through enhanced floodplain management activities would allow property owners to receive a discount on their flood insurance.	Flood	All	New/Existing (Residential structures and critical facilities which are located within the 100-year floodplain)
OA 13*	Reinforce roads/bridges from flooding through protection activities, including elevating the roads/bridges and installing/widening culverts beneath the roads/bridges or upgrading storm drains.	Flood	Structure and Infrastructure Projects	Existing
OA 14*	Acquire, relocate, or elevate residential structures, in particular those that have been identified as RL properties, within the 100-year floodplain.	Flood	Structure and Infrastructure Projects	Existing
OA 15	Work with FEMA Region 9 to address any floodplain management issues that may have arisen/arise from the countywide DFIRM, Community Assessment Visits, and/or DWR.	Flood	Local Plans and Regulations	Not Applicable
OA 16*	Implement landslide stabilization and/or protection measures. Stabilization measures include grading the unstable portion of the slope to a lower gradient, construction of rock buttresses and retaining walls, and drainage improvements. Protection measures include containment and/or diversion of the moving debris, such as walls, berms, ditches and catchment basins.	Landslide	Structure and Infrastructure Projects, Natural Systems Protection	New/Existing
OA 17	Implement post-fire debris flow hillslope and channel treatments, such as seeding, mulching, check dams, and debris racks, as needed.	Post-Fire Debris Flow	Natural Systems Protection	New/Existing

**Table U-7. Ventura County Fire Protection District, Potential Mitigation Actions**

No.	Description	Hazard	Mitigation Category	New or Existing Construction
OA 18*	Continue to participate in the NWS TsunamiReady Program through continued implementation of Guideline 4: Community Preparedness measures, including public outreach material and curriculum.	Tsunami	Awareness and Education	Not Applicable
OA 19	Create a new vegetation management program that provides vegetation management services to elderly, disabled, or low-income property owners who lack the resources to remove flammable vegetation from around their homes.	Wildfire	Awareness and Education, Natural Systems Protection	Existing (Residential buildings in high wildfire severity zones)
OA 20	Implement a fuel modification program for new construction by requiring builders and developers to submit their plans, complete with proposed fuel modification zones, to the local fire department for review and approval prior to beginning construction.	Wildfire	Local Plans and Regulations	New (Residential and non-residential buildings located within high wildfire severity zones)
OA 21*	Develop a hazards fuel treatment program for areas that have been identified with overgrown/dead brush/trees to reduce the potential for tree-to-tree ignition. Ensure that a “maintenance now” component to provide continued fire resistance is part of the program.	Wildfire	Natural Systems Protection	New/Existing
OA 22	Develop a vegetation management program in areas within and adjacent to rights-of-way and in close proximity to critical facilities to reduce the risk of tree failure and property damage and avoid creation of wind acceleration corridors within vegetated areas.	Winter Storm	Awareness and Education, Natural Systems Protection	New/Existing
VCFPD 1	Work with local ranchers and oil fields to identify and create additional exit corridors for employees to use in the event of a wildfire.	Wildfire	Awareness and Education	Not Applicable

\* Recent/current FEMA, NWS and California Coastal Conservancy grant projects (nationwide)

OA = Overarching

VCFPD = Ventura County Fire Protection District

**Table U-8. Ventura County Fire Protection District, Mitigation Action Plan**

No.	Description	Facility to be Mitigated (if Known and/or Applicable)	Funding Source	Department or Agency	Timeframe (0-5 Years)
OA 1	Integrate the hazard analysis and mitigation strategy into the district's emergency plans.	Not Applicable	General Fund	Fire Prevention Bureau	1-3 years
OA 17	Implement post-fire debris flow hillslope and channel treatments, such mulching, check dams, and debris racks, as needed.	District-wide	HMGP or PDM	Business Services Bureau	Ongoing
OA 21*	Develop a hazards fuel treatment program for areas that have been identified with overgrown/dead brush/trees to reduce the potential for tree-to-tree ignition. Ensure that a "maintenance now" component to provide continued fire resistance is part of the program.	District-wide	HMGP or PDM	Fire Prevention Bureau	1-2 years
OA 22	Develop a vegetation management program in areas within and adjacent to rights-of-way and in close proximity to critical facilities to reduce the risk of tree failure and property damage and avoid creation of wind acceleration corridors within vegetated areas.	District-wide	HMGP or PDM	Fire Prevention Bureau	1-2 years
VCFPD 1	Work with local ranchers and oil fields to identify and create additional exit corridors for employees to use in the event of a wildfire.	District-wide	General Fund	Fire Prevention Bureau	1-3 years

\* Recent/current FEMA, NWS and California Coastal Conservancy grant projects (nationwide)

HMGP = Hazard Mitigation Grant Program

PDM = Pre-Disaster Mitigation grant program

The Hazard Mitigation Assistance (HMA) Program requirements were used to guide choice of mitigation actions:

- Mitigation Planning
- Technical Feasibility and Effectiveness
- Floodplain Management and Protection of Wetlands
- Environmental Planning and Historic Review and Compliance
- Cost Effectiveness
- Cost Review
- General Program Requirements

*This page intentionally left blank*

Appendix V  
Ventura County Office of Education

*This page intentionally left blank*

**Table V-1. Ventura County Office of Education, Total Critical Facilities and Infrastructure**

Category	Category	Category	Category
Education	Acacia Elementary	55 Norman Ave., Thousand Oaks, Ca 91360	\$8,921,000
Education	Adolfo Camarillo High	4660 Mission Oaks Blvd, Camarillo, Ca 93012	\$64,659,000
Education	Adult and Community Education	PO Box 878, Ojai , CA 93023	\$15,518,388
Education	Anacapa Middle	100 South Mills Rd., Ventura, Ca 93003	\$22,830,000
Education	Ansgar Larsen Elementary	550 Thomas Ave., Oxnard, Ca 93033	\$14,833,000
Education	Apollo High	3150 School St., Simi Valley , Ca 93065	\$4,669,000
Education	Arroyo Elementary	225 Ulysses St., Simi Valley , Ca 93065	\$5,729,000
Education	Arroyo West Elementary	4117 Country Hill Rd., Moorpark, Ca 93021	\$10,495,000
Education	Art Haycox Elementary	5400 Perkins Rd., Oxnard, Ca 93033	\$14,519,000
Education	Aspen Elementary	1870 Oberlin Ave., Thousand Oaks, Ca 91360	\$8,652,000
Education	Atherwood Elementary	2350 East Greensward St., Simi Valley , Ca 93065	\$7,505,000
Education	Balboa Middle	247 Hill Rd., Ventura, Ca 93003	\$32,585,000
Education	Banyan Elementary	1120 Knollwood Dr., Newbury Park, Ca 91320	\$10,225,000
Education	Barbara Webster Elementary	1150 Saticoy St., Santa Paula, Ca 93060	\$8,292,000
Education	Berylwood Elementary	2300 Heywood St., Simi Valley , Ca 93065	\$15,058,000
Education	Big Springs Elementary	3401 Big Springs Ave., Simi Valley , Ca 93063	\$12,338,000
Education	Blanchard Elementary	115 Peck Rd., Santa Paula, Ca 93060	\$8,135,000
Education	Blanche Reynolds Elementary	450 Valmore Ave., Ventura, Ca 93003	\$8,090,000
Education	Briggs Elementary	14438 West Telegraph Rd., Santa Paula, Ca 93060	\$3,142,000
Education	Briggs Elementary School District Administration	12465 Foothil Road, Santa Paula, CA 93060	Unknown
Education	Brookside Elementary	165 North Satinwood Ave., Oak Park, Ca 91377	\$9,303,000
Education	Buena High	5670 Telegraph Rd., Ventura, Ca 93003	\$63,238,000
Education	Cabrillo Middle	1426 East Santa Clara St., Ventura, Ca 93003	\$22,776,000
Education	California Virtual Academy At Jamestown	2360 Shasta Way Unit B, Simi Valley , Ca 93063	\$2,213,000
Education	Camarillo Academy of Progressive Education	777 Aileen Street, Camarillo, CA 93010	Unknown
Education	Camarillo Heights Elementary School	35 Catalina Dr, Camarillo, CA 93010	\$7,752,000



**Table V-1. Ventura County Office of Education, Total Critical Facilities and Infrastructure**

Category	Category	Category	Category
Education	Campus Canyon Elementary	15300 Monroe Ave., Moorpark, Ca 93021	\$7,505,000
Education	CAPE Charter School	777 Aileen St., Camarillo, CA 93010	Unknown
Education	Carl Dwire School	3150 Via Marina Avenue, Oxnard, CA 93035	\$15,518,388
Education	Century High	1025 Old Farm Rd., Thousand Oaks, Ca 91360	\$501,000
Education	Cesar E. Chavez Elementary	224 North Juanita Ave., Oxnard, Ca 93030	\$10,989,000
Education	Channel Islands High	1400 Raiders Way, Oxnard, Ca 93033	\$72,378,000
Education	Chaparral High	114 North Montgomery, Ojai, Ca 93023	\$1,176,000
Education	Chaparral Middle	280 Poindexter Rd., Moorpark, Ca 93021	\$19,542,000
Education	Charles Blackstock Junior High	701 East Bard Rd., Oxnard, Ca 93033	\$29,025,000
Education	Christa McAuliffe Elementary	3300 West Via Marina Ave., Oxnard, Ca 93030	\$17,688,000
Education	Citrus Glen Elementary	9655 Darling Rd., Ventura, Ca 93004	\$9,843,000
Education	Colina Middle	1500 East Hillcrest Dr., Thousand Oaks, Ca 91362	\$26,172,000
Education	Community Day School	3777 Dean Drive, Ventura, CA 93003	Unknown
Education	Community High	5700 Condor Dr., Moorpark, Ca 93021	\$2,594,000
Education	Conejo Elementary	280 North Conejo School Rd., Thousand Oaks, Ca 91362	\$10,697,000
Education	Conejo Valley Adult Education	1025 Old Farm Rd., Thousand Oaks, CA 91360	\$15,518,388
Education	Conejo Valley High (continuation)	1872 Newbury Rd., Newbury Park, CA 91320	\$2,767,000
Education	Conejo Valley Unified School District Administration and Preschool	1400 East Janss Road, Thousand Oaks, CA 91362	Unknown
Education	Crestview Elementary	900 Crosby Ave., Simi Valley , Ca 93065	\$8,652,000
Education	Curren Elementary	1101 North F St., Oxnard, Ca 93030	\$14,226,000
Education	Cypress Elementary	4200 Kimber Dr., Newbury Park, Ca 91320	\$8,607,000
Education	De Anza Middle	2060 Cameron St., Ventura, Ca 93001	\$11,744,000
Education	Dorothy Boswell School	5190 Loma Vista Road, Ventura, CA 93003	\$15,518,388
Education	Dos Caminos Elementary	3635 Appian Way, Camarillo, Ca 93010	\$9,169,000

**Table V-1. Ventura County Office of Education, Total Critical Facilities and Infrastructure**

Category	Category	Category	Category
Education	Douglas Penfield School	640 Jazmin Street, Ventura, CA 93004	\$15,518,388
Education	Driffill Elementary	910 South E St., Oxnard, Ca 93030	\$19,239,000
Education	E. O. Green Junior High	3739 South C St., Oxnard, Ca 93033	\$26,036,000
Education	E. P. Foster Elementary	20 Pleasant Pl., Ventura, Ca 93001	\$8,135,000
Education	Early Childhood Center	240 Flory Avenue, Moorpark, CA 93021	Unknown
Education	Early Childhood Education	1111 E. Santa Pula St., Santa Paula, CA 93060	\$15,518,388
Education	Educational Services Center	570 Airport Way, Camarillo, CA 93010	\$15,518,388
Education	El Camino High	3777 Dean Dr., Ventura, Ca 93003	\$3,562,000
Education	El Descanso Elementary	1099 North Bradford, Camarillo, Ca 93010	\$9,776,000
Education	El Rio Elementary	2714 Vineyard Ave., Oxnard, Ca 93036	\$5,392,000
Education	Elm Street Elementary	450 East Elm St., Oxnard, Ca 93030	\$11,192,000
Education	Elmhurst Elementary	5080 Elmhurst St., Ventura, Ca 93003	\$10,742,000
Education	Emilie Ritchen Elementary	2200 Cabrillo Way, Oxnard, Ca 93030	\$17,958,000
Education	Fillmore Middle	543 A St., Fillmore, Ca 93016	\$19,705,000
Education	Fillmore Senior High	555 Central Ave., Fillmore, Ca 93015	\$25,166,000
Education	Fillmore Unified School District Administration	627 Sespe Avenue, Fillmore, CA 93015	Unknown
Education	Flory Academy Of Sciences And Technology	240 Flory Ave., Moorpark, Ca 93021	\$10,989,000
Education	Foothill Technology High	100 Day Rd., Ventura, Ca 93003	\$19,422,000
Education	Fred L. Williams Elementary	4300 Anchorage St., Oxnard, Ca 93033	\$13,440,000
Education	Fremont Intermediate	1130 North M St., Oxnard, Ca 93030	\$30,928,000
Education	Frontier High	545 Airport Way, Camarillo, Ca 93010	\$5,101,000
Education	Garden Grove Elementary	2250 North Tracy Ave., Simi Valley , Ca 93063	\$9,483,000
Education	Glen City Elementary	141 Steckel Dr., Santa Paula, Ca 93060	\$11,979,000
Education	Glenwood Elementary	1135 Windsor Dr., Thousand Oaks, Ca 91360	\$8,741,000
Education	Golden Valley Charter School	2421 Portola Road, Suite C, Ventura, CA 93003	\$8,473,000
Education	Grace S. Thille Elementary	1144 E. Ventura St., Santa Paula, Ca 93060	\$5,122,000

**Table V-1. Ventura County Office of Education, Total Critical Facilities and Infrastructure**

Category	Category	Category	Category
Education	Harrington Elementary	2501 South Gisler Ave., Oxnard, Ca 93033	\$11,934,000
Education	Hillside Middle	2222 East Fitzgerald Rd., Simi Valley , Ca 93065	\$24,596,000
Education	Hollow Hills Elementary	828 Gibson Ave., Simi Valley , Ca 93065	\$12,653,000
Education	Hollywood Beach Elementary	4000 Sunset Ln., Oxnard, Ca 93035	\$3,886,000
Education	Horizon Hills Campus Parenting Program	33 Greta Street, Thousand Oaks, CA 91360	Unknown
Education	Horizon Hills Pre-school	33 Greta St., Thousand Oaks, CA 91360	\$15,518,388
Education	Hueneme Elementary	354 North Third St., Port Hueneme, Ca 93041	\$9,393,000
Education	Hueneme Elementary School District Administration	205 North Ventura Road, Port Hueneme, CA 93041	Unknown
Education	Hueneme High	500 Bard Rd., Oxnard, Ca 93033	\$61,293,000
Education	Isbell Middle School	221 South Fourth Street, Santa Paula, CA 93060	\$27,993,000
Education	Juan Lagunas Soria	3101 Dunkirk Drive, Oxnard, CA 93035	Unknown
Education	Juanamaria Elementary	100 South Crocker Ave., Ventura, Ca 93004	\$8,247,000
Education	Julien Hathaway Elementary	405 East Dollie St., Oxnard, Ca 93033	\$12,990,000
Education	Junipero Serra Elementary	8880 Halifax St., Ventura, Ca 93004	\$10,225,000
Education	Justin Elementary	2245 North Justin Ave., Simi Valley , Ca 93065	\$7,033,000
Education	Kamala Elementary	634 West Kamala St., Oxnard, Ca 93033	\$16,429,000
Education	Katherine Elementary	5455 Katherine St., Simi Valley , Ca 93063	\$9,618,000
Education	Knolls Elementary	6334 Katherine Rd., Simi Valley , Ca 93063	\$8,292,000
Education	La Mariposa Elementary	4800 Corte Olivas, Camarillo, CA 93012	\$14,429,000
Education	Ladera Elementary	1211 Calle Almendro, Thousand Oaks, Ca 91360	\$7,078,000
Education	Laguna Vista Elementary	5084 Etting Rd., Oxnard, Ca 93033	\$8,697,000
Education	Lang Ranch	2450 Whitechapel Pl., Thousand Oaks, Ca 91362	\$14,654,000
Education	Las Colinas Elementary	5750 Fieldcrest Drive, Camarillo, CA 93012	\$19,379,000
Education	Las Posas Elementary	75 Calle La Guerra, Camarillo, Ca 93010	\$7,033,000
Education	Lemonwood Elementary	2200 Carnegie, Oxnard, Ca 93033	\$14,811,000

**Table V-1. Ventura County Office of Education, Total Critical Facilities and Infrastructure**

Category	Category	Category	Category
Education	Lincoln Elementary	1220 Fourth St., Simi Valley , Ca 93065	\$7,213,000
Education	Loma Vista Elementary	300 Lynn Dr., Ventura, Ca 93003	\$6,156,000
Education	Los Altos Middle	700 Temple Ave., Camarillo, Ca 93010	\$10,764,000
Education	Los Cerritos Middle	2100 Avenida De Las Flores, Thousand Oaks, Ca 91362	\$26,417,000
Education	Los Primeros School of Sciences and Arts	1555 Kendall Avenue, Camarillo, CA 93010	\$9,933,000
Education	Madera Elementary	250 Royal Ave., Simi Valley , Ca 93065	\$6,943,000
Education	Madrona Elementary	612 Camino Manzanitas, Thousand Oaks, Ca 91360	\$13,237,000
Education	Manzanita Elementary	2626 Michael Dr., Newbury Park, Ca 91320	\$7,258,000
Education	Maple Elementary	3501 Kimber Dr., Newbury Park, Ca 91320	\$6,494,000
Education	Mar Vista Elementary	2382 Etting Rd., Oxnard, Ca 93033	\$11,821,000
Education	Marina West Elementary	2501 Carob St., Oxnard, Ca 93035	\$17,508,000
Education	Mary B. Perry High (Alternative School)	3100 Wright Rd., Camarillo, CA 93010	\$2,334,389
Education	Matilija Junior High	703 El Paseo Rd., Ojai, Ca 93023	\$11,689,000
Education	Mckeveitt Elementary	955 E. Pleasant St., Santa Paula, Ca 93060	\$5,032,000
Education	Mckinna Elementary	1611 South J St., Oxnard, Ca 93033	\$14,564,000
Education	Meadows Elementary	2000 La Granada Dr., Thousand Oaks, Ca 91362	\$5,145,000
Education	Medea Creek Middle	1002 Doubletree Rd., Oak Park, Ca 91377	\$20,194,000
Education	Meiners Oaks Elementary	400 South Lomita Ave., Ojai, Ca 93023	\$6,314,000
Education	Mesa Elementary	3901 North Mesa School Rd., Somis, Ca 93066	\$10,270,000
Education	Mesa Verde Middle	14000 Peach Hill Rd., Moorpark, Ca 93021	\$19,868,000
Education	Mira Monte Elementary	1216 Loma Dr., Ojai, Ca 93023	\$7,280,000
Education	Montalvo Elementary	2050 Grand Ave., Ventura, Ca 93003	\$6,696,000
Education	Monte Vista Middle School	888 N Lantana St, Camarillo, CA 93010	\$16,852,000
Education	Monte Vista School	1220 Fourth Street, Simi Valley, CA 93065	\$3,078,000
Education	Moorpark High	4500 Tierra Rejada Rd., Moorpark, Ca 93021	\$68,364,000
Education	Moorpark Unified School District Administration	5297 Maureen Lane, Moorpark, CA 93021	Unknown

**Table V-1. Ventura County Office of Education, Total Critical Facilities and Infrastructure**

Category	Category	Category	Category
Education	Mound Elementary	455 South Hill Rd., Ventura, Ca 93003	\$10,765,000
Education	Mountain Meadows Elementary	4200 Mountain Meadow Dr., Moorpark, Ca 93021	\$7,573,000
Education	Mountain View Elementary	2925 Fletcher Ave., Simi Valley , Ca 93065	\$6,179,000
Education	Mountain Vista School	918 Fith Street, Fillmore, CA 93015	Unknown
Education	Mupu Elementary	4410 North Ojai Rd., Santa Paula, Ca 93060	\$1,532,000
Education	Mupu Elementary School District Administration	4410 North Ojai Road, Santa Paula, CA 93060	Unknown
Education	Newbury Park High	456 North Reino Rd., Newbury Park, Ca 91320	\$59,163,000
Education	Nordhoff High	1401 Maricopa Hwy., Ojai, Ca 93023	\$28,192,000
Education	Norman R. Brekke Elementary	1400 Martin Luther King Dr., Oxnard, Ca 93030	\$17,980,000
Education	Nueva Vista Intermediate	925 South A St., Oxnard, Ca 93030	\$178,000
Education	Oak Hills Elementary	1010 Kanan Rd., Oak Park, Ca 91377	\$6,628,000
Education	Oak Park High	899 Kanan Rd., Oak Park, Ca 91377	\$32,052,000
Education	Oak Park Independent	5701 Conifer St. Red Oak Eleme, Oak Park, Ca 91377	\$1,816,000
Education	Oak Park Unified School District Administration	5801 E. Conifer Street, Oak Park, CA 91377	Unknown
Education	Oak Park Unified School District Neighborhood for Learning	1010 North Kanan Road, Oak Park, CA 91377	Unknown
Education	Oak View High	5701 Conifer St., Oak Park, Ca 91377	\$692,000
Education	Ocean View Early Education School	4600 Olds Road, Oxnard, CA 93033	Unknown
Education	Ocean View Junior High	4300 Olds Rd., Oxnard, Ca 93033	\$15,983,000
Education	Ocean View School District Administration	4200 Olds Road, Oxnard, CA 93033	Unknown
Education	Ocean Vista Early Education School	5191 Squires Drive, Oxnard, CA 93033	Unknown
Education	Ojai Unified School District Administration	414 East Ojai Avenue, Ojai, CA 93023	Unknown
Education	Olivelands Elementary	12465 Foothill Rd., Santa Paula, Ca 93060	\$2,705,000
Education	Oxnard Adult Education School	1101 W. Second St., Oxnard, CA 93030	\$15,518,388
Education	Oxnard College	4000 S. ROSE Avenue, Oxnard, CA 93003	Unknown
Education	Oxnard Elementary School District Administration	1051 South A Street, Oxnard, CA 93030	Unknown

**Table V-1. Ventura County Office of Education, Total Critical Facilities and Infrastructure**

Category	Category	Category	Category
Education	Oxnard High	3400 West Gonzales Rd., Oxnard, Ca 93036	\$83,958,000
Education	Oxnard Performing Arts Center	800 Hobson Way, Oxnard, CA 93030	Unknown
Education	Oxnard Union High School District Administration	309 South K Street, Oxnard, CA 93030	Unknown
Education	Pacific High	501 College Dr., Ventura, Ca 93003	\$4,167,000
Education	Pacific View High (community Day)	1701 Gary Dr., Oxnard, Ca 93033	\$1,331,000
Education	Pacifica High	600 East Gonzales Rd., Oxnard, Ca 93036	\$93,345,000
Education	Park Oaks Elementary	1335 Calle Bouganvilla, Thousand Oaks, Ca 91360	\$6,066,000
Education	Park View Elementary	1500 Alexander St., Simi Valley , Ca 93065	\$8,000,000
Education	Parkview Elementary	1416 Sixth Pl., Port Hueneme, Ca 93041	\$13,350,000
Education	Peach Hill Academy	13400 Christian Barrett Dr., Moorpark, Ca 93021	\$15,518,388
Education	Phoenix School	550 Airport Way, Camarillo, CA 93010	Unknown
Education	Pierpont Elementary	1254 Martha's Vineyard Ct., Ventura, Ca 93001	\$3,616,000
Education	Piru Elementary	3811 East Center St., Piru, Ca 93040	\$5,010,000
Education	Pleasant Valley Elementary School District Administration	600 Temple Avenue, Camarillo, CA 93010	Unknown
Education	Poinsettia Elementary	350 North Victoria Ave., Ventura, Ca 93003	\$8,607,000
Education	Portola Elementary	6700 Eagle St., Ventura, Ca 93003	\$9,438,000
Education	Portola School	1350 Partridge Street, Ventura, CA 93003	\$15,518,388
Education	Preschool Early Education Program	2222 Ventura Boulevard, Camarillo, CA 93010	Unknown
Education	Providence (Student Services Branch)	4333 Vineyard Avenue, Oxnard, CA 93036	\$3,528,000
Education	Ramona Elementary	804 Cooper Rd., Oxnard, Ca 93030	\$10,787,000
Education	Rancho Campana High School	4235 Mar Vista Dr., Camarillo, CA 93012	Unknown
Education	Rancho Rosal School	3535 Village at the Park Drive, Camarillo, CA 93012	Unknown
Education	Red Oak Elementary	4857 Rockfield Dr., Oak Park, Ca 91377	\$7,932,000
Education	Redwood Middle	233 West Gainsborough Rd., Thousand Oaks, Ca 91360	\$25,248,000
Education	Regional Occupational Program	465 Horizon Circle, Camarillo, CA 93010	\$15,518,388

**Table V-1. Ventura County Office of Education, Total Critical Facilities and Infrastructure**

Category	Category	Category	Category
Education	Renaissance Continuation Education	333 North Palm Avenue, Santa Paula, CA 93060	Unknown
Education	Renaissance High School (SPUHS)	325 N Palm Ave, Santa Paula, CA 93060	\$2,092,000
Education	Richard B. Haydock Intermediate	647 West Hill St., Oxnard, Ca 93033	\$19,107,000
Education	Richard Bard Elementary	622 East Pleasant Valley Rd., Port Hueneme, Ca 93041	\$13,013,000
Education	Rio Del Mar School	3150 Thames River Drive, Oxnard, CA 93036	Unknown
Education	Rio Del Norte	2500 Lobelia Dr., Oxnard, Ca 93030	\$15,530,000
Education	Rio Del Valle Middle School	3100 North Rose Ave., Oxnard, Ca 93036	\$18,999,000
Education	Rio Lindo Elementary	2131 Snow Ave., Oxnard, Ca 93036	\$10,697,000
Education	Rio Mesa High (Puente High)	545 Central Ave., Oxnard, Ca 93030	\$61,276,000
Education	Rio Plaza Elementary	600 Simon Way, Oxnard, Ca 93036	\$7,573,000
Education	Rio Real Elementary	1140 Kenney St., Oxnard, Ca 93036	\$9,191,000
Education	Rio Rosales	2001 Jacinto Dr., Oxnard, Ca 93030	\$8,247,000
Education	Rio School District Administration	2500 Vineyard Avenue, Oxnard, CA 93036	Unknown
Education	Rio School District Administration - Office of Students and Family Services	3300 Cortez Street, Oxnard, CA 93030	\$15,518,388
Education	Rio Vista School	3050 Thames River Drive, Oxnard, CA 93036	Unknown
Education	Robert J. Frank Intermediate	701 North Juanita Ave., Oxnard, Ca 93030	\$31,362,000
Education	Rose Avenue Elementary	220 South Driskill St., Oxnard, Ca 93030	\$20,026,000
Education	Royal High	1402 Royal Ave., Simi Valley , Ca 93065	\$78,739,000
Education	San Antonio Elementary	650 Carne Rd., Ojai, Ca 93023	\$2,236,000
Education	San Cayetano Elementary	514 Mountain View St., Fillmore, Ca 93016	\$13,170,000
Education	San Miguel Elementary	2400 South J St., Oxnard, Ca 93033	\$49,000
Education	Santa Clara Elementary	324 S E Street, Oxnard, Ca 93030	\$3,824,000
Education	Santa Clara Elementary School District Administration	20030 E. Telegraph Road, Santa Paula, CA 93060	Unknown
Education	Santa Paula Elementary District Maintenance Yard	607 E. Ventura Street, Santa Paula, CA 93060	Unknown



**Table V-1. Ventura County Office of Education, Total Critical Facilities and Infrastructure**

Category	Category	Category	Category
Education	Santa Paula Elementary Education Administration	201 S. Steckel Drive, Santa Paula, CA 93060	Unknown
Education	Santa Paula High School Administration	500 E. Santa Barbara Street, Santa Paula, CA 93060	Unknown
Education	Santa Paula Union High School	404 N. 6th Street, Santa Paula, CA 93060	\$42,457,000
Education	Santa Rosa Elementary (technology magnet)	13282 Santa Rosa Road, Camarillo, CA 93012	\$6,921,000
Education	Santa Susana Elementary	4300 Apricot Rd., Simi Valley , Ca 93063	\$8,112,000
Education	Santa Susana High	3570 East Cochran St., Simi Valley , Ca 93063	\$31,465,000
Education	Saticoy Elementary	760 Jazmin St., Saticoy, Ca 93004	\$6,876,000
Education	Sequoia Middle	2855 Borchard Rd., Newbury Park, Ca 91320	\$26,145,000
Education	Sespe Elementary	425 Orchard St., Fillmore, Ca 93016	\$14,766,000
Education	Sheridan Way Elementary	573 Sheridan Way, Ventura, Ca 93001	\$8,269,000
Education	Sierra High School (Alternative 9-12)	532 A. Street, Fillmore, CA 93016	\$692,000
Education	Sierra Linda Elementary	2201 Jasmine Ave., Oxnard, Ca 93030	\$15,013,000
Education	Simi Elementary	2956 School St., Simi Valley , Ca 93065	\$4,538,000
Education	Simi Valley High	5400 Cochran St., Simi Valley , Ca 93063	\$70,186,000
Education	Simi Valley Unified School District Administration	875 East Cochran Street, Simi Valley, CA 93065	Unknown
Education	Sinaloa Middle	601 Royal Ave., Simi Valley , Ca 93065	\$26,960,000
Education	Somis Academy Charter School	950 Flynn Rd., Camarillo, CA 93012	\$3,596,689
Education	Somis Elementary	5268 North St., Somis, Ca 93066	\$7,977,000
Education	Somis Union School District (and Home Study)	5268 North St., Somis, CA 93066	\$7,977,189
Education	Student Safety And Transit	1725 Deodora Street, Simi Valley , CA 93065	\$15,518,388
Education	Summit Elementary	12525 Ojai/santa Paula Rd., Ojai, Ca 93023	\$753,000
Education	Sunkist Elementary	1400 Teakwood St., Port Hueneme, Ca 93041	\$13,485,000
Education	Sunset Elementary	400 Sunset Ave., Oak View, Ca 93022	\$4,336,000
Education	Sycamore Canyon	4601 Via Rio, Newbury Park, Ca 91320	\$25,578,000
Education	Sycamore Elementary	2100 Ravenna St., Simi Valley , Ca 93065	\$6,921,000
Education	The High School At Moorpark College	7075 Campus Rd., Moorpark, Ca 93021	\$1,625,000

**Table V-1. Ventura County Office of Education, Total Critical Facilities and Infrastructure**

Category	Category	Category	Category
Education	Thelma B. Bedell Elementary	1305 Laurel Rd., Santa Paula, Ca 93060	\$5,055,000
Education	Thousand Oaks High	2323 North Moorpark Rd., Thousand Oaks, Ca 91360	\$74,138,000
Education	Thurgood Marshall Elementary	2900 Thurgood Marshall Dr., Oxnard, Ca 93036	\$10,562,000
Education	Thurgood Marshall School	1975 Thurgood Mashall Drive, Oxnard, CA 93030	\$15,518,388
Education	Tierra Linda Elementary	1201 Wood Creek Rd, Camarillo, Ca 93012	\$12,630,000
Education	Tierra Vista Elementary	2001 Sanford St., Oxnard, Ca 93033	\$10,899,000
Education	Topa Topa Elementary	916 Mountain View Ave., Ojai, Ca 93023	\$8,112,000
Education	Township Elementary	4101 Township Ave., Simi Valley , Ca 93063	\$8,314,000
Education	University Charter School (shelter)	700 Temple Ave., Camarillo, CA 93010	Unknown
Education	University Elementary	2801 Atlas Dr., Thousand Oaks, Ca 91360	\$5,774,000
Education	University Preparation School At CSU Cha	550 Temple Ave., Camarillo, Ca 93010	\$7,618,000
Education	Valley Oak Charter	1872 Newbury Rd., Newbury Park, Ca 91320	\$2,767,000
Education	Valley View Middle	3347 Tapo St., Simi Valley , Ca 93063	\$32,830,000
Education	Ventura Adult Education School	5200 Valentine Rd., Ventura , CA 93003	\$15,518,388
Education	Ventura Charter School of Arts and Global Education	2060 Cameron Street, Ventura, CA 93001	Unknown
Education	Ventura College	4667 Telegraph Road, Ventura, CA 93003	Unknown
Education	Ventura County Community College District Administration	255 W. Stanley Avenue, Suite 150, Ventura, CA 93001	Unknown
Education	Ventura County Special Education	5189 Verdugo Way, Camarillo, Ca 93012	\$7,885,000
Education	Ventura High	2 North Catalina St., Ventura, Ca 93001	\$58,020,000
Education	Ventura Unified School District Administration	255 W.Stanley Avenue, Suite 100, Ventura, CA 93001	Unknown
Education	Vista Elementary	2175 Wisteria St., Simi Valley , Ca 93065	\$12,608,000
Education	Vista Real Charter High	401 South A St. Ste. 3, Oxnard, Ca 93032	\$1,418,000
Education	Walnut Canyon Elementary	280 Casey Rd., Moorpark, Ca 93021	\$11,439,000
Education	Walnut Elementary	581 Dena Dr., Newbury Park, Ca 91320	\$6,449,000

**Table V-1. Ventura County Office of Education, Total Critical Facilities and Infrastructure**

Category	Category	Category	Category
Education	Walnut Grove School	1350 Cherry Avenue, Simi Valley , CA 93065	\$15,518,388
Education	Warehouse And Transportation	514 West Wooley Road, Oxnard, CA 93033	\$15,518,388
Education	Weathersfield Elementary	3151 Darlington Dr., Thousand Oaks, Ca 91360	\$6,381,000
Education	Westlake Elementary	1571 East Potrero Rd., Westlake Village, Ca 91361	\$11,259,000
Education	Westlake High	100 North Lakeview Canyon Rd., Westlake Village, Ca 91362	\$63,825,000
Education	Westlake Hills Elementary	3333 Medicine Bow Ct., Westlake Village, Ca 91362	\$11,237,000
Education	White Oak Elementary	2201 Alscott Ave., Simi Valley , Ca 93063	\$10,248,000
Education	Wildwood Elementary	620 West Velarde Dr., Thousand Oaks, Ca 91360	\$5,797,000
Education	Will Rogers Elementary	316 Howard St., Ventura, Ca 93003	\$6,696,000
Education	Wood Ranch Elementary	455 Circle Knoll Dr., Simi Valley , Ca 93065	\$14,519,000

**Table V-2. Ventura County Office of Education, Summary of Impacts for Critical Facilities and Infrastructure**

<b>Hazard</b>	<b>No. of Critical Facilities and Infrastructure</b>	<b>% of Critical Facilities and Infrastructure</b>
Climate Change - Rising Tide	0	0.00%
Climate Change - Coastal Storm	5	1.93%
Dam Failure Inundation	136	52.51%
Earthquake Ground Shaking - Extreme	124	47.88%
Earthquake Ground Shaking - Violent	137	52.90%
Earthquake Ground Shaking - Severe	0	0.00%
Liquefaction	130	50.19%
Flood - 100 Year	14	5.41%
Flood - 500 Year	45	17.37%
Landslide Susceptibility Class VIII	2	0.77%
Landslide Susceptibility Class IX	0	0.00%
Landslide Susceptibility Class X	2	0.77%
Reduced Flood Risks Due to Levees	8	3.09%
Tsunami Evacuation Area - Phase 3	0	0.00%
Tsunami Evacuation Area - Max	2	0.77%
Wildfire - High	2	0.77%
Wildfire - Very High	30	11.58%

**Table V-3. Ventura County Office of Education, Human and Technical Resources for Hazard Mitigation**

Staff/Personnel Resources	Department or Agency	Principal Activities Related to Hazard Mitigation
Superintendent	Ventura County Office of Education	Oversees all efforts of VCOE
Facilities Director	Facilities Department	Oversees all facilities operations including the planning and oversight of new construction and renovation activities; development of short and long-range plans related to site acquisition and facilities usage; planning and coordinating all deferred maintenance projects and ongoing building and grounds maintenance activities; executing effective property management policies.
Facilities Lead	Facilities Department	Involved in all facilities operations including the planning and oversight of new construction and renovation activities; development of short and long-range plans related to site acquisition and facilities usage; planning and coordinating all deferred maintenance projects and ongoing building and grounds maintenance activities; executing effective property management policies.
Human Resources Director	Human Resources	Plans, coordinates, manages Certificated and Classified Personnel activities, and Risk Management/Safety functions
Director of Risk Management	VCSSFA	Coordinates Risk Management/Safety functions
Risk Manager	Human Resources	Assists with Risk Management/Safety functions
Director and Budget and Accounting Manager	Internal Business Services	Works cooperatively with school districts' staff to maximize available educational resources through efficient and effective utilization of funds.
Executive Director and Director, Fiscal Oversight & Accountability	School Business and Advisory Services	Provides services to enhance and promote sound fiscal management in the school districts throughout Ventura County through responsive technical and financial advisory services.
Technology Services	Technology Services	Provides centralized services to schools associated with the VCOE: networking internet services, computer software education, equipment acquisition, education technology and VCedNet.

**Table V-4. Ventura County Office of Education, Financial Resources for Hazard Mitigation**

Type	Subtype	Administrator	Purpose	Amount
<b>Local</b>	General Fund	Administrative & Fiscal Services Bureau	Program operations and specific projects.	Variable.
	General Obligation (GO) Bonds	Administrative & Fiscal Services Bureau	GO Bonds are appropriately used for the construction and/or acquisition of improvements to real property broadly available to residents and visitors. Such facilities include, but are not limited to, libraries, hospitals, parks, public safety facilities, and cultural and educational facilities.	Variable.
	Lease Revenue Bonds	Administrative & Fiscal Services Bureau	Lease revenue bonds are used to finance capital projects that (1) have an identified budgetary stream for repayment (e.g., specified fees, tax receipts, etc.), (2) generate project revenue but rely on a broader pledge of general fund revenues to reduce borrowing costs, or (3) finance the acquisition and installation of equipment for the local jurisdiction's general governmental purposes.	Variable.
	Public-Private Partnerships	Administrative & Fiscal Services Bureau	Includes the use of local professionals, business owners, residents, and civic groups and trade associations, generally for the study of issues and the development of guidance and recommendations.	Project-specific.
<b>Federal</b>	Hazard Mitigation Grant Program (HMGP)	Federal Emergency Management Agency (FEMA)	Supports pre- and post-disaster mitigation plans and projects.	Available to California communities after a Presidentially declared disaster has occurred in California. Grant award based on specific projects as they are identified by eligible applicants.

**Table V-4. Ventura County Office of Education, Financial Resources for Hazard Mitigation**

Type	Subtype	Administrator	Purpose	Amount
<b>Federal (cont.)</b>	Pre-Disaster Mitigation (PDM) grant program	FEMA	Supports pre-disaster mitigation plans and projects.	Available on an annual basis as a nationally competitive grant. Grant award based on specific projects as they are identified (no more than \$3M federal share for projects).
	Flood Mitigation Assistance (FMA) grant program	FEMA	Mitigates repetitively flooded structures and infrastructure.	Available on an annual basis, distributed to California communities by the California Governor's Office of Emergency Services (Cal OES). Grant award based on specific projects as they are identified.
	Community Action for a Renewed Environment (CARE)	U.S. Environmental Protection Agency (EPA)	Through financial and technical assistance offers an innovative way for a community to organize and take action to reduce toxic pollution (i.e., stormwater) in its local environment. Through CARE, a community creates a partnership that implements solutions to reduce releases of toxic pollutants and minimize people's exposure to them.	Competitive grant program. Grant award based on specific projects as they are identified.
	Department of Health and Human Services' (HHS') Centers for Disease Control and Prevention (CDC)	Funds are intended to upgrade state and local public health jurisdictions' preparedness and response to bioterrorism, outbreaks of infectious diseases, and other public health threats and emergencies.	Competitive grant program. Grant award based on specific projects as they are identified. Madera would participate through the County's Public Health Department.	Public Health Emergency Preparedness (PHEP) Cooperative Agreement.



**Table V-4. Ventura County Office of Education, Financial Resources for Hazard Mitigation**

Type	Subtype	Administrator	Purpose	Amount
<b>Federal (cont.)</b>	Homeland Security Preparedness Technical Assistance Program (HSPTAP)	FEMA/DHS	Build and sustain preparedness technical assistance activities in support of the four homeland security mission areas (prevention, protection, response, recovery) and homeland security program management.	Technical assistance services developed and delivered to state and local homeland security personnel. Grant award based on specific projects as they are identified.

**Table V-5. Ventura County Office of Education, Legal and Regulatory Resources for Hazard Mitigation**

Regulatory Tool	Name	Description (Effect on Hazard Mitigation)	Hazards Addressed	Mitigation, Preparedness, Response, or Recovery	Affects Development in Hazard Areas?
<b>Board Policy/ Regulations</b>	Board Policies	N/A	N/A	N/A	N/A
	Administrative Regulations	N/A	N/A	N/A	N/A

**Table V-6. Ventura County Office of Education, Current and Completed Hazard Mitigation Projects and Programs**

Status (Current or Complete)	Project / Program Name	Description	Year(s)
Unknown	Stabilize landslide/liquefaction-prone areas	Stabilize landslide/liquefaction-prone areas through stability improvement measures, including interceptor drains, in situ soil piles, drained earth buttresses, and subdrains.	Unknown
Unknown	Floodproof critical facilities	Acquire, relocate, elevate, and/or floodproof critical facilities located within the 100-year floodplain.	Unknown
Unknown	Seismic retrofit	Seismic non-structural and structural retrofit of critical facilities and infrastructure.	Unknown
Unknown	Tsunami Ready Program	Participate in the NOAA Tsunami Ready Program.	Unknown
Unknown	Fuel Reduction Program	Implement a fuel reduction program, such as the collection and disposal of dead fuel, within open spaces and around critical facilities located within a SRA or LRA high or very high wildfire zone.	Unknown

**Table V-7. Ventura County Office of Education, Potential Mitigation Actions**

No.	Description	Hazard	Mitigation Category	New or Existing Construction
OA 1	Integrate the hazard analysis and mitigation strategy into the General Plan's Safety Element.	All	Local Plans and Regulations	Not Applicable
OA 2	Ensure that existing monitoring capabilities at the state and County level are integrated to provide an early warning of increased or new infestations.*	Agricultural (Insect Pests/Invasive Species)	Natural Systems Protection	Not Applicable
OA 3	Implement an infestation public awareness and educational campaign.	Agricultural (Insect Pests/Invasive Species)	Education and Awareness	Not Applicable
OA 4*	Relocate or reinforce bike trails, parking lots and other beach access amenities away from the shoreline to restore the beach/shoreline in sea-level rise/coastal erosion areas.	Climate Change	Natural Systems Protection	Existing
OA 5*	Restore habitat and improve flood protection for low-lying areas by employing innovative techniques such as constructing levees coupled with gently sloping tidal marshes to help protect from storm wave action and tidal surge.	Climate Change	Natural Systems Protection	New/Existing
OA 6	Develop a public outreach program that informs property owners located in the dam and levee failure inundation areas about voluntary flood insurance.	Dam and Levee Failure Inundation	Education and Awareness	Existing
OA 7	Develop a water conservation public outreach program to increase awareness about the drought, fines and penalties for overuse and solutions for conserving water.	Drought	Education and Awareness	New/Existing
OA 8	Adopt emergency water conservation measures and/or water conservation ordinance to limit irrigation.	Drought	Local Plans and Regulations	New/Existing
OA 9	Identify potentially vulnerable public and private utility systems including electric, gas, oil, water, sewer and communication. Upgrade vulnerable systems to ensure the operation and timely restoration of essential systems to reasonable levels of service.	Earthquake	Structure and Infrastructure Projects	New/Existing
OA 10	Seismically retrofit or upgrade seismically deficient government facilities and pre-identified shelter facilities.	Earthquake	Structure and Infrastructure Projects	Existing

**Table V-7. Ventura County Office of Education, Potential Mitigation Actions**

No.	Description	Hazard	Mitigation Category	New or Existing Construction
OA 11	Develop and implement plans to increase the building owner's general knowledge of and appreciation for the value of seismic upgrading of the building's structural and nonstructural elements.	Earthquake	Local Plans and Regulations & Awareness and Education	Existing
OA 12	Increase participation in the NFIP by entering the Community Rating System program which through enhanced floodplain management activities would allow property owners to receive a discount on their flood insurance.	Flood	All	New/Existing (Residential structures and critical facilities which are located within the 100-year floodplain)
OA 13*	Reinforce roads/bridges from flooding through protection activities, including elevating the roads/bridges and installing/widening culverts beneath the roads/bridges or upgrading storm drains.	Flood	Structure and Infrastructure Projects	Existing
OA 14*	Acquire, relocate, or elevate residential structures, in particular those that have been identified as RL properties, within the 100-year floodplain.	Flood	Structure and Infrastructure Projects	Existing
OA 15	Work with FEMA Region 9 to address any floodplain management issues that may have arisen/arise from the countywide DFIRM, Community Assessment Visits, and/or DWR.	Flood	Local Plans and Regulations	Not Applicable
OA 16*	Implement landslide stabilization and/or protection measures. Stabilization measures include grading the unstable portion of the slope to a lower gradient, construction of rock buttresses and retaining walls, and drainage improvements. Protection measures include containment and/or diversion of the moving debris, such as walls, berms, ditches and catchment basins.	Landslide	Structure and Infrastructure Projects, Natural Systems Protection	New/Existing
OA 17	Implement post-fire debris flow hillslope and channel treatments, such as seeding, mulching, check dams, and debris racks, as needed.	Post-Fire Debris Flow	Natural Systems Protection	New/Existing

**Table V-7. Ventura County Office of Education, Potential Mitigation Actions**

No.	Description	Hazard	Mitigation Category	New or Existing Construction
OA 18*	Continue to participate in the NWS TsunamiReady Program through continued implementation of Guideline 4: Community Preparedness measures, including public outreach material and curriculum.	Tsunami	Awareness and Education	Not Applicable
OA 19	Create a new vegetation management program that provides vegetation management services to elderly, disabled, or low-income property owners who lack the resources to remove flammable vegetation from around their homes.	Wildfire	Awareness and Education, Natural Systems Protection	Existing (Residential buildings in high wildfire severity zones)
OA 20	Implement a fuel modification program for new construction by requiring builders and developers to submit their plans, complete with proposed fuel modification zones, to the local fire department for review and approval prior to beginning construction.	Wildfire	Local Plans and Regulations	New (Residential and non-residential buildings located within high wildfire severity zones)
OA 21*	Develop a hazards fuel treatment program for areas that have been identified with overgrown/dead brush/trees to reduce the potential for tree-to-tree ignition. Ensure that a “maintenance now” component to provide continued fire resistance is part of the program.	Wildfire	Natural Systems Protection	New/Existing
OA 22	Develop a vegetation management program in areas within and adjacent to rights-of-way and in close proximity to critical facilities to reduce the risk of tree failure and property damage and avoid creation of wind acceleration corridors within vegetated areas.	Winter Storm	Awareness and Education, Natural Systems Protection	New/Existing
VCOE 1	Convert high water volume landscape to native and other drought tolerant plants, hardscape, and synthetic turf in non-play areas	Drought	Natural Systems Protection	N/A

\* Recent/current FEMA, NWS and California Coastal Conservancy grant projects (nationwide)

OA = Overarching

VCOE = Ventura County Office of Education (potential mitigation action is specific to Ventura County Office of Education)

**Table V-8. Ventura County Office of Education, Mitigation Action Plan**

No.	Description	Facility to be Mitigated (if Known and/or Applicable)	Funding Source	Department or Agency	Timeframe (0-5 Years)
OA 1	Integrate the hazard analysis and mitigation strategy into the General Plan's Safety Element.	VCOE and all districts	Not Applicable	Ventura County Office of Education	1 – 2 years
OA 8	Adopt emergency water conservation measures and/or water conservation ordinance to limit irrigation.	VCOE and all districts	Not Applicable	Ventura County Office of Education, Facilities Department	1 – 2 years
OA 11	Develop and implement plans to increase the building owner's general knowledge of and appreciation for the value of seismic upgrading of the building's structural and nonstructural elements.	VCOE and all districts	HMGP, PDM	Ventura County Office of Education, Facilities Department	1 – 5 years
OA 21*	Develop a hazards fuel treatment program for areas that have been identified with overgrown/dead brush/trees to reduce the potential for tree-to-tree ignition. Ensure that a "maintenance now" component to provide continued fire resistance is part of the program.	School Districts: Conejo Valley Unified; Fillmore Unified; Moorpark Unified; Mupu Elementary; Ojai Unified; Pleasant Valley; Simi Valley Unified; Ventura Unified Ventura County Office of Education	HMGP, PDM	Ventura County Office of Education, Facilities Department	1 – 5 years
VCOE 1	Convert high water volume landscape to native and other drought tolerant plants, hardscape, and synthetic turf in non-play areas	VCOE and all districts	HMGP, PDM	Ventura County Office of Education, Facilities Department	1 – 5 years

HMGP = Hazard Mitigation Grant Program

PDM = Pre-Disaster Mitigation grant program

The Hazard Mitigation Assistance (HMA) Program requirements were used to guide choice of mitigation actions:

- Mitigation Planning
- Technical Feasibility and Effectiveness
- Floodplain Management and Protection of Wetlands
- Environmental Planning and Historic Review and Compliance
- Cost Effectiveness
- Cost Review
- General Program Requirements

*This page intentionally left blank*



## Appendix W

Ventura County Watershed Protection District

*This page intentionally left blank*

**Table W-1. Ventura County Watershed Protection District, Total Critical Facilities and Infrastructure**

Category	Category	Category	Category
Public Utility	Adams Barranca Debris Basin	Latitude and Longitude Coordinates	Unknown
Public Utility	Alamo Mountain (AOMC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Arielle Detention Basin	Latitude and Longitude Coordinates	Unknown
Public Utility	Arroyo Las Posas above Hitch Blvd (AYOC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Arroyo Simi at Madera (ASNC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Arroyo Simi at Royal Ave (ASJC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Arroyo Simi below Stow St (ASWC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Arroyo Tapo at Walnut (ARTC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Arundell Barranca Dam & Debris Basin	Latitude and Longitude Coordinates	Unknown
Public Utility	Beardsley Slough (BDHC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Borracho Saddle (BHOC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Callegaus Creek at Hwy 101 (CGUC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Calleguas Creek at CSUCI (CLLC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Camarillo - Adohr (Sanitation Plant) (CDHC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Camarillo - Pacific Sod (CSDC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Camarillo - Upland (CUPC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Camrosa Water District (CMJC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Canada Larga - Verde Canyon (CNDC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Canada Larga (CDGC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Casitas Dam (LCAC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Castro - Williams Debris Basin	Latitude and Longitude Coordinates	Unknown
Public Utility	Cavin Road Debris Basin	Latitude and Longitude Coordinates	Unknown
Public Utility	Choro Grande (COOC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Circle X Ranch (CRXC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Conejo Creek above Hwy 101 (CNJC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Conejo Creek at Ridge View (CJRC1)	Latitude and Longitude Coordinates	\$20,000

**Table W-1. Ventura County Watershed Protection District, Total Critical Facilities and Infrastructure**

Category	Category	Category	Category
Public Utility	Conejo Mountain Creek #1 Detention Basin	Latitude and Longitude Coordinates	Unknown
Public Utility	Conejo Mountain Creek #2 Detention Basin	Latitude and Longitude Coordinates	Unknown
Public Utility	Conejo Mountain Creek #3 Detention Basin	Latitude and Longitude Coordinates	Unknown
Public Utility	Conejo Mountain Creek #4 Detention Basin	Latitude and Longitude Coordinates	Unknown
Public Utility	Conejo Mountain Creek #5 Detention Basin	Latitude and Longitude Coordinates	Unknown
Public Utility	Covington Detention Basin	Latitude and Longitude Coordinates	Unknown
Public Utility	Coyote Canyon Debris Basin	Latitude and Longitude Coordinates	Unknown
Public Utility	Coyote Creek near Oak View (CYOC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Crestview Debris Basin	Latitude and Longitude Coordinates	Unknown
Public Utility	Deals Flat (DEAC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Dent Debris Basin	Latitude and Longitude Coordinates	Unknown
Public Utility	Detention Basin Site No. "0"	Latitude and Longitude Coordinates	Unknown
Public Utility	Dos Vientos-S Protrero Rd Debris/Detention/NPDES Basin	Latitude and Longitude Coordinates	Unknown
Public Utility	Edgemore Debris Basin	Latitude and Longitude Coordinates	Unknown
Public Utility	El Rio Spreading Grounds (ELRC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Ellsworth Barranca (TDBC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Erringer Detention Basin	Latitude and Longitude Coordinates	Unknown
Public Utility	Erringer Road Debris Basin	Latitude and Longitude Coordinates	Unknown
Public Utility	Fagan Canyon Debris Basin	Latitude and Longitude Coordinates	Unknown
Public Utility	Fagan West (FGWC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Ferro Debris Basin	Latitude and Longitude Coordinates	Unknown
Public Utility	Fillmore Fish Hatchery (FFHC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Fillmore Sanitation (FTTC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Fox Barranca Debris Basin	Latitude and Longitude Coordinates	Unknown
Public Utility	Franklin Barranca (/Wasson) Debris Basin	Latitude and Longitude Coordinates	Unknown

**Table W-1. Ventura County Watershed Protection District, Total Critical Facilities and Infrastructure**

Category	Category	Category	Category
Public Utility	Freeman Diversion Pool ( )	Latitude and Longitude Coordinates	\$20,000
Public Utility	Freeman Diversion Wier (SRFC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Gabbert Canyon Debris Basin	Latitude and Longitude Coordinates	Unknown
Public Utility	Happy Camp Canyon (HCPC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Home Acres - Hitch Blvd (AYOC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Honda West Debris Basin	Latitude and Longitude Coordinates	Unknown
Public Utility	Hopper Creek at Hwy 126 (HPPC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Hopper Mountain (HRCC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	J Street Drain (JSRC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Jepson Wash Debris Basin	Latitude and Longitude Coordinates	Unknown
Public Utility	La Conchita / Seacliff (LCTC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	La Granada Mountain (LGRC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Lake Bard ( )	Latitude and Longitude Coordinates	\$20,000
Public Utility	Lake Casitas Dam (LKCC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Lake Sherwood Fire Station (LSWC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Lang Ranch (LANC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Las LLajas Canyon Dam	Latitude and Longitude Coordinates	Unknown
Public Utility	Las Llajas Cayon (LLDC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Las Llajas Dam (LLCC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Las Posas Estates Debris Basin	Latitude and Longitude Coordinates	Unknown
Public Utility	Las Posas Estates Detention Basin	Latitude and Longitude Coordinates	Unknown
Public Utility	Last Chance (LSTC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Line "C"-Arroyo Simi Detention Basin	Latitude and Longitude Coordinates	Unknown
Public Utility	Live Oak Creek Diversion Dam	Latitude and Longitude Coordinates	Unknown
Public Utility	Lockwood Valley Yard (LOKC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Matilija Canyon (MJCC1)	Latitude and Longitude Coordinates	\$20,000

**Table W-1. Ventura County Watershed Protection District, Total Critical Facilities and Infrastructure**

Category	Category	Category	Category
Public Utility	Matilija Creek at Matilija Hot Springs (MJHC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Matilija Dam	Latitude and Longitude Coordinates	Unknown
Public Utility	Matilija Dam Weather Station (MJDC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	McDonald Canyon Detention Basin	Latitude and Longitude Coordinates	Unknown
Public Utility	Meiners Oaks Fire Station (MOKC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Moorpark - County Yard (MORC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Mount Sinai Detention Basin "A"	Latitude and Longitude Coordinates	Unknown
Public Utility	Muirfield Detention Basin	Latitude and Longitude Coordinates	Unknown
Public Utility	Newbury Park Fire Station (BEAC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	North Fork Matilija Creek (NFMC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Oak View Fire Station (MOKC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Ojai Summit Fire Station (OJSC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Old Man Mountain (OLDC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Ortega Hill (ORTC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Oxnard Civic Center (OXDC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Oxnard NWS (LOXC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Peach Hill Wash Detention Basin	Latitude and Longitude Coordinates	Unknown
Public Utility	Piedra Blanca (PIDC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Pine Mountain Inn (PIMC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Piru - LA / Ventura County Line (PCIC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Piru - Temescal Guard Station ( )	Latitude and Longitude Coordinates	\$20,000
Public Utility	Piru Canyon (PCQC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Pole Creek (POCC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Port Hueneme - Oxnard Sanitation (OXTC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Potrero Creek Sediment Basin	Latitude and Longitude Coordinates	Unknown
Public Utility	Pyramid Lake Visitors Center (PYLC1)	Latitude and Longitude Coordinates	\$20,000

**Table W-1. Ventura County Watershed Protection District, Total Critical Facilities and Infrastructure**

Category	Category	Category	Category
Public Utility	Ramona Dam & Debris Basin	Latitude and Longitude Coordinates	Unknown
Public Utility	Rancho Sierra Vista - Big Sycamore Canyon (BGSC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Real Wash Debris Basin	Latitude and Longitude Coordinates	Unknown
Public Utility	Retention Basin - North of Hwy 126	Latitude and Longitude Coordinates	Unknown
Public Utility	Revolon Slough (RSVC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Rocky Peak (ROCC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Rose Valley (RSVC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Rudolph Detention Basin	Latitude and Longitude Coordinates	Unknown
Public Utility	Runkle Canyon Detention Basin	Latitude and Longitude Coordinates	Unknown
Public Utility	Sage Ranch (SGQC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	San Antonio Creek at Hwy 33 (SIOC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	San Antonio Creek at Old Creek Road (SOTC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	San Antonio Creek Debris Basin	Latitude and Longitude Coordinates	Unknown
Public Utility	Santa Ana Creek near Oak View (AFIC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Santa Clara River at Freeman Diversion (ALERT) Stream Gage	Latitude and Longitude Coordinates	Unknown
Public Utility	Santa Clara River at Victoria Ave (VCAC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Santa Felicia Dam (LKPC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Santa Paula Creek - Ferndale Ranch (FDLC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Santa Paula Creek near Santa Paula (SPPC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Santa Paula-Wilson Ranch (WLRC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Santa Rosa Road #2 Debris Basin	Latitude and Longitude Coordinates	Unknown
Public Utility	Santa Rosa Valley - Basin 2 (SVVC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Santa Susanna (ASIC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Saticoy Yard (SYUC1)	Latitude and Longitude Coordinates	\$20,000



**Table W-1. Ventura County Watershed Protection District, Total Critical Facilities and Infrastructure**

Category	Category	Category	Category
Public Utility	SCS Structure: C 15 f 1.2 (Fasshauer Est. R/W)	Latitude and Longitude Coordinates	Unknown
Public Utility	SCS Structure: C 17 d 1.3 (Brooker-Fox Barranca R/W)	Latitude and Longitude Coordinates	Unknown
Public Utility	Senior/Gridley Canyon (SGRC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Sespe - Topa Topa (TTSC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Sespe Creek - Grand Ave (SSPC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Sespe Creek above Bear Creek (SBXC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Sespe Creek East (SSEC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Sespe Creek West (SSXC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Sespe Westates (SWAC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Sexton Canyon (SEXC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Silverstrand (SVDC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Simi Sanitation (ASMC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Sisar North (SSRC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Somis - Deboni (DBNC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Somis - Fuller (LCYC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	South Branch Arroyo Conejo (SBJC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	South Branch Arroyo Conejo Debris Basin	Latitude and Longitude Coordinates	Unknown
Public Utility	South Mountain (SMPC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	South Mountain East (SMEC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	South Mountain West (SMNC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Spanish Hills - Las Posas Reservoir (LPAC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	St. Johns Debris Basin	Latitude and Longitude Coordinates	Unknown
Public Utility	Station Canyon (SAYC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Stewart Canyon (STWC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Stewart Canyon Creek Debris Basin	Latitude and Longitude Coordinates	Unknown

**Table W-1. Ventura County Watershed Protection District, Total Critical Facilities and Infrastructure**

Category	Category	Category	Category
Public Utility	Sulphur Mountain (SULC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Sycamore Canyon Dam	Latitude and Longitude Coordinates	Unknown
Public Utility	Sycamore Canyon Dam (SYDC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Sycamore Detention Basin	Latitude and Longitude Coordinates	Unknown
Public Utility	Tapo Canyon (TCNC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Tapo Hills No. 1 Debris Basin	Latitude and Longitude Coordinates	Unknown
Public Utility	Tapo Hills No. 2 Debris Basin	Latitude and Longitude Coordinates	Unknown
Public Utility	Thacher Creek at Boardman Road (THCC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Thousand Oaks Civic Center (THOEC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Tommys Creek (TMYC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Tripas Canyon (TRIC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Upper Matilija (MTJC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Ventura - City Hall (VTHC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Ventura County Government Center (VTUC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Ventura River at Foster Park (VRVC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Ventura River at Santa Ana Blvd (VTRC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Warring Canyon Debris Basin	Latitude and Longitude Coordinates	Unknown
Public Utility	West Camarillo Hills East Branch Debris Basin	Latitude and Longitude Coordinates	Unknown
Public Utility	West Camarillo Hills West Branch Debris Basin	Latitude and Longitude Coordinates	Unknown
Public Utility	Wheeler Canyon (WEHC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	Wheeler Gorge (WGWC1)	Latitude and Longitude Coordinates	\$20,000
Public Utility	White Ledge Peak (WLPC1)	Latitude and Longitude Coordinates	\$20,000
Transportation	Matilija Rd Bridge	Latitude and Longitude Coordinates	\$567,745

**Table W-2. Ventura County Watershed Protection District, Summary of Impacts for Critical Facilities and Infrastructure**

Hazard	No. of Critical Facilities and Infrastructure	% of Critical Facilities and Infrastructure
Climate Change - Rising Tide	0	0.00%
Climate Change - Coastal Storm	4	2.29%
Dam Failure Inundation	52	29.71%
Earthquake Ground Shaking - Extreme	57	32.57%
Earthquake Ground Shaking - Violent	116	66.29%
Earthquake Ground Shaking - Severe	0	0.00%
Liquefaction	67	38.29%
Flood - 100 Year	47	26.86%
Flood - 500 Year	10	5.71%
Landslide Susceptibility Class VIII	6	3.43%
Landslide Susceptibility Class IX	24	13.71%
Landslide Susceptibility Class X	16	9.14%
Reduced Flood Risks Due to Levees	2	1.14%
Tsunami Evacuation Area - Phase 3	3	1.71%
Tsunami Evacuation Area - Max	3	1.71%
Wildfire - High	6	3.43%
Wildfire - Very High	75	42.86%

**Table W-3. Ventura County Watershed Protection District, Human and Technical Resources for Hazard Mitigation**

Staff/Personnel Resources	Department or Agency	Principal Activities Related to Hazard Mitigation
Engineers, construction project managers, and supporting technical staff.	Watershed Protection District: Design & Construction	Provides direct or contract civil, structural, and mechanical engineering services, including contract, project, and construction management.
Engineer(s), project manager(s), technical staff, equipment operators, and maintenance and construction staff.	Watershed Protection District: Operations & Maintenance	Maintains and operates of a wide range of local equipment and facilities as well as providing assistance to members of the public. These include providing sufficient clean fresh water, reliable sewer services, street maintenance, storm drainage systems, street cleaning, street lights and traffic signals.
Floodplain Manager	Watershed Protection District: Advance Planning	Reviews and ensures that new development proposals do not increase flood risk, and that new developments are not located below the 1% annual chance (100 year) base flood elevation. In addition, the Floodplain Administrator is responsible for planning and managing flood risk reduction projects throughout the local jurisdiction.
Levee Certification Manager	Watershed Protection District: Strategic Decision Support Group	Oversees activities and projects, including project management direction to contract civil and structural engineering firms, necessary to obtain Federal Emergency Management Agency (FEMA) accreditation and meet U.S. Corps of Engineers (USACE) certification of levees in Ventura County as in compliance with the Federal levee certification requirements found in 44 CFR 65.10.

**Table W-4. Ventura County Watershed Protection District, Financial Resources for Hazard Mitigation**

Type	Subtype	Administrator	Purpose	Amount
<b>Local</b>	WPD/Property Tax, Benefit Assessment, Land Development fees, General Fund	Watershed Protection District Director	Program operations and specific projects. IWPP/CIP	Variable.
<b>Federal</b>	Hazard Mitigation Grant Program (HMGP)	Federal Emergency Management Agency (FEMA)	Supports pre- and post-disaster mitigation plans and projects.	Available to California communities after a Presidentially declared disaster has occurred in California. Grant award based on specific projects as they are identified by eligible applicants.
	Pre-Disaster Mitigation (PDM) grant program	FEMA	Supports pre-disaster mitigation plans and projects.	Available on an annual basis as a nationally competitive grant. Grant award based on specific projects as they are identified (no more than \$3M federal share for projects).
	Flood Mitigation Assistance (FMA) grant program	FEMA	Mitigates repetitively flooded structures and infrastructure.	Available on an annual basis, distributed to California communities by the California Governor's Office of Emergency Services (Cal OES). Grant award based on specific projects as they are identified.
	Community Development Block Grant Program Entitlement Communities Grants (Repetitive Loss Properties)	U.S. HUD (U.S. Department of Housing and Urban Development)	Acquisition of real property, relocation and demolition, rehabilitation of residential and non-residential structures, construction of public facilities and improvements, such as water and sewer facilities, streets, neighborhood centers, and the conversion of school buildings for eligible purposes.	Available to entitled cities. Grant award based on specific projects as they are identified.
	Homeland Security Preparedness Technical Assistance Program (HSPTAP)	FEMA/DHS	Build and sustain preparedness technical assistance activities in support of the four homeland security mission areas (prevention, protection, response, recovery) and homeland security program management.	Technical assistance services developed and delivered to state and local homeland security personnel. Grant award based on specific projects as they are identified.

**Table W-5. Ventura County Watershed Protection District, Legal and Regulatory Resources for Hazard Mitigation**

<b>Regulatory Tool</b>	<b>Name</b>	<b>Description (Effect on Hazard Mitigation)</b>	<b>Hazards Addressed</b>	<b>Mitigation, Preparedness, Response, or Recovery</b>	<b>Affects Development in Hazard Areas?</b>
<b>Plans</b>	General Plan: Hazards Appendix (October 12, 2013)	Describes hazard areas and regulates current and future development based on known hazard areas.	Fault Rupture, Ground Shaking, Liquefaction, Seiche, Tsunami, Landslides/Mudslides, Subsidence, Expansive Soils, Floods, Inundation from Dam Failure, Coastal Wave and Beach Erosion, Fire Hazards, Transportation Related Hazards, Hazardous Materials and Waste, Noise and Civil Disturbance	Mitigation & Preparedness	Yes
	Integrated Watershed Protection Plan (2005)	Provides a systematic process for the inclusion of projects into the District's Capital Improvement Plan over its five-year planning period. Designed to improve the long-range District planning process for the 20-year period subsequent to the Capital Improvement Plan by allocating projected revenues to identified projects. Also provides a Level-of-Service evaluation that identifies the need for additional project funding to achieve desired flooding mitigation goals.	Floods, Post fire debris flow Levee failure, dam failure	Mitigation & Preparedness	Yes
<b>Policies</b>	Stormwater Quality Management Program (SWQMP)	Describes measures that the local jurisdiction will take to minimize stormwater pollution. The SWQMP is required by the National Pollutant Discharge Elimination System Phase II regulations, which became effective in March 2003.	Stormwater	Mitigation & Preparedness	Yes

**Table W-5. Ventura County Watershed Protection District, Legal and Regulatory Resources for Hazard Mitigation**

Regulatory Tool	Name	Description (Effect on Hazard Mitigation)	Hazards Addressed	Mitigation, Preparedness, Response, or Recovery	Affects Development in Hazard Areas?
<b>Policies (cont.)</b>	Code of Ordinances	The purpose of this code is to establish the minimum requirements to safeguard the public health, safety, and general welfare through structural strength, means of egress facilities, stability, access to persons with disabilities, sanitation, adequate lighting and ventilation and energy conservation, and safety to life and property from fire and other hazards attributed to the built environment; to regulate and control the demolition of all buildings and structures, and for related purposes.	Floods, Dam Failure	Mitigation, Preparedness, and Response	Yes
	Ventura County Watershed Protection District Policies and Procedures Manual	The purpose of this Policies and Procedures Manual is to serve as a framework for the programs, functions, and activities undertaken by the District including flood control, floodplain management, levee maintenance, and watercourse permit condition compliance. This manual also serves a guide to decision making, prescribes limits and assigns responsibilities within the District, and ensures that the District's goals, objectives, vision and mission are achieved.	Floods, groundwater protection, sedimentation and erosion management, levee failure, post-fire debris flows	Mitigation, Preparedness, Response, Recovery	Yes
	Levee Protection Policy	The purpose of this Policy is to ensure that new levees that are constructed or accepted by the District are designed to the standards contained in the District's Design Manual (Policy No. III-1) and the Design Storm Standard (Policy No.III-4). The Policy addresses the direction that levees that meet FEMA requirements are to be certified by, or for, the District and submitted to FEMA for accreditation.	Floods, Levee Failure	Mitigation, Preparedness, and Response	Yes



**Table W-6. Ventura County Watershed Protection District, Current and Completed Hazard Mitigation Projects and Programs**

Status (Current or Complete)	Project/Program Name	Description	Years
Complete	Camarillo Hills Drain - Rosewood Ave. to Lantana Street	Replace the existing damaged inadequate trapezoidal channel and culvert from downstream of Rosewood Ave. to Lantana St. with new rectangular RC channel and box culvert. Objective is prevent flooding and provide 100-yr flood protection for the adjacent res	2009-2010
Complete	Zone 1 Underground Pipeline Repairs	Fix underground pipes	2009
Complete	Santa Clara River Bendway Weir Field	Reconstruct and upgrade four existing groins on the south bound bank of the Santa Clara River that have been damaged as a result of previous large storm flows. The objective is to protect adjacent properties from bank erosion.	2010-2012
Complete	Arielle And Muirfield DB Repairs	Basin Repairs and acceptance from RWR SETTLEMENT agreement.	2010
Complete	Arroyo Santa Rosa (ASR-2) Levee Improvements	Construction of improvements to the ASR-2 levee required to meet levee certification requirements.	2010
Complete	Real Debris Basin 2010 Modifications	Replace the existing riser and outlet conduit and modify the existing emergency spillway to provide capacity for the undetained 100-year storm flow with required freeboard. Project objective is to upgrade existing dam to meet District design criteria.	2010-2011
Complete	Waverly Channel 2010 Emergency Repairs	The project consists of the removal of 300 feet of damaged unreinforced concrete trapezoidal channel and replacing it with concreted rock riprap.	2010-2011
Complete	Jepson Wash Debris Basin Spillway Retrofit	Excavate to required debris capacity, construct a new riser and modify the emergency spillway to pass the undetained 100-year storm flow with required freeboard. Project objective is to upgrade existing dam to meet District design criteria.	2011

**Table W-6. Ventura County Watershed Protection District, Current and Completed Hazard Mitigation Projects and Programs**

Status (Current or Complete)	Project/Program Name	Description	Years
Complete	Calleguas Creek - Pleasant Valley to Hwy 101-West Bank	Reconstruct the existing under capacity channel to provide 100-yr flood protection to adjacent properties. Project will include reconstruction of two drop structures, lowering the creek and armoring the west bank with soil cement and rock riprap.	2011-2012
Complete	Dent Canyon Basin Retrofit	Modify outlet pipe and emergency spillway of the existing debris basin. Objective is to bring the basin outlet facilities up to District standards.	2011
Complete	Oxnard West Drain 2011 Channel Repairs	The repair of damaged sections of invert and slope protection by removal and replacement of the existing concrete lining.	2011
Complete	Mission Drain 2011 Channel Repairs	The repair of damaged sections of invert and slope protection of concrete trapezoidal channel by removal and replacement of the existing concrete lining.	2011-2012
Complete	Arroyo Simi D/S of Erringer Road 2011 Drop Structure Repairs	The repair of damaged reinforced concrete drop structure, including steel cap and concreted rock riprap.	2011
Complete	Arroyo Simi D/S of Madera Road 2011 Stabilizer Repairs	The repair of a damaged concreted rock riprap stabilizer with in-kind materials.	2011-2012
Complete	Sespe Creek Levee 2012 Rock Reventment Repair	Design and construct rock riprap slope protection improvements for sections of levee identified as deficient in the Corps of Engineer Periodic Inspection Report on east bank of the Sespe Creek from Hwy 126 to Goodenough Road.	2012

**Table W-6. Ventura County Watershed Protection District, Current and Completed Hazard Mitigation Projects and Programs**

Status (Current or Complete)	Project/Program Name	Description	Years
Complete	Camarillo Hills Drain - Lantana St. to Carmen Drive	Replace the existing damaged inadequate trapezoidal channel and culvert from Lantana St. to upstream of Carmen Drive with new rectangular RC channel and box culvert. Objective is prevent flooding and provide 100-yr flood protection for the adjacent homes.	2012-2013
Complete	Barlow and Arundell Barrancas Culvert Lining at Hwy 101	Construct concrete lining of Arundell Barranca and Barlow Barranca culverts under Hwy 101 to improve flood capacity.	2012
Complete	Calleguas Creek - Pleasant Valley to Hwy 101 - East Bank	Reconstruct the existing under capacity channel to provide 100-yr flood protection to adjacent properties. Project will include reconstruction and armoring of the east bank with soil cement and rock riprap.	2012-2013
Complete	Oxnard W. and W. Wooley Rd Drains Channel Repairs	Repair damaged sections of invert and slope protection or channel walls by removal and replacement of the existing concrete lining.	2012-2013
Complete	Camarillo Hills Drain Invert Restoration	Objective of this project is to restore the channel invert elevations to original grade. In addition, periodic loose rock riprap grade control structures crossing the channel are planned to be installed to maintain design grade.	2013
Complete	Arundell Barranca Channel Repairs - UPRR to Main St.	Construct channel repairs from UPRR to Main Street to extend the usefull life of the existing deteriorating facility. Objective is to maintain current channel capacity to protect adjacent residential and commercial/industrial properties.	2013-2014
Current	J Street Drain - Ormond Beach Lagoon to Hueneme Rd	Construct channel improvements from Ormond Beach Lagoon to downstream of Hueneme Road to increase capacity of existing inadequate facility. Objective is to provide 100-yr flow protection to adjacent residential properties.	2013-2014

**Table W-6. Ventura County Watershed Protection District, Current and Completed Hazard Mitigation Projects and Programs**

Status (Current or Complete)	Project/Program Name	Description	Years
Complete	Somis Drain Channel Repairs	Repair slopes and invert of channel. Repair cracks.	2014
Complete	Oxnard West Drain Vertical Wall Repair	Emergency Repair of a section of vertical wall within the Oxnard West Channel	2013
Complete	Franklin Barranca Repairs - Darling Rd to Hwy 126	Repair side slope, weep holes, and cracks of channel.	2014
Complete	Bus Canyon RCB Repair at Arroyo Simi	Repair or replacement of a damaged reinforced concrete box under the access road for the Arroyo Simi Channel. Objective of the project is to restore operation and maintenance access to this section of Arroyo Simi.	2014
Current	Warring Debris Basin Emergency Spillway Retrofit	Modify the emergency spillway to pass the undetained 100-year storm flow with required freeboard. Project objective is to upgrade existing dam to meet District design criteria.	2014-2015
Current	Lewis Road Drain Outlet Repair	Rebuild failing outlet.	2015
Current	Arundell Barranca Dam Emergency Spillway Modification	Modify the existing spillway to increase the capacity to meet dam freeboard requirements. The proposed improvements are based on the physical model developed to confirm the hydraulic capacity of the spillway.	2015
Current	Camarillo Hills Drain Repairs - Carmen Drive to Mobil Ave	Repair spalling and potholes in concrete invert and walls.	2015
Current	Rice Road Drain Channel Repairs - Oxnard Industrial Drain to Pacific Coast Hwy	Repair of Rice Road Drain Channel invert and slope from confluence with Oxnard Industrial Drain to Pacific Coast Highway (Hwy 1).	2015
Current	Beardsley Wash Drop Structure No. 1 Outlet Repair	Repair undermined grouted rock rip rap slope protection downstream of baffle chute spillway.	2015

**Table W-6. Ventura County Watershed Protection District, Current and Completed Hazard Mitigation Projects and Programs**

Status (Current or Complete)	Project/Program Name	Description	Years
Current	Arroyo Simi Grade Stabilization - Hitch Blvd to Los Angeles Ave	Project scope includes invert stabilization to eliminate scour and degradation within the project reach. A preliminary study and design will be completed to properly site required stabilizers.	2015-2016
On Hold	Ferro Ditch Channel Improvement	Reconstruct existing earthen and concreted rock channel. Project objective is to increase channel capacity and improve access roads to protect adjacent properties and improve dam safety for Ferro Debris Basin.	TBD
Current	Fresno Canyon Diversion	Construct a reinforced concrete pipe diversion from upstream of Highway 33 to Ventura River. The purpose of this project is to provide 100-year flood protection from Fresno Canyon to the community of Casitas Springs.	2005-2020
Current	J Street Drain - Hueneme Rd to Pleasant Valley Rd	Construct channel improvements from downstream of Hueneme Road to Pleasant Valley Road to increase capacity of existing inadequate facility. Objective is to provide 100-yr flow protection to adjacent residential properties.	2016-2017
Current	Santa Clara River Levee D/S of Hwy 101 (SCR-3)	Design and construct upgrades to the existing levee improvements on the south bank of the Santa Clara River from the closed Bailard Landfill to the UPRR bridge crossing. The objective is to protect adjacent properties from the 100-yr flood.	2015-2019
Current	Ventura River Levee (VR-1) Rehabilitation	Complete evaluation and design for all improvements required to enable certification of the existing Ventura River Levee (VR-1). The objective is to provide 100-yr level of flood protection and certify the levee for FEMA accreditation.	2016-2018

**Table W-7. Ventura County Watershed Protection District, Alert and Warning Programs**

Program	Description
VC Alert	While Sheriff's OES acts (for the Operational Area) as the primary source of notifications, the County, all cities and many Special Districts have access to VCAAlert, a telenotification system that utilizes both purchased and volunteered (provided by subscribers) data to call and/or message fixed and mobile phones. The system can direct calls to a defined geographic area, an ad-hoc geographic area, or from a list. Special attention has been directed to ensuring the information is available to persons with access and functional needs.
Emergency Alert System (EAS)	Ventura County has access to the EAS, and participates in regular testing of the system with local broadcasters. The EAS provides brief messages to a primary entry point (KVEN/KHAY), who re-broadcast the message to all local radio, television and cable providers. The most frequent user of the EAS is the National Weather Service Forecast Office in Oxnard, who also acts as a backup entry point should local equipment fail.
National Alert and Warning System (NAWAS) and California Alert and Warning System (CalWAS)	The State of California distributes National Alert and Warning messages received via NAWAS over the CalWAS system to all Operational Area Public Safety Answering Points (PSAP). The Sheriff's Communication Center answers and relays information received over CalWAS as necessary. The State Warning Center can also activate the EAS statewide, or regionally as necessary. The EAS may also be triggered nationally by the authority of the President of the United States.
Wireless Emergency Alert System (WEA)	WEA is a system that allows authorized entry points to generate alert messages to wireless customers (regardless of provider) to all wireless devices within the range of selected cell sites. Sheriff's OES has several staff trained and authorized to generate and release WEA messages. The National Weather Service also releases WEA messages through a national system.
Personnel Based Alerts	When time and personnel can be safely deployed, Sheriffs' personnel will be utilized to follow-up other notification methods in local areas. The Sheriff's Tactical Response Team has been specifically trained to notify and inform residents of the need to evacuate or shelter-in-place. Additional personnel resources from other law enforcement agencies, and volunteer Disaster Service Workers are also available. The public address systems on emergency vehicles and aircraft may be used when time permits. Additionally, Sheriff's OES uses a website ( <a href="http://vcemergency.com">vcemergency.com</a> ), media releases, and other social media tools (NIXLE & Twitter) to promulgate emergency information.

**Table W-8. Ventura County Watershed Protection District, Specific Flood Response Actions**

Action	Description
Communication Through the Ventura County Storm Operations Center	<p>The Ventura County Storm Operations Center acts as the central point for identifying and communicating flood-related hazards throughout Ventura County.</p> <p>As necessary, the Flood Warning Center notifies and advises Sheriff's OES of potential hazards and threats. Sheriff's OES coordinates additional notifications to response agencies, and notifications to the public via available systems. Sheriff's OES also convenes conference calls with response agencies and the affected jurisdictions to identify items of concern, resource status, and weather of concern.</p>
Advisory, Watch and Warning Messages from the National Water Radio System, EAS and WEAS	The NWS also issues Advisory, Watch and Warning Messages over the National Weather Radio System, Emergency Alert System and Wireless Emergency Alert System.
Notification by the Sheriff's Tactical Response Team	<p>When time and personnel can be safely deployed, Sheriffs' personnel will be utilized to follow-up other notification methods in local areas. The Sheriff's Tactical Response Team has been specifically trained to notify and inform residents of the need to evacuate or shelter-in-place. Additional personnel resources from other law enforcement agencies, and volunteer Disaster Service Workers are also available.</p> <p>The public address systems on emergency vehicles and aircraft may be used when time permits.</p>
Use of Social Media	The Ventura County Sheriff's OES uses a website (vcemergency.com), media releases, and other social media tools (NIXLE & Twitter) to promulgate emergency information.
Coordination with the American Red Cross	Should an evacuation be necessary, Sheriff's OES coordinates with the American Red Cross to locate, activate and staff shelters, and to notify the public of their location.



**Table W-9. Ventura County Watershed Protection District, Potential Mitigation Actions**

No.	Description	Hazard	Floodplain Management Activity	New or Existing Construction
VCWPD 1	<p>Complete the General Plan Update. In 2015, the RMA, Planning Division initiated a General Plan Update project that is expected to take 5 years to complete. As part of the General Plan Update, the County will be considering the adoption of a number new elements that will include land use policies that will apply to new land use development projects within the Unincorporated area of the County. In addition, the RMA, Planning Division is currently working on Phase II of an update to its Local Coastal Program (“LCP Update”).</p> <p>The relevant issues that the General Plan Update and LCP Update will address include the following:</p> <ul style="list-style-type: none"> <li>• Climate change, including (but not limited to) sea level rise and coastal resiliency policies for new development along the coast;</li> <li>• Wildlife movement overlay zone that will limit new development within flood-prone areas (e.g., riparian corridors);</li> <li>• Limitations on new development within Environmentally Sensitive Habitat Areas (e.g., the Santa Monica Mountains that are characterized by steep slopes, relatively intact native habitat, and coastal areas subject to flooding hazards); and</li> <li>• Changes to the permitting requirements for brush removal in open space areas (e.g., areas with steep slopes that are prone to erosion, mudslide, and flood hazards).</li> </ul>	Climate Change, Flood, Landslide, Debris Flow	Preventive, Property Protection, Natural Resource Protection	New Construction
VCWPD 2	Revise existing landslide/debris flow maps to include potential runout areas and include the runout area with a classification scheme for probability. Present landslide/debris flow maps only include the main slide mass or body and not the potential areas affect from potential future movement.	Landslide	Emergency Services, Public Information	Not Applicable
VCWPD 3	Update Emergency Response scenario planning for recent theories on earthquake magnitudes for local faults. New studies suggest higher magnitude earthquakes may be possible on local faults and earthquake scenarios should be updated to keep pace with scientific knowledge.	Earthquake	Emergency Services	Not Applicable
VCWPD 4	Integrate alluvial fan management measures for oil, agriculture and development to include stormwater runoff, sediment transport, and alluvial fan geomorphology from geologic perspective. Alluvial fans are presently considered only from hydrologic/hydraulic models.	Various hazards that may affect alluvial fans	Preventive, Property Protection, Natural Resource Protection	Not Applicable

**Table W-9. Ventura County Watershed Protection District, Potential Mitigation Actions**

No.	Description	Hazard	Floodplain Management Activity	New or Existing Construction
VCWPD 5	Upgrade the County of Ventura's Flood warning system. The existing ALERT system is utilizing radio technology from the 1980's.	Flood	Emergency Services, Public Information	Not Applicable
VCWPD 6	Complete the Ventura County Watershed Protection District's Integrated Watershed Protection Plan (IWPP) and establish cost-sharing, collaborative, and multi-jurisdictional project partnerships with public and private sector agencies and organizations, aimed at improving community resiliency to flood risk hazards, floodplain management, groundwater and environmental protection, and securing a sustainable water supply for urban and agricultural customers.	Flood, Post-Fire Debris Flow, Levee Failure, Dam Failure	Structural Projects, Preventive, Natural Resource Protection, Public Information	New and Existing Construction
VCWPD 7	Undertake public outreach initiatives aimed at increasing property owner awareness of the risks of coastal flooding from sea-level rise and actions that residents can take to reduce the risk of loss of life and property damage.	Sea-Level Rise	Public Outreach	New Construction
VCWPD 8	Stabilize landslide-prone areas through stability improvement measures, including interceptor drains, in situ soil piles, drained earth buttresses, subdrains, removal of slide areas, and dewatering ground.	Landslide	Natural Resource Protection, Preventive	New and Existing Construction
VCWPD 9	Acquire, relocate and/or floodproof critical facilities located within the 100-year floodplain, as financially feasible. Projects will be undertaken by the Ventura County Public Works Agency and other applicable County agencies. Where feasible, acquired lands will be considered for passive open space.	Flood	Property Protection	Existing Construction
VCWPD 10	Reinforce and maintain County roads, bridges, ditches and culverts from flooding through various flood proofing measures.	Flood	Structural Projects	Not Applicable
VCWPD 11	Work with FEMA Region IX to address any floodplain management issues that may have arisen/arise from the countywide DFIRM, Community Assessment Visits, and/or DWR.	Flood	Structural Projects, Preventive, Natural Resource Protection, Public Information	New and Existing Construction
VCWPD 12	Increase the Unincorporated Ventura County's participation in the NFIP by maintaining a CRS Class 6 CRS rating, which through enhanced floodplain management activities allows property owners to receive a discount on their flood insurance.	Flood	Public Information, Structural Projects, Preventive, Natural Resource Protection	New and Existing Construction
VCWPD 13	Continue to participate in the NWS TsunamiReady Program through continued implementation of Guideline 4: Community Preparedness measures, including public outreach material and curriculum.	Tsunami	Public Information	Not Applicable

**Table W-9. Ventura County Watershed Protection District, Potential Mitigation Actions**

No.	Description	Hazard	Floodplain Management Activity	New or Existing Construction
VCWPD 14	Engage in preliminary design engineering, project feasibility analysis, and CEQA work for the Calleguas Creek Levee (CC-2) in Camarillo, the Santa Clara River Levee (SCR-1) in Oxnard, the Ventura River Levee (VR-1) in Ventura, and the Ventura River Levee (VR-2) in the Unincorporated area of Casitas Springs.	Levee Failure	Structural Project	New and Existing Construction
VCWPD 15	As part of the Memorandum of Agreement / Memorandum of Understanding with The Nature Conservancy (TNC): partner with TNC on acquisition, restoration and mitigation planning processes; partner on grant proposals; participate in negotiations with land use owners; carry-out restoration projects; hold titles to floodplain properties as appropriate; and hold or co-hold with TNC multipurpose easements.	Flood	Natural Resource Protection	New and Existing Construction
VCWPD 16	Develop a Post Disaster Assessment and Planning Data Base. WPD will collect Ventura County's OES Post Disaster Damage Reports (PDDR). This information will be geo-referenced and stored in a special database as a shape file. VCWPD will compare the disaster information with existing DFIRM maps, and existing repetitive loss inventory data for monitoring and identification of flood prone areas (Hot Spots). Following the identification of damaged structures, VCWPD will research and document if damaged structures were affected by local drainage problems, such as a plugged culvert, or unintended drain blockage. If not, consider the type of drainage system. If drainage system is local, refer the problem to PWA-Transportation for future mitigation, or if it is within VCWPD's facilities, VCWPD to assess problem and potential solution.	Flood	Other: Post-Disaster Mitigation	Existing Construction

VCWPD = Ventura County Watershed Protection District

**Table W-10. Ventura County Watershed Protection District, Review of Potential Mitigation Actions**

No.	Description	Review: Pros/Cons; Capability to Fund and Implement; Implementation Status; Listed in the 2010 MHMP.
VCWPD 1	<p>Complete the General Plan Update. In 2015, the RMA, Planning Division initiated a General Plan Update project that is expected to take 5 years to complete. As part of the General Plan Update, the County will be considering the adoption of a number new elements that will include land use policies that will apply to new land use development projects within the Unincorporated area of the County. In addition, the RMA, Planning Division is currently working on Phase II of an update to its Local Coastal Program (“LCP Update”).</p> <p>The relevant issues that the General Plan Update and LCP Update will address include the following:</p> <ul style="list-style-type: none"> <li>• Climate change, including (but not limited to) sea level rise and coastal resiliency policies for new development along the coast;</li> <li>• Wildlife movement overlay zone that will limit new development within flood-prone areas (e.g., riparian corridors);</li> <li>• Limitations on new development within Environmentally Sensitive Habitat Areas (e.g., the Santa Monica Mountains that are characterized by steep slopes, relatively intact native habitat, and coastal areas subject to flooding hazards); and</li> <li>• Changes to the permitting requirements for brush removal in open space areas (e.g., areas with steep slopes that are prone to erosion, mudslide, and flood hazards).</li> </ul>	<p>The policies that are under consideration for adoption as part of the General Plan Update and LCP Update will promote: open space prevention; wetlands protection; erosion and sediment control; natural area preservation; natural area restoration; water quality improvement; coastal barrier protection; environmental corridors; and natural functions protection.</p> <p>The adoption of this action item is contingent on what specifically the Board of Supervisors includes in the scope of work for the General Plan Update. Some of the items (e.g., addressing climate change) are required pursuant to State law; however, other items are optional.</p> <p>Hazard profile information from the 2015 MHMP will be integrated into the General Plan Hazards Appendix as applicable.</p> <p>Also, the issues that the General Plan Update and LCP Update will address are contingent on political support for the proposed methods to address the issues.</p> <p>The General Plan Update is expected to be completed in 2020. The policies of the General Plan will be applied to new development that occurs during the life of the new General Plan, which will likely become effective in 2020 and sunset in 2040.</p> <p>The LCP Update is scheduled to be completed and presented to the California Coastal Commission in 2016 for certification.</p> <p>The Ventura County Board of Supervisors has already authorized funding from the Ventura County General Fund for the initial General Plan Update. Future funding to complete the General Plan Update will likely provided from the Ventura County General Fund subject to Board of Supervisors approval.</p> <p>This activity is appropriate for Ventura County because it will afford greater protection of essential public and natural resources. It is also required by State law.</p>

**Table W-10. Ventura County Watershed Protection District, Review of Potential Mitigation Actions**

No.	Description	Review: Pros/Cons; Capability to Fund and Implement; Implementation Status; Listed in the 2010 MHMP.
VCWPD 2	Revise existing landslide/debris flow maps to include potential runout areas and include the runout area with a classification scheme for probability. Present landslide/debris flow maps only include the main slide mass or body and not the potential areas affect from potential future movement.	<p>These maps will provide hazard assessment for properties that may be involved with future landslide movement to assist response as well as development planning. These maps will be at best an estimate of a potential that may or may not occur. The ability to implement will be on an on-going basis as information becomes available and runout models are improved.</p> <p>Outside funding will be required for modeling.</p> <p>This activity is appropriate for Ventura County because the County has experience landslides in which downslope properties were affected and maps of landslides do not include the hazards to downslope properties.</p>
VCWPD 3	Update Emergency Response scenario planning for recent theories on earthquake magnitudes for local faults. New studies suggest higher magnitude earthquakes may be possible on local faults and earthquake scenarios should be updated to keep pace with scientific knowledge.	<p>Larger magnitude earthquakes on local faults may create scenarios not considered in present emergency response plans. Efforts to track latest scientific theories and prepare response plans may be futile with future knowledge. The ability to implement will be on an ongoing basis as new earthquake studies become published in scientific literature.</p> <p>Outside funding will be required to update the Emergency Response scenarios.</p> <p>This activity is appropriate for Ventura County because the County has numerous fault systems that are re-evaluated by various entities including the Southern California Earthquake Center and the results of those studies are suggesting some of the faults within the County are capable of much high magnitude earthquakes than previous thought.</p>
VCWPD 4	Integrate alluvial fan management measures for oil, agriculture and development to include stormwater runoff, sediment transport, and alluvial fan geomorphology from geologic perspective. Alluvial fans are presently considered only from hydrologic/hydraulic models.	<p>Additional alluvial fan management measures will enhance and increase the understanding of potential hazards for alluvial fans areas of Ventura County. Information and outcome will be included with each new update of grading and floodplain ordinances.</p> <p>Outside funding will be required or funds from the VCWPD.</p> <p>This activity is appropriate for Ventura County as the County has many alluvial fans in areas that will become developed In the future. Having knowledge of alluvial fans will reduce the potential for flood damage.</p>

**Table W-10. Ventura County Watershed Protection District, Review of Potential Mitigation Actions**

No.	Description	Review: Pros/Cons; Capability to Fund and Implement; Implementation Status; Listed in the 2010 MHMP.
VCWPD 5	Upgrade the County of Ventura's Flood warning system. The existing ALERT system is utilizing radio technology from the 1980's.	<p>The upgrade to ALERT2 will prevent radio collisions and greatly improve resiliency. Expanded capacity will also allow additional sensors for increased flood detection and reliability. Using funding from DWR, the County of Ventura is planning on upgrading the entire system including hardware and software.</p> <p>This activity is appropriate for Ventura County because the ALERT system allows the County to track storm conditions in real time and provides data for the forecast models which can provide advance warning of dangerous conditions, thereby protecting the health and welfare of County residents.</p>
VCWPD 6	Complete the Ventura County Watershed Protection District's Integrated Watershed Protection Plan (IWPP) and establish cost-sharing, collaborative, and multi-jurisdictional project partnerships with public and private sector agencies and organizations, aimed at improving community resiliency to flood risk hazards, floodplain management, groundwater and environmental protection, and securing a sustainable water supply for urban and agricultural customers.	<p>The IWPP is a systematic process for the inclusion of projects into the District's Capital Improvement Plan over its five-year planning period. Designed to improve the long-range District planning process for the 20-year period subsequent to the Capital Improvement Plan by allocating projected revenues to identified projects. Also provides a Level-of-Service evaluation that identifies the need for additional project funding to achieve desired flooding mitigation goals.</p> <p>The IWPP will allow the County of Ventura to implement additional flood protection projects than what would be possible through the District's available revenue sources, and in a timely manner, through the leveraging of financial, technological, and staffing resources of community partners.</p> <p>IWPP procedures and protocols should be completed by March 2016. Selection of projects will be tied to the County Board of Supervisor-approved Capital Improvement Plan and available funding.</p> <p>This activity is appropriate for Ventura County because it create and broadens a regional awareness of flood hazard risks throughout Ventura County. It also increases community resiliency through project partnerships that address innovative structural flood management and public outreach initiatives.</p>

**Table W-10. Ventura County Watershed Protection District, Review of Potential Mitigation Actions**

No.	Description	Review: Pros/Cons; Capability to Fund and Implement; Implementation Status; Listed in the 2010 MHMP.
VCWPD 7	Undertake public outreach initiatives aimed at increasing property owner awareness of the risks of coastal flooding from sea-level rise and actions that residents can take to reduce the risk of loss of life and property damage.	<p>Outside funding will be required.</p> <p>This activity is appropriate because Ventura County has approximately 42 miles of exposed coastline, much of it under residential development. Property owners will need to be educated about the increased risk of tidal and storm flooding due to sea level rise. Buildings that are damaged or undergoing modification should be studied to ensure that the owners and insurers are fully aware of the risks associated with climate change/sea-level rise.</p>
VCWPD 8	Stabilize landslide-prone areas through stability improvement measures, including interceptor drains, in situ soil piles, drained earth buttresses, subdrains, removal of slide areas, and dewatering ground.	<p>Identified as a mitigation action in the 2010 MHMP for VCWPD.</p> <p>Outside funding will be required.</p> <p>This activity is appropriate for Ventura County because the stabilization of landslides in developed and underdeveloped areas will mitigation the potential for damming drainages that may result from downstream flooding and mitigation the hazard posed by the displacement of the slide mass and the loss of support for upslope property.</p>
VCWPD 9	Acquire, relocate and/or floodproof critical facilities located within the 100-year floodplain, as financially feasible. Projects will be undertaken by the Ventura County Public Works Agency and other applicable County agencies. Where feasible, acquired lands will be considered for passive open space.	<p>Identified as a mitigation action in the 2010 MHMP for VCWPD.</p> <p>Outside funding will be required.</p> <p>This activity is appropriate for Ventura County because it ensures that critical facilities remain operable during the 100-year storm event, thereby improving emergency response time and public safety.</p>
VCWPD 10	Reinforce and maintain County roads, bridges, ditches and culverts from flooding through various flood proofing measures.	<p>Identified as a mitigation action in the 2010 MHMP for VCWPD and modified for the 2015 MHMP.</p> <p>Federal funding not available; other types of funding will be sought.</p> <p>In 2011, a consultant for Ventura County Public Works Agency – Transportation Department completed an evaluation of 78 local bridges (bridge structures less than 20-feet long). Findings of the study have been incorporated into the Transportation Department’s CIP and Maintenance Program and include culvert cleaning and proper drainage flow to mitigation roadway flooding in the rural areas of the County.</p> <p>The activity is appropriate for Ventura County as the projects are pre-identified in the County’s CIP.</p>



**Table W-10. Ventura County Watershed Protection District, Review of Potential Mitigation Actions**

No.	Description	Review: Pros/Cons; Capability to Fund and Implement; Implementation Status; Listed in the 2010 MHMP.
VCWPD 11	Work with FEMA Region IX to address any floodplain management issues that may have arisen/arise from the countywide DFIRM, Community Assessment Visits, and/or DWR.	<p>Identified as a mitigation action in the 2010 MHMP for VCWPD.</p> <p>VCWPD staff work closely with FEMA Region IX and DWR staff on a regular basis to address development design issues and regulation requirement issues. In 2010-2011, the VCWPD established project partnerships with FEMA Region IX to update FIS for the Ventura County and Santa Clara Rivers and their major tributaries, undertaking five CTP studies, the ArKStorm Precipitation Modeling Study, participating in the FEMA Risk Map Hazard Mapping Project, hosting countywide technical floodplain training courses, implemented the CRS Program and the Fresno Canyon Flood Mitigation Project. During this five year-period new DFIRMs for the East Ojai CTP became effective (9/26/14). New DIFMs for the Jepsen Wash, Happy Valley and Orcutt Canyon CTPs are expected from FEMA Region IX in mid-2015.</p> <p>Local funding required, as applicable.</p> <p>This activity is appropriate for Ventura County as the VCWPD continues to work with FEMA Region IX to create/update FIS and DFIRMs that more accurately reflect current flood conditions.</p>
VCWPD 12	Increase the Unincorporated Ventura County's participation in the NFIP by maintaining a CRS Class 6 CRS rating, which through enhanced floodplain management activities allows property owners to receive a discount on their flood insurance.	<p>Identified as a mitigation action in the 2010 MHMP for VCWPD and modified for the 2015 MHMP.</p> <p>Local funding required. Outside funding may be sought as well.</p> <p>This activity is appropriate for Ventura County because it increases public awareness of the flood hazard risks within the Unincorporated Ventura County. It increases community resiliency from flooding impacts through floodplain management and safer building construction. It also reduces flood insurance premiums on an annual bases to the insureds.</p>
VCWPD 13	Continue to participate in the NWS TsunamiReady Program through continued implementation of Guideline 4: Community Preparedness measures, including public outreach material and curriculum.	<p>Identified as a mitigation action in the 2010 MHMP for VCWPD and modified for the 2015 MHMP.</p> <p>Ventura County joined the TsunamiReady Program in 2012. The certification of the TsunamiReady Program is reviewed and renewed every five years. Ventura County also participates in the State Tsunami Steering Committee.</p> <p>Outside funding will be required.</p> <p>This activity is appropriate for Ventura County because tsunamis have affected and caused significant damage to coastal infrastructure, including beaches, harbors, docks, and other structures. Significant private property damage has also occurred.</p>

**Table W-10. Ventura County Watershed Protection District, Review of Potential Mitigation Actions**

No.	Description	Review: Pros/Cons; Capability to Fund and Implement; Implementation Status; Listed in the 2010 MHMP.
VCWPD 14	Engage in preliminary design engineering, project feasibility analysis, and CEQA work for the Calleguas Creek Levee (CC-2) in Camarillo, the Santa Clara River Levee (SCR-1) in Oxnard, the Ventura River Levee (VR-1) in Ventura, and the Ventura River Levee (VR-2) in the Unincorporated area of Casitas Springs.	<p>State Local Levee Assistance grants and VCWPD structural revenues will be required.</p> <p>This activity is appropriate for Ventura County because it ensures adequate flood protection and community resiliency for residents, businesses and public infrastructure. It also ensures compliance with Federal Levee Certification Regulatory requirements.</p>
VCWPD 15	As part of the Memorandum of Agreement / Memorandum of Understanding with The Nature Conservancy (TNC): partner with TNC on acquisition, restoration and mitigation planning processes; partner on grant proposals; participate in negotiations with land use owners; carry-out restoration projects; hold titles to floodplain properties as appropriate; and hold or co-hold with TNC multipurpose easements.	<p>Overlapping wetland/habitat conservation opportunities between the VCWPD and TNC. Partnership has resulted in coordinated planning efforts, setting joint priorities, and work together on projects.</p> <p>In-kind services have been used to fund project. VCWPD is currently providing \$500,000 for purchase of Ormond Wetlands area (preservation).</p> <p>This activity is appropriate for Ventura County because coordinated planning, grant application and project implementation by TNC and VCWPD will lead to greater collective efficiency and effectiveness.</p>
VCWPD 16	Develop a Post Disaster Assessment and Planning Data Base. WPD will collect Ventura County's OES Post Disaster Damage Reports (PDDR). This information will be geo-referenced and stored in a special database as a shape file. VCWPD will compare the disaster information with existing DFIRM maps, and existing repetitive loss inventory data for monitoring and identification of flood prone areas (Hot Spots). Following the identification of damaged structures, VCWPD will research and document if damaged structures were affected by local drainage problems, such as a plugged culvert, or unintended drain blockage. If not, consider the type of drainage system. If drainage system is local, refer the problem to PWA-Transportation for future mitigation, or if it is within VCWPD's facilities, VCWPD to assess problem and potential solution.	<p>Ventura County OES already collects PDDRs.</p> <p>Outside funding will be required.</p> <p>The activity is appropriate for VCWPD because it would ensure that thorough post-disaster flood information is collected on a consistent and timely basis and the Hot Spots are addressed.</p>

**Table W-11. Ventura County Watershed Protection District, Mitigation Action Plan**

No.	Description	Goal	Floodplain Management Activity	Funding Source	Department or Agency	Timeframe (0-5 Years)
VCWPD 1	<p>Complete the General Plan Update. In 2015, the RMA, Planning Division initiated a General Plan Update project that is expected to take 5 years to complete. As part of the General Plan Update, the County will be considering the adoption of a number new elements that will include land use policies that will apply to new land use development projects within the Unincorporated area of the County. In addition, the RMA, Planning Division is currently working on Phase II of an update to its Local Coastal Program (“LCP Update”).</p> <p>The relevant issues that the General Plan Update and LCP Update will address include the following:</p> <ul style="list-style-type: none"> <li>• Climate change, including (but not limited to) sea level rise and coastal resiliency policies for new development along the coast;</li> <li>• Wildlife movement overlay zone that will limit new development within flood-prone areas (e.g., riparian corridors);</li> <li>• Limitations on new development within Environmentally Sensitive Habitat Areas (e.g., the Santa Monica Mountains that are characterized by steep slopes, relatively intact native habitat, and coastal areas subject to flooding hazards); and</li> <li>• Changes to the permitting requirements for brush removal in open space areas (e.g., areas with steep slopes that are prone to erosion, mudslide, and flood hazards).</li> </ul>	2	Preventive, Property Protection, Natural Resource Protection	Ventura County General Fund	RMA, with support from other County agencies including VCWPD	5 Years

**Table W-11. Ventura County Watershed Protection District, Mitigation Action Plan**

No.	Description	Goal	Floodplain Management Activity	Funding Source	Department or Agency	Timeframe (0-5 Years)
VCWPD 2	Revise existing landslide/debris flow maps to include potential runout areas and include the runout area with a classification scheme for probability. Present landslide/debris flow maps only include the main slide mass or body and not the potential areas affect from potential future movement.	2	Emergency Services, Public Information	Outside funding	Ventura County Public Works Agency	1 Year
VCWPD 4	Integrate alluvial fan management measures for oil, agriculture and development to include stormwater runoff, sediment transport, and alluvial fan geomorphology from geologic perspective. Alluvial fans are presently considered only from hydrologic/hydraulic models.	2	Preventive, Property Protection, Natural Resource Protection	Outside funding	Ventura County Public Works Agency, VCWPD	1-2 Years
VCWPD 5	Upgrade the County of Ventura's Flood warning system. The existing ALERT system is utilizing radio technology from the 1980's.	1	Emergency Services, Public Information	DWR funding	VCWPD	3-5 Years
VCWPD 6	Complete the Ventura County Watershed Protection District's Integrated Watershed Protection Plan (IWPP) and establish cost-sharing, collaborative, and multi-jurisdictional project partnerships with public and private sector agencies and organizations, aimed at improving community resiliency to flood risk hazards, floodplain management, groundwater and environmental protection, and securing a sustainable water supply for urban and agricultural customers.	2	Structural Projects, Preventive, Natural Resource Protection, Public Information	Ventura County CIP Funds	VCWPD	1-3 Years
VCWPD 7	Undertake public outreach initiatives aimed at increasing property owner awareness of the risks of coastal flooding from sea-level rise and actions that residents can take to reduce the risk of loss of life and property damage.	2	Public Outreach	Outside funding, in particular PDM/HMPG	VCWPD, Ventura County OES	Ongoing

**Table W-11. Ventura County Watershed Protection District, Mitigation Action Plan**

No.	Description	Goal	Floodplain Management Activity	Funding Source	Department or Agency	Timeframe (0-5 Years)
VCWPD 8	Stabilize landslide-prone areas through stability improvement measures, including interceptor drains, in situ soil piles, drained earth buttresses, subdrains, removal of slide areas, and dewatering ground.	2	Natural Resource Protection, Preventive	Outside funding, in particular PDM/HMPG	Ventura County Public Works Agency	3-5 Years
VCWPD 9	Acquire, relocate and/or floodproof critical facilities located within the 100-year floodplain, as financially feasible. Projects will be undertaken by the Ventura County Public Works Agency and other applicable County agencies. Where feasible, acquired lands will be considered for passive open space.	2	Property Protection	Outside funding, in particular PDM/HMPG	Ventura County Public Works Agency/ VCWPD	1-3 Years
VCWPD 10	Reinforce and maintain County roads, bridges, ditches and culverts from flooding through various flood proofing measures.	2	Structural Projects	Outside funding, in particular PDM/HMPG	Ventura County Public Works Agency	1-3 Years
VCWPD 11	Work with FEMA Region IX to address any floodplain management issues that may have arisen/arise from the countywide DFIRM, Community Assessment Visits, and/or DWR.	2	Structural Projects, Preventive, Natural Resource Protection, Public Information	Local funding	VCWPD	Ongoing
VCWPD 12	Increase the Unincorporated Ventura County's participation in the NFIP by maintaining a CRS Class 6 CRS rating, which through enhanced floodplain management activities allows property owners to receive a discount on their flood insurance.	2	Public Information, Structural Projects, Preventive, Natural Resource Protection	Local funding	VCWPD	Ongoing
VCWPD 14	Engage in preliminary design engineering, project feasibility analysis, and CEQA work for the Calleguas Creek Levee (CC-2) in Camarillo, the Santa Clara River Levee (SCR-1) in Oxnard, the Ventura River Levee (VR-1) in Ventura, and the Ventura River Levee (VR-2) in the Unincorporated area of Casitas Springs.	2	Structural Project	State Local Levee Assistance grants and VCWPD structural revenues	VCWPD	1 Year

**Table W-11. Ventura County Watershed Protection District, Mitigation Action Plan**

No.	Description	Goal	Floodplain Management Activity	Funding Source	Department or Agency	Timeframe (0-5 Years)
VCWPD 15	As part of the Memorandum of Agreement / Memorandum of Understanding with The Nature Conservancy (TNC): partner with TNC on acquisition, restoration and mitigation planning processes; partner on grant proposals; participate in negotiations with land use owners; carry-out restoration projects; hold titles to floodplain properties as appropriate; and hold or co-hold with TNC multipurpose easements.	2	Natural Resource Protection	In-kind services	VCWPD	5 Years
VCWPD 16	Develop a Post Disaster Assessment and Planning Data Base. WPD will collect Ventura County's OES Post Disaster Damage Reports (PDDR). This information will be geo-referenced and stored in a special database as a shape file. VCWPD will compare the disaster information with existing DFIRM maps, and existing repetitive loss inventory data for monitoring and identification of flood prone areas (Hot Spots). Following the identification of damaged structures, VCWPD will research and document if damaged structures were affected by local drainage problems, such as a plugged culvert, or unintended drain blockage. If not, consider the type of drainage system. If drainage system is local, refer the problem to PWA-Transportation for future mitigation, or if it is within VCWPD's facilities, VCWPD to assess problem and potential solution.	1	Other: Post-Disaster Mitigation	Outside funding, in particular PDM/HMPG	Ventura County OES, VCWPD	1 Year

The Hazard Mitigation Assistance (HMA) Program requirements were used to guide choice of mitigation actions:

- Mitigation Planning
- Technical Feasibility and Effectiveness
- Floodplain Management and Protection of Wetlands
- Environmental Planning and Historic Review and Compliance
- Cost Effectiveness
- Cost Review
- General Program Requirements

Appendix X  
Plan Maintenance



*This page intentionally left blank*

2015 Ventura MHMP - Annual Review Questionnaire				
LHMP Section	Questions	Yes	No	Comments
<b>PLANNING PROCESS</b>	Are there internal or external organizations and agencies that have been invaluable to the plan update process or to implementing a mitigation project?			
	Are there procedures (e.g., meeting announcements, plan updates) that can be done differently or more efficiently?			
	Has the Planning Committee undertaken any public outreach activities regarding the LHMP or a mitigation project?			
<b>HAZARD ANALYSIS</b>	Has any natural and/or human-caused disaster occurred in this reporting period?			
	Are there any natural and/or human-caused hazards that have not been addressed in this LHMP and should be?			
	Are new maps, reports, or studies available? If so, what are they and what have they revealed?			
<b>VULNERABILITY ANALYSIS</b>	Do any new assets need to be included?			
	Have there been changes in development trends that could create additional risks?			
<b>CAPABILITY ASSESSMENT</b>	Are there different or additional resources (financial, technical, and human) that are now available for mitigation planning?			
<b>MITIGATION STRATEGY</b>	Should new mitigation actions be added? Should any existing mitigation actions be deleted?			

<b>2015 Ventura MHMP - Mitigation Project Progress Report (Page 1)</b>			
<b>Progress Report Period From (date):</b>		<b>To (date):</b>	
<b>Project Title:</b>			
<b>Project ID:</b>			
<b>Description of Project:</b>			
<b>Implementing Agency:</b>			
<b>Supporting Agencies:</b>			
<b>Contact Name:</b>			
<b>Contact E-mail:</b>			
<b>Contact Number:</b>			
<b>Grant/Finance Administrator:</b>			
<b>Total Project Cost:</b>			
<b>Anticipated Cost Overrun/Underrun:</b>			
<b>Date of Project Approval:</b>			
<b>Project Start Date:</b>			
<b>Anticipated Completion Date:</b>			
<b>Summary of Progress of Project for this Reporting Period</b>			
<b>1. What was accomplished during this reporting period?</b>			
<b>2. What obstacles, problems, or delays did the project encounter, if any?</b>			
<b>3. How were the problems resolved?</b>			

2015 Ventura MHMP - Mitigation Project Progress Report (Page 2)			
Milestones		Complete	Project Date of Completion
Plan Goal(s) Addressed:			
Goal:			
Indicator of Success:			
Project Status		Project Cost Status	
<input type="checkbox"/>	Project on Schedule	<input type="checkbox"/>	Cost Unchanged
<input type="checkbox"/>	Project Completed	<input type="checkbox"/>	Cost Overrun*
<input type="checkbox"/>	Project Delayed*	*explain:	
*explain:		<input type="checkbox"/>	Cost Underrun*
<input type="checkbox"/>	Project Canceled	*explain:	



**PUBLIC WORKS AGENCY**  
**JEFF PRATT**  
Agency Director

November 22, 2011

Board of Supervisors  
County of Ventura  
800 South Victoria Avenue  
Ventura, CA 93009

Watershed Protection District  
**Norma J. Camacho**, Director

Transportation Department  
**David L. Fleisch**, Director

Engineering Services Department  
**Phillip L. Nelson**, Director

Water & Sanitation Department  
**R. Reddy Pakala**, Director

Central Services Department  
**Janice E. Turner**, Director

**Subject:** Receive and File the County of Ventura Report on the Status of the Ventura County Hazard Mitigation Plan within Unincorporated Areas of Ventura County as Required for Annual Recertification in the Community Rating System Program  
All Supervisorial Districts, All Zones

**Recommendation:**

Receive and file the County of Ventura Report on the Status of the Ventura County Hazard Mitigation Plan within Unincorporated Areas of Ventura County as required for annual recertification in the Community Rating System Program (CRS).

**Fiscal Mandate/Impact:**

Preparation of this Board item requires minimum staff time, which is absorbed in General Fund, Organization 6110.

**Executive Summary:**

As part of the CRS recertification process, the County is required to provide the Federal Emergency Management Agency (FEMA) an annual report on the implementation status of the Ventura County Hazard Mitigation Plan for unincorporated areas of Ventura County. This report summarizes the activities undertaken in 2011 and demonstrates the County's ongoing commitment to providing community safety and protection from flooding and other hazards, which is a key goal of the CRS program.

**Discussion:**

In 2005, your Board adopted the first Ventura County Hazard Mitigation Plan (HMP), which focused on threats posed by floods, earthquakes, geological hazards, and wildfires. As required by the Federal Disaster Mitigation Act of 2000, this Plan must be updated every five years in order to continue to be eligible to receive federal assistance



Ventura County Board of Supervisors  
November 22, 2011  
Page 2 of 3

during declared disasters and emergencies, as well as to be able to apply for funding under certain FEMA grant programs. As in the development of the 2005 HMP, the County Sheriff's Office of Emergency Services took the lead and coordinated 40 other communities and special districts within the Ventura County Operational Area, including the County Public Works Agency and the Watershed Protection District, in the preparation of the 2010 HMP. The HMP serves to enhance public awareness and understanding, provides a decision-making tool for management, strengthens local policies for hazard mitigation capabilities, provides inter-jurisdictional coordination of mitigation-related programming, and achieves regulatory compliance. The HMP has been updated to meet all state and federal requirements and was adopted by your Board on December 14, 2010. The Plan was approved by FEMA on February 17, 2011.

On October 1, 2011, Unincorporated Ventura County officially became a Class 6 CRS Community, as approved by FEMA. Through the County's ongoing implementation of floodplain management programs that exceed the minimum protection and mitigation requirements of the National Flood Insurance Program (NFIP), floodplain property owners in the unincorporated areas of Ventura County are now eligible to receive up to a 20% discount each year on their flood insurance premiums.

To remain in good standing in the CRS and for insureds to keep receiving annual benefits, the County must recertify each year with FEMA and provide documentation that demonstrates that it continues to implement all CRS activities that earned CRS credit points for the County's Class 6 rating. The County's HMP received 179 out of a possible 255 CRS points which ranks fifth highest in points earned out of 72 California CRS communities. The average HMP credit points for California is 36 and the national average is 120, according to the Insurance Services Office (August 2011).

An important recertification requirement is to report to your Board and the state NFIP Coordinator's Office each year on the progress being made towards implementing the recommendations contained in Appendix G of the Ventura County's HMP. Agencies involved in implementation include the County Sheriff's Office of Emergency Services, the Public Works Agency, the Watershed Protection District, Ventura County Fire Protection District, General Services Agency, and the Resource Management Agency.

#### **Status Update of the HMP:**

Exhibit 1 presents the 26 recommendations contained in Appendix G of the HMP and summarizes the actions that were undertaken in 2011. Recommendations focus primarily on inspections for potential structural deficiencies and retrofitting of critical facilities and transportation systems in unincorporated Ventura County, project partnerships with FEMA, implementing vegetation management practices to protect properties from wildfires, and establishing hazard warning and public evacuation systems. Most of the recommendations are being implemented and are part of the normal business operations of the County. This demonstrates the County's ongoing



Ventura County Board of Supervisors  
November 22, 2011  
Page 3 of 3

commitment to providing community safety and protection from flooding and other hazards, which is a key goal of the CRS program.

This item has been reviewed by the following agencies:

- Public Works (Transportation, Development and Inspection Services, Integrated Waste Management, and Watershed Protection District)
- Ventura County Sheriff's Office of Emergency Services
- Ventura County Fire Protection District
- General Services Agency
- Resource Management Agency (Operations Information Systems and Environmental Health)

In addition, this item has been reviewed by the County Executive Office, County Counsel, and the Auditor-Controller's Office. If there are any questions regarding this item, please contact me at 654-2073 or Norma Camacho, Director of the Watershed Protection District, at 654-2040.



Jeff Pratt, Director

Attachment: Exhibit 1 – Status of the Ventura County Hazard Mitigation Plan



## Exhibit 1

## Ventura County Hazard Mitigation Plan (HMP), Appendix G

Hazard Mitigation Plan Recommendation	Description	Response
1	Create a GIS-based / Accela pre-application review for new construction and major remodels in hazard areas, such as levee breaks, high and/or very high wildfire areas.	<p>The Accela Automation Land Records Management &amp; Permit Processing/ Tracking System is an interdepartmental electronic permit processing and tracking system that will be available to all Ventura County departments and accessible online by the general public and the County Board of Supervisors. It is a GIS system that integrates flood, wildfire, landslide, liquefaction and other hazard information (mapping, technical reports, permit processes) with land use planning, transportation, grading and other County permit processes</p> <p>Accela will enable all County staff to access a single, common and comprehensive information data base thereby improving the delivery of permit-related services, including technical reviews and approvals, code enforcement, and issuances of land use entitlements. Accela is proposed to "go live" in early Spring 2012.</p>
2	Integrate the 2010 Hazard Mitigation Plan (HMP), in particular the hazard analysis and mitigation strategy sections, into local planning documents, including the General Plan, emergency operations plans, and capital improvement plans.	The County Sheriff's Office of Emergency Services (OES) is currently updating its 2006 Emergency Operations Plan and including the findings of the 2010 Hazard Mitigation Plan (HMP). OES is also in discussions with the County Planning Division regarding the integration of the hazards analysis and mitigation strategy of the HMP into the Safety Element of the County's General Plan.
3	Seismic structural retrofit or replacement of County and local ramps and bridges that are categorized as structurally deficient by Caltrans, are located in high ground shaking areas, and/or are necessary for first responders to use during an emergency.	<p>The County of Ventura does not maintain road ramps; this is a CalTrans responsibility. Currently, there are no County of Ventura bridges with <u>seismic structural deficiencies</u>, as determined through regular inspections.</p> <p>In 2011, the County Public Works Agency (PWA) Transportation Department received a \$150,000 grant from the Federal Highway Bridge Program to</p>

		<p>prepare a scope of work for any repairs or replacements needed for three bridges over 20-feet long, that have been classified by CalTrans as <u>structurally deficient</u> (Bridge Road, Mupu Road, Wheeler Canyon). The work is ongoing.</p> <p>In 2011, PWA completed construction of a new bridge crossing over the San Antonio Creek south of Oak View (Old Creek Road bridge) which replaces a dry weather crossing.</p>
4	Stabilize landslide-prone areas through stability improvement measures, including interceptor drains, in situ soil piles, drained earth buttresses, sub-drains, removal of slide areas, and dewatering ground.	The PWA's Development & Inspection Services regularly reviews all private development projects relative to grading, soils, and geology (seismic, liquefaction). Plan checking, imposing conditions of development, construction compliance, and enforcement are implemented as part of the grading and building permit application and approvals process.
5	Acquire, relocate, or elevate residential structures, in particular those that have been identified as Repetitive Loss (RL) properties within the 100-year floodplain, as financially feasible.	<p>In 2010, the PWA met with three owners of severe repetitive-loss properties in unincorporated Ventura County to determine if they would be interested in selling, relocating or elevating their homes. Residents responded that, due to financial considerations, they were not interested in participating at this time but might be in the future.</p> <p>The Ventura County WPD is planning to send letters in 2012 to all owners of severe repetitive-loss properties to see if there is any interest in partnering with the County to relocate or retrofit their buildings. Project planning and construction will be subject to available FEMA and other federal and state funding, as well as any required financial contributions from affected property owners. The District is currently researching available funding sources.</p>
6	Acquire, relocate, elevate, and/or floodproof critical facilities located within the 100-year floodplain, as financially feasible.	The 2010 Ventura County Hazard Mitigation Plan identified critical facilities for the unincorporated areas of the County and the 10 incorporated cities. In 2011, The County Sheriff's OES received funding from the Urban Area Security Institute to undertake a threat and vulnerability analysis for certain critical



		<p>facilities. The Study will be completed in 2012. This will be used as an important planning tool for determining future project priorities.</p> <p>In 2010, the Piru Wastewater Treatment Plant at Pole Creek was relocated and rebuilt out of the 1% annual chance (100-year) floodplain.</p>
7	<p>Reinforce County and local roads, bridges and ramps from flooding through protective activities which may include elevating the road, and installing culverts beneath the road or building a bridge across the area that experiences regular flooding. Reinstall/ repair aging traffic control devices to floodproofing standards (e.g., signal lights, warning and stop signs). Activities also include the installation of rock rip-rap within channels at bridge approaches, and ditch cleaning to maintain the capacity of ditches to drain the roadway system.</p>	<p>The 78 bridges and drainage culvert structures that are under the jurisdiction of the PWA (structures less than 20-feet long), are currently being studied for potential structural deficiencies. The study is nearly complete and a plan is being prepared to include any actions, repairs, or replacements deemed necessary. In 2012, the findings of the plan will be included in the PWA Transportation Department's Master Plan and a schedule of structural repairs and replacements will be prepared as funding becomes available.</p> <p>The Telegraph Road bridge replacement is currently in the construction phase.</p>
8	<p>Work with FEMA Region IX to address any floodplain management issues that may have arisen from the Countywide DFIRM, Community Assessment Visits, and /or California Department of Water Resources (DWR).</p>	<p>County staff works closely with FEMA Region IX and DWR staff on a regular basis to address development design issues, and regulation interpretation and requirement issues. In 2010/11, the County established project partnerships with FEMA Region IX relative to updating Flood Insurance Studies for the Ventura and Santa Clara Rivers and their tributaries, undertaking five Cooperating Technical Partnership (CTP) studies, the ArKStorm 2 precipitation modeling study, hosting countywide technical floodplain training courses, implementing the CRS program, and implementing the Fresno Canyon Flood Mitigation project.</p>
9	<p>Increase participation in the NFIP by entering the Community Rating System (CRS) program which through enhanced floodplain management activities would allow property owners to receive a discount on their flood insurance.</p>	<p>Starting October 1, 2011 owners of floodplain properties in the Unincorporated Ventura County will be entitled to receive an annual policy premium discount of up to 20% on new and renewal policies as a direct result of the County's Class 6 CRS rating.</p>

10	Seismic non-structural and structural retrofit of critical facilities and infrastructure.	<p>In 2005, the County General Services Agency (GSA) completed seismic upgrades of the roof-to-wall connections on the County Service Building which houses the Sheriff's 911 operation.</p> <p>Seismic non-structural retrofits or supporting of equipment and furnishings is performed by GSA on an as-needed basis or as requested by other County departments. Seismic retrofits have been identified at the East County Courthouse and the Santa Paula Agricultural Commissioner's Building. Both buildings are included in the Required Maintenance Budget list and a funding source has not been identified to date. Other critical facilities that may require structural and non-structural review include the ITSD mountain top remove microwave sites; however, there are no plans to study these sites at this time.</p> <p>Between 2001 and 2008, the County PWA's Engineering Services Division was responsible for retrofitting Piru Fire Station #28 to new seismic standards as set out in the Building Code. Seismic retrofitting of Simi Valley Fire Station #43 will be completed by the end of October 2011, and Simi Valley Fire Station #47 is targeted to be completed in June 2012.</p> <p>The County Health Care Agency (HCA) has been implementing seismic and non-structural retrofitting of the Fainer Building of the Ventura County Medical Center (VCMC) as per SB 1953 performance structural and non-structural categories. Non-structural work includes anchoring and bracing of electrical and mechanical systems, fire sprinklers and alarms, emergency power supplies, ceiling lighting, and communications and medical equipment to ensure continued operation following a seismic event. A \$250 million replacement wing that meets SB 1953 is also currently underway and is anticipated to be completed in 2016.</p>
----	---	---

		HCA is also in the design phase of multiple seismic and non-structural retrofits and upgrades for other buildings at the VCMC as well as at the Santa Paula Hospital (SPH). SPH will be completed in January 2013.
11	Manage vegetation in areas within and adjacent to rights-of-ways and in close proximity to critical facilities in order to reduce the risk of tree failure and property damage. The work effort focuses mainly on ditch clean outs.	The General Services Agency (GSA), PWA, and the WPD's (WPD) Operations and Maintenance Division perform maintenance clean outs on drainage ditches and bioswales on an annual schedule. Tree pruning and removal is also an annual maintenance program along certain rights-of-ways under the jurisdiction of the PWA's Transportation Department. For areas under the jurisdiction of GSA, a licensed arborist conducts a tree assessment on rights-of-ways and critical facilities every two years. All identified deficiencies are rectified on a priority basis.
12	Develop a free annual tree chipping and tree pick-up day that encourages residents living in very high and high severe wind hazard areas to manage trees and shrubs at risk to falling on nearby structures.	The County does not have a free-of-charge tree chipping service at this time; however, the PWA's Integrated Waste Management Division (IWMD) provides similar services through annual "Community Beautification Events" which allow residents of unincorporated Ventura County to recycle their green/yard waste at no cost. Fourteen events are being held in 2011. In addition, IWMD administers two annual "Free Dump Days" at the Simi Valley Landfill where residents of unincorporated Ventura County can recycle their green/yard waste at no cost.
13	Bolt down the roofs of critical facilities in order to prevent wind damage.	In 2005, the GSA seismically upgraded the roof-to-wall connections on the County Service Building which houses the Sheriff's 911 operation. No other roof deficiencies on critical facilities have been identified.
14	Participate in the National Oceanic and Atmospheric Administration (NOAA) Tsunami Ready Program.	The County Sheriff's OES is taking the lead on getting the unincorporated Ventura County certified by FEMA as a Tsunami Ready Community. Approximately 70 tsunami warning sign locations have been installed at specified locations along the County coastline. Once signs have been installed, the



		County will have met all of the National Weather Services' requirements and can then be certified. The anticipated certification date is mid-2012.
15	Implement better record keeping measures as well as on the part of food processors and handlers.	<p>The County Environmental Health Department (EHD) issues permits and annually inspects all retail food facilities throughout unincorporated Ventura County. Any concerns about record keeping are generally identified during inspections and permittees are required to make the necessary changes.</p> <p>The State Department of Public Health, Food and Drug Branch have regulatory oversight of wholesale food processing facilities.</p>
16	Implement a fuel reduction program, such as the collection and disposal of dead fuel within open spaces and around critical facilities and residential structures located within a State Responsibility Area (SRA) or Local Responsibility Area (LRA) high or very high wildfire zone.	The Ventura County Fire Protection District utilizes a wide variety of methods and programs to reduce the effects of wild fire. Programs specific to the protection of valued resources within the wild land urban interface include vegetation modification, vegetation reduction and public education.
17	Create a vegetation management program that provides vegetation management services to the elderly, disabled, or low-income property owners whom lack the resources to remove flammable vegetation around their homes.	The Ventura County Fire Protection District annually implements fuel reduction and public outreach programs that benefit all residents throughout the unincorporated Ventura County.
18	Implement post-fire debris flow hillside and channel treatments such as seeding, mulching, check dams, and debris racks, as needed.	Established Best Management Practices (BMP's) are routinely implemented by a number of County agencies and departments as per their areas of responsibility including the Ventura County Fire Protection District, Ventura County Watershed Protection District, Public Works and National Resource Conservation Service.
19	Encourage property owners located in dam or levee inundation hazard areas to purchase voluntary flood insurance.	The County encourages owners of floodplain properties to purchase flood insurance through a number of outreach avenues, including the County's CRS program (Activities 330: brochure; 350: CRS website; 502: Severe Repetitive-Loss letters), and an information flyer which is attached to all issued Floodplain Permits.

		Copies of the (2010) ASCE brochure " <i>So, You Live Behind a Levee!</i> " is made available to the public on an ongoing basis at certain publicly accessible locations in the County Government Center. The brochure is distributed by County staff at public outreach meetings on levees and floodplain mapping studies.
20	Implement a fuel modification program, which also includes residential maintenance requirements and enforcement, plan submittal and approval process, guidelines for planting, and a listing of undesirable plant species. Require builders and developers to submit their plans, complete with proposed fuel modification zones, to the local fire department for review and approval prior to beginning construction.	Through the County's land use entitlement process that is administered through the RMA Planning Division, the Ventura County Fire Protection District reviews, comments and imposes conditions of approval on all development applications including but not limited to maintenance requirements, required plantings, and establishment of fuel modification zones.
21	Rehabilitate three major Ventura County WPD levees countywide in order to meet Federal levee certification requirements found in 44 CFR 65.10. Once rehabilitated, these levees will provide flood protection from the 1% annual chance flood event.	<p>Maintenance repairs, vegetation removal and stop-log improvements were completed for three Provisionally Accredited Levees (PALs) [i.e. ASR-2 Levee-Floodwall in Unincorporated Santa Rosa Valley, SC-1 Levee in Fillmore, and AS-6 Levee in Simi Valley] and were required to document full compliance with the Federal Levee Certification requirements found in 44 CFR 65.10.</p> <p>The District has begun preliminary engineering design, environmental documentation, and rights-of-way survey work in support of potential levee rehabilitation projects for eight additional levees countywide (i.e. CC-2 and CC-3 in Camarillo, SCR-1 in Oxnard, SC-2 in Fillmore, VR-1 in Ventura, and VR-3 in Unincorporated Ventura River Valley).</p> <p>The District is working closely with the United States Army Corps of Engineers, as well as affected cities, residents and property owners throughout the County to marshal federal, state and local funding resources necessary to complete these levee projects. Once completed, the District's levees will fully comply with applicable Federal Levee Certification requirements found in 44 CFR 65.10.</p>



22	Keep abreast of new research regarding the effects of climate change, particularly in regards to flooding, increased storms, and wildfire. Review all existing plans, codes, and other regulations to ensure the effects of climate change are addressed as appropriate once the impacts are better known and defined.	<p>In 2010, the County received a \$100,000 grant from FEMA to partner with FEMA Region IX and the USGS to develop a precipitation model called "ArKStorm 2" which simulates a rainfall event equivalent to the 1% annual chance storm (100-year) across all of Ventura County. Precipitation models are based on what FEMA calls "atmospheric rivers" of rainfall that originate in the Pacific Ocean and move inland at specific California coastal locations, including Ventura County. Climate change data is included in the predictive modeling and risk/impact analyses.</p> <p>The exercise will determine flooding impacts on land use and critical community facilities such as bridges, emergency response buildings such as hospitals, fire stations, etc., and public gathering centers. The overarching goal of the ArKStorm 2 flooding simulation exercise is to predict what critical facilities and infrastructure will be adversely impacted by a 100-year storm event over a 2-3 day period and to be able to better anticipate, plan and respond to such impacts at both the community and private property levels.</p> <p>The technical work effort will conclude in May 2012 and the public outreach phase will occur, in partnership with the County Sheriff's OES, between October and December 2012.</p>
23	Consider new mitigation measures for effects related to climate change once the impacts are better defined. For example, mitigation measures may include raising sea walls to address sea level rise.	<p>FEMA has advised that it is currently analyzing climate change impacts on riverine, alluvial fan, and coastal floodplains on a national scale. FEMA is currently preparing a draft policy paper which is planned to be released for public comment at the end of 2012. County staff will provide comments on the draft document and will consider the findings when they are finalized through the National Flood Insurance Program.</p> <p>Starting October 2011, FEMA Region IX will be initiating a two-year detailed coastal engineering study for all coastal</p>

		floodplain communities in Southern California. The "Open Pacific Coast Study" will address coastal flood risk, wave hazards, and the effects of climate change. Current floodplain maps, including flood zones, boundaries and elevations will be updated accordingly. The unincorporated Ventura County will be actively participating in this Study and there will be public outreach opportunities held during the 2-year study.
24	Work with the Cooperating Agencies of the Ventura River Multi-Species Habitat Conservation Plan to continue to implement proposed mitigation measures identified in the Plan such as improving habitat and/or access to habitat.	<p>The committee for the Ventura River Multi-Species Habitat Conservation Plan disbanded a couple of years ago. In 2008, the Ventura County Board of Supervisors certified the Ventura County Watershed Protection District's "Final Program Environmental Impact Report" which adopted 26 environmental best management practices for ongoing routine operations and maintenance improvements to the Ventura River and its tributaries.</p> <p>In 2011, the District was actively involved in a number of improvement efforts along the Ventura River through its operations and maintenance program including removal of vegetation on levees as per FEMA and USACE guidelines, removal of trash and debris, removal of sediment in Ventura River channels and debris basins, and maintenance of District signs and fences.</p>
25	After every exercise or event, an After Action Report should be completed. The After Action Review has two components: an After Action Report which captures observations and recommendations based on incident objectives associated with the capabilities and tasks, and an Improvement Plan which identifies corrective actions, assigns them to responsible parties, and establishes targets for their completion.	<p>The County Sheriff's Office of Emergency Services and lead agencies currently complete and submit After Action reports to State and Federal authorities after all occurrences.</p> <p>The County uses the Homeland Security Exercise and Evaluation Program for documenting and tracking after incident actions and recommendations. The State Approved AAR Survey will also be implemented in 2012.</p>
26	Implement appropriate life/safety warning/evacuation systems in Ventura County, including the Emergency Alert System, Flood Threat Recognition System, Reverse	Ventura County uses both a hybrid telephonic notification system and the Emergency Alert System to provide public alert and warning functions. The telephonic system is regularly tested

	<p>911 System, and Tsunami Watch and warning messages during an event or disaster.</p>	<p>through its use to activate response teams throughout the County, and the mass call feature is tested annually in multiple areas of the County. The Emergency Alert System is activated every other month by the Sheriff's OES and as needed by the National Weather Service and the California Highway Patrol (for AMBER Alerts).</p> <p>The County Sheriff's OES is currently implementing an improved program called 'VCALERT' which is intended to replace the Reverse 911 system. It will "go live" in 2012.</p> <p>The Sheriff's OES Duty Officers receive direct notifications from the National Weather Service and relay those warnings and alerts to jurisdictions or the public as necessary via the telenotification or Emergency Alert System.</p>
--	--	--



# county of ventura

**PUBLIC WORKS AGENCY**  
**JEFF PRATT**  
Agency Director

October 23, 2012

Ventura County Board of Supervisors  
800 South Victoria Avenue  
Ventura, CA 93009

Watershed Protection District  
Tully Clifford, Director

Transportation Department  
David Fleisch, Director

Engineering Services Department  
Phil Nelson, Director

Water & Sanitation Department  
R. Reddy Pakala, Director

Central Services Department  
Janice Turner, Director

**Subject:** Receive and File the County of Ventura Report on the 2012 Status of the Ventura County Hazard Mitigation Plan Within Unincorporated Areas of Ventura County as Required for Year 2 Recertification in the Community Rating System Program.  
All Supervisorial Districts, All Zones

**Recommendation:**

Receive and file the County of Ventura Report on the 2012 Status of the Ventura County Hazard Mitigation Plan within Unincorporated Areas of Ventura County as required for Year 2 Recertification in the Community Rating System (CRS).

**Fiscal Mandate/Impact:**

Preparation of this Board item requires minimum staff time, which can be accommodated within the existing budget.

**Executive Summary:**

As part of the CRS Recertification process, the County is required to provide the Federal Emergency Management Agency (FEMA) an annual report on the implementation status of the Ventura County Hazard Mitigation Plan for unincorporated areas of Ventura County. This report summarizes the activities undertaken in 2012 and demonstrates the County's ongoing commitment to providing community safety and protection from flooding and other hazards, which is a key goal of the CRS program.

**Discussion:**

In 2005, your Board adopted the first Ventura County Hazard Mitigation Plan (HMP), which focused on threats posed by floods, earthquakes, geological hazards, and wildfires. As required by the Federal Disaster Mitigation Act of 2000, this Plan must be updated every five years in order to continue to be eligible to receive federal assistance during declared disasters and emergencies, as well as to be able to apply for funding



Ventura County Board of Supervisors  
October 23, 2012  
Page 2 of 3

under certain FEMA grant programs. As in the development of the 2005 HMP, the County Sheriff's Office of Emergency Services took the lead and coordinated 40 other communities and special districts within the Ventura County Operational Area, including the County Public Works Agency, in the preparation of the 2010 HMP. The HMP serves to enhance public awareness and understanding, provides a decision-making tool for management, strengthens local policies for hazard mitigation capabilities, provides inter-jurisdictional coordination of mitigation-related programming, and achieves regulatory compliance. The HMP has been updated to meet all state and federal requirements and was adopted by your Board on December 14, 2010. The Plan was approved by FEMA on February 17, 2011.

On October 1, 2011, Unincorporated Ventura County officially became a Class 6 CRS community. Through the County's ongoing implementation of floodplain management programs that exceed the minimum protection and mitigation requirements of the National Flood Insurance Program (NFIP), floodplain property owners in the unincorporated areas of Ventura County receive up to a 20% discount each year on their flood insurance premiums.

To remain in good standing in the CRS, the County must recertify each year and provide documentation that demonstrates it continues to implement all CRS activities that earned CRS credit points for the County's Class 6 rating.

An important Recertification requirement is to report to your Board and the state NFIP Coordinator's Office each year on the progress being made towards implementing the recommendations contained in Appendix G of the Ventura County's HMP. Agencies involved in implementation include the County Sheriff's Office of Emergency Services, the Public Works Agency, the Watershed Protection District, the Ventura County Fire Protection District, General Services Agency, and the Resource Management Agency.

#### **Status Update of the HMP:**

Exhibit 1 presents the 26 recommendations contained in Appendix G of the HMP and summarizes the actions that were undertaken in 2012. Recommendations focus primarily on inspections for potential structural deficiencies and retrofitting of critical facilities and transportation systems in unincorporated Ventura County, project partnerships with FEMA, implementing vegetation management practices to protect properties from wildfires, and establishing hazard warning and public evacuation systems. Most of the recommendations are being implemented and are part of the normal business operations of the County. This demonstrates the County's ongoing commitment to providing community safety and protection from flooding and other hazards, which is a key goal of the CRS program.

This item has been reviewed by the following agencies:

- Public Works (Transportation, Development and Inspection Services, Integrated Waste Management, and Watershed Protection District)

Ventura County Board of Supervisors  
October 23, 2012  
Page 3 of 3

- Ventura County Sheriff's Office of Emergency Services
- Ventura County Fire Protection District
- General Services Agency
- Resource Management Agency (Operations Information Systems)

In addition, this item has been reviewed by the County Executive Office, County Counsel, and the Auditor-Controller's Office. If there are any questions, please feel free to contact me at 654-2073 or Tully Clifford, Director of the Watershed Protection District, at 654-2040.



Jeff Pratt  
Director

Attachment: Exhibit 1 – Status of the 2012 Ventura County Hazard Mitigation Plan (HMP), Appendix G.



## Exhibit 1

## STATUS OF THE 2012 VENTURA COUNTY HAZARD MITIGATION PLAN (HMP), APPENDIX G

Hazard Mitigation Plan Recommendation	Description	Response
1	Create a GIS-based/Accela pre-application review for new construction and major remodels in hazard areas, such as levee breaks, high and/or very high wildfire areas.	<p>The Accela Automation Land Records Management and Permit Processing/Tracking System is an interdepartmental electronic permit processing and tracking system that is currently being used by the Public Works Agency, Resource Management Agency, and the Ventura County Fire Protection District. It is planned to be accessible online to the general public in the near future. It is a GIS system that integrates flood, wildfire, landslide, liquefaction, and other hazard information (mapping, technical reports, permit processes) with land use planning, transportation, grading, and other County permit processes.</p> <p>Accela enables all County staff to access a single, common and comprehensive information data base, thereby improving the delivery of permit-related services, including technical reviews and approvals, code enforcement, and issuances of land use development entitlements.</p>
2	Integrate the 2011 Hazard Mitigation Plan (HMP), in particular the hazard analysis and mitigation strategy sections, into local planning documents, including the General Plan, emergency operation plans, and capital improvement plans.	<p>The County Sheriff's Office of Emergency Services (OES) is currently updating its 2006 Emergency Operations Plan, including the findings of the 2011 HMP.</p> <p>Expected completion of the 2012 Ventura County Emergency Operations Plan is September 30, 2012, with adoption by the Emergency Planning Council on October 20, 2012.</p> <p>OES is in discussions with the County Planning Division regarding the integration of the hazards analysis and mitigation strategy of the HMP into the Safety Element of the County's General Plan.</p>
3	Seismic structural retrofit or replacement of County and local ramps and bridges that are categorized as structurally deficient by CalTrans are located in high-ground shaking areas and/or are necessary for first responders to use during an emergency.	<p>The County of Ventura does not maintain road ramps. This is CalTrans' responsibility. Currently, there are no County of Ventura bridges with seismic structural deficiencies, as determined through regular inspections.</p> <p>In 2011, the County Public Works Agency (PWA) Transportation Department received a \$150,000 grant from the Federal Highway</p>



		<p>Bridge Program to prepare a scope of work for any repairs or replacements needed for three bridges over 20' long that have been classified by CalTrans as structurally deficient (Bridge Road, Mupu Road, and Wheeler Canyon).</p> <p>The recommended work is as follows:  --Bridge Road Bridge requires replacement.  --Mupu Road Bridge and Wheeler Canyon Road will require rehabilitation of structure.  PWA will be applying for Federal funding, when it becomes available, for the construction phase of recommended work.</p> <p>In 2011, PWA completed construction of a new bridge crossing over the San Antonio Creek south of Oak View (Old Creek Road Bridge) which replaces a dry-weather crossing.</p>
4	Stabilize landslide-prone areas through stability improvement measures, including interceptor drains, in situ soil piles, drained earth buttresses, sub-drains, removal of slide areas, and dewatering ground.	<p>The PWA Development and Inspection Services regularly reviews all private development projects relative to grading, soils, and geology (seismic, liquefaction). Plan checking, imposing conditions of development, construction compliance, and enforcement are implemented as part of the grading and building permit application and approvals process.</p>
5	Acquire, relocate, or elevate residential structures, in particular those that have been identified as Repetitive Loss (RL), properties within the 100-year floodplain, as financially feasible.	<p>In 2011, the PWA met with three owners of severe repetitive-loss properties in unincorporated Ventura County to determine if they would be interested in selling, relocating, or elevating their homes. Residents responded that, due to financial considerations, they were not interested in participating at this time, but might be in the future if federal financial assistance is made available. In 2012, federal assistance was not available.</p> <p>The Ventura County WPD is planning to send letters in 2013 to all owners of severe repetitive-loss properties to see if there is an interest in partnering with the County to relocate or retrofit their buildings. Project planning and construction will be subject to available FEMA and other federal and state funding, as well as any required financial contributions from affected property owners. The District is currently researching available funding sources.</p>

6	Acquire, relocate, elevate, and/or floodproof critical facilities located within the 100-year floodplain, as financially feasible.	The 2011 Ventura County Hazard Mitigation Plan identified critical facilities for the unincorporated areas of the County and the 10 incorporated cities. In 2011, the County Sheriff's OES received funding from the Urban Area Security Institute to undertake a threat and vulnerability analysis for certain critical facilities. The Study will be completed in 2012. This will be used as an important planning tool for determining future project priorities. The Critical Infrastructure and Key Resources Team will complete their assessments by September 30, 2012. A list of proposed projects to be submitted for funding is under review.
7	Reinforce County and local roads, bridges, and ramps from flooding through protective activities which may include elevating the road and installing culverts beneath the road or building a bridge across the area that experiences regular flooding. Reinstall/repair aging traffic control devices to floodproofing standards (e.g., signal lights, warning and stop signs). Activities also include the installation of rock rip-rap within channels at bridge approaches and ditch cleaning to maintain the capacity of ditches to drain the roadway system	<p>In 2011, consultant completed evaluation of 78 local bridges (bridge structures less than 20-feet long) under the jurisdiction of the PWA Transportation Department. The summary of the report and findings are as follows:</p> <ul style="list-style-type: none"> <li>• \$3.2 million in bridge replacement projects</li> <li>• \$440,000 for rehabilitation/maintenance of bridges</li> <li>• The work recommended by this study will be incorporated into the Transportation Department's annual CIP and Maintenance Program. Since Federal funding for these bridge projects is not currently available, we will be seeking a funding source.</li> </ul> <p>Also, the Transportation Department conducts annual ditch cleaning and culvert cleaning before winter to maintain the capacity of ditches and proper drainage flow to mitigate roadway flooding in the rural areas of the County.</p> <p>In 2012, the Transportation Department completed the replacement of existing Telegraph Road Bridge at Ellsworth Barranca.</p>
8	Work with FEMA Region IX to address any floodplain management issues that may have arisen from the Countywide DFIRM, Community Assessment Visits, and/or California Department of Water Resources (DWR).	County staff works closely with FEMA Region IX and DWR staff on a regular basis to address development design issues and regulation requirement issues. In 2010/11, the County established project partnerships with FEMA Region IX relative to updating Flood Insurance Studies for the Ventura and Santa Clara Rivers and their major tributaries, undertaking five Cooperating Technical Partnership (CTP) studies, the

		<p>ArkStorm Precipitation Modeling Study, participating in the FEMA Risk Map Hazard Mapping Project, hosting countywide technical floodplain training courses, implement the CRS Program, and implementing the Fresno Canyon Flood Mitigation Project. Four of the five CTPs were completed in 2012 and new floodplain maps are expected from FEMA by late 2013.</p>
9	<p>Increase participation in the NFIP by entering the Community Rating System (CRS) Program. Through enhanced floodplain management activities the CRS will allow property owners to receive a discount on their flood insurance.</p>	<p>Since October 2, 2011, owners of floodplain properties in the Unincorporated Ventura County have been receiving an annual policy premium discount of up to 20% on new and renewal policies as a direct result of the County's Class 6 CRS rating.</p>
10	<p>Seismic non-structural and structural retrofit of critical facilities and infrastructure.</p>	<p>Seismic non-structural retrofits or supporting of equipment and furnishings is performed on an as-needed basis, or as requested by other County departments. Seismic structural retrofits have been identified at the East County Courthouse and the Santa Paula Agricultural Commissioner's Building.</p> <p>The design has been completed on the seismic upgrades to the Agricultural Commissioner's Building. Upgrades are planned for completion in 2013. The Simi Valley Fire Station #47 is targeted to be completed in October of 2013.</p> <p>The Ventura County Health Care Agency (HCA) has been implementing seismic and non-structural retrofitting of the Ventura County Medical Center (VCMC) as per SB 1953 performance structural and non-structural categories. Non-structural work includes anchoring and bracing of electrical and mechanical systems, fire sprinklers and alarms, emergency power supplies, ceiling lighting, and communications and medical equipment to ensure continued operation following a seismic event. A \$200 million replacement hospital wing that meets SB1953 is also underway and will be completed by January 2020 in accordance with SB306 Extension.</p> <p>The HCA is also in the design phase of multiple seismic and non-structural retrofits and upgrades for other buildings at VCMC and Santa Paula Hospital. SPH will be completed by January 2015 in accordance with SB90 Extension.</p>



11	Manage vegetation in areas within and adjacent to rights-of-way and in close proximity to critical facilities in order to reduce the risk of tree failure and property damage. The work effort focuses mainly on ditch clean-outs.	<p>The GSA, PWA, and the District's Operations and Maintenance Division perform maintenance cleanouts on drainage ditches and bioswales on an annual schedule.</p> <p>Tree pruning and removal is also an annual maintenance program along certain rights-of-way under the jurisdiction of the PWA's Transportation Department.</p> <p>For areas under the jurisdiction of GSA, a licensed arborist conducts a tree assessment on rights-of way and critical facilities every two years. All identified deficiencies are rectified on a priority basis.</p>
12	Develop a free annual tree chipping and tree pick-up day that encourages residents living in very high and high severe wind hazard areas to manage trees and shrubs at risk to falling on nearby structures.	<p>The County does not have a free-of-charge tree chipping service at this time. However, the PWA's Integrated Waste Management Division (IWMD) provides similar services through annual "Community Beautification" events which allow residents to recycle their green/yard waste at no cost. Thirteen events are being held in 2012.</p> <p>In addition, IWMD administers two annual "Free Dump Days" at the Simi Valley Landfill where residents of unincorporated Ventura County can recycle their green/yard waste at no cost.</p>
13	Bolt down the roofs of critical facilities in order to prevent wind damage.	In 2005, the GSA seismically upgraded the roof-to-wall connections on the County Service Building, which houses the Sheriff's 911 operation. No other roof deficiencies on GSA-maintained buildings have been identified.
14	Participate in the National Oceanic and Atmospheric Administration (NOAA) Tsunami Ready Program.	In 2012, the County of Ventura became certified by FEMA as a Tsunami Ready Community. Approximately 70 tsunami warning sign locations have been installed at specified locations along the County's coastline informing residents and visitors about the hazard.
15	Implement better recordkeeping measures as well as on the part of food processors and handlers.	The County Environmental Health Department (EHD) issues permits and annually inspects all retail food facilities throughout unincorporated Ventura County. Any concerns about recordkeeping are generally identified during inspections and permittees are required to make the necessary changes.

		The State Department of Public Health Food and Drug Branch have regulatory oversight of wholesale food processing facilities.
16	Implement a fuel reduction program, such as the collection and disposal of dead fuel within open spaces and around critical facilities and residential structures located within a State Responsibility Area (SRA) or Local Responsibility Area (LRA) high or very high wildfire zone.	The Ventura County Fire Protection District utilizes a wide variety of methods and programs to reduce the effects of wild fires. Programs specific to the protection of valued resources within the wildland urban interface include vegetation modification, vegetation reduction, and public education.
17	Create a vegetation management program that provides vegetation management services to the elderly, disabled, or low-income property owners whom lack the resources to remove flammable vegetation around their homes.	The Ventura County Fire Protection District annually implements fuel reduction and public outreach programs that benefit all residents throughout the unincorporated Ventura County.
18	Implement post-fire debris flow hillside and channel treatments, such as seeding, mulching, check dams, and debris racks, as needed.	Established Best Management Practices (BMPs) are routinely implemented by a number of County agencies and departments as per their areas of responsibility, including the Ventura County Fire Protection District, Ventura County Watershed Protection District, Public Works and National Resource Conservation Service.
19	Encourage property owners located in dam or levee inundation hazard areas to purchase voluntary flood insurance.	<p>The County encourages owners of floodplain properties to purchase flood insurance through a number of outreach avenues, including the County's CRS Program (Activities 330: brochure; 350: CRS website; 502: Severe Repetitive-Loss letters and an informational flyer which is attached to all issued Floodplain Permits.</p> <p>Copies of the 2010 ASCE brochure: "So, you Live Behind a Levee!" is made available to the public on an ongoing basis at certain publicly accessible locations in the County Government Center. The brochure is distributed by County staff at public outreach meetings on levees and floodplain mapping studies.</p>
20	Implement a fuel modification program, which also includes residential maintenance requirements and enforcement, plan submittal and approval process, guidelines for planting, and a listing of undesirable plant species. Require builders and developers to submit their plans, complete with proposed fuel	Through the County's land use entitlement process that is administered through the RMA Planning Division, the Ventura County Fire Protection District reviews, comments, and imposes conditions of approval on all development applications, including but not limited to maintenance requirements, required plantings, and establishment of fuel modification zones.

	modification zones to the local fire department for review and approval prior to beginning construction.	
21	Rehabilitate three major Ventura County WPD levees countywide in order to meet Federal levee certification requirements found in 44 CFR 65.10. Once rehabilitated, these levees will provide flood protection from the 1% annual chance flood event.	<p>In 2011-12, FEMA began an internal review of the District's Levee Certification Report (LCR) submittal packages which transmitted documentation of maintenance construction repairs completed in 2009 and 2010 for three Provisionally Accredited Levees (PALs); i.e., ASR-2 Levee Floodwall in unincorporated Santa Rosa Valley, AS-6 Levee in Simi Valley, and SC-1 Levee in Fillmore. Levee repairs included rock revetment rip-rap repairs, levee toe repairs, floodwall repairs, vegetation removal, and stop-log improvements. Completion of these repairs was a necessary pre-condition required to document local compliance with the Federal Levee Certification requirements found in 44 CFR 65.10 for these three District levees.</p> <p>In October 2011, the District completed design engineering, rights-of-way acquisition and awarded construction contracts for channel widening and deepening improvement projects which will be used by the District to document local compliance with the levee certification requirements for the CC-3 Levee in the City of Camarillo. Project construction work is expected to be completed by CYE 2012.</p> <p>The District performed preliminary engineering design, environmental documentation, and rights of way survey work in support of levee rehabilitation project work required for the ultimate future certification of the SC-2 Levee in Fillmore, and the SCR-3 Levee in Oxnard.</p> <p>The District is partnering with the Los Angeles District of the United States Army Corps (USACE) regarding levee-specific condition assessments, including providing necessary levee cross-sections, relevant hydrology and hydraulics information, maintenance repair and vegetation removal work documentation required to support screening submittals for the USACE-built SCR-1 and VR-1 Levees, under their National Levee Safety Action Classification (LSAC) system. Additionally, the District submitted a Letter of Intent to the USAC for</p>



		<p>the SCR-1 Levee to be improved under the System Wide Improvement Framework (SWIF) policy.</p> <p>The District is working closely with the USACE, as well as affected cities, residents, and property owners throughout the County who are protected by District levees. The joint efforts are to marshal federal, state, and local funding resources necessary to complete these levee rehabilitation projects. During the last year, the District was awarded \$9.5 million in State grant funds to complete Local Levee Evaluation and Critical Repair work under the Local Levee Assistance program (LLAP) for various District levees countywide.</p> <p>Once levee rehabilitation projects are successfully completed for the above eight levees, the District will be able to document full compliance with all applicable Federal levee Certification requirements in Title 44 CFR 65.10 for those levees.</p>
22	<p>Keep abreast of new research regarding the effects of climate change, particularly in regards to flooding, increased storms, and wildfires. Review all existing plan, codes, and other regulations to ensure the effects of climate change are addressed as appropriate once the impacts are better known and defined.</p>	<p>In 2010, the County received a \$100,000 grant from FEMA to partner with FEMA Region IX and the USGS to develop a precipitation model called "ArkStorm," which simulates a rainfall event equivalent to the 1% annual chance storm (100-year) across all of Ventura County. Precipitation models are based on what FEMA calls "atmospheric rivers" of rainfall that originates in the Pacific Ocean and moves inland at specific California coastal locations, including Ventura County. Climate change data is included in the predictive modeling and risk/impact analyses.</p> <p>A tabletop emergency planning exercise will be held on October 25, 2012, involving staff from the County, Sheriff's OES, cities, FEMA, and the USGS. A goal of the ArkStorm is to determine flooding impacts on critical community infrastructure and facilities, such as bridges, hospitals, fire and police stations, nursing homes, and public gathering centers over a three-to-four day period and to be better able to anticipate, plan, and respond to such impacts.</p>
23	<p>Consider new mitigation measures for effects related to climate change, once the impacts are better defined. For</p>	<p>FEMA is currently analyzing climate change impacts on riverine, alluvial fan, and coastal floodplains on a national scale.</p>



	example, mitigation measures may include raising sea walls to address sea level rise.	In December, 2011, FEMA Region IX initiated a two-year coastal engineering study for all coastal floodplain communities in Southern California. The "Open Pacific Coast Study" addresses coastal flood risk, wave hazards, and the effects of climate change. Current floodplain maps, including flood zones, boundaries, and elevations will be updated accordingly. Unincorporated Ventura County has been actively participating in this Study with FEMA. Public outreach opportunities will be held in 2013.
24	Work with Cooperating Agencies of Ventura River Multi-Species Habitat Conservation Plan to continue to implement mitigation measures identified in the Plan; i.e., improving habitat and/or access to habitat.	<p>The Committee for the Ventura River Multi-Species Habitat Conservation Plan disbanded a couple of years ago. In 2008, the Ventura County Board of Supervisors certified the Ventura County Watershed Protection District's "Final Program Environmental Impact Report" which adopted 26 environmental Best Management Practices for ongoing routine operations and maintenance improvements to the Ventura River and its tributaries.</p> <p>In 2012, the District was actively involved in a number of improvement efforts along the Ventura River through its operations and maintenance program, including removal of vegetation on levees (as per FEMA and USACE guidelines), removal of trash and debris, removal of sediment in Ventura River channels and debris basins, and maintenance of District signs and fences.</p> <p>In addition, to meet its obligations under the National Pollutant Discharge Elimination System (NPDES)—specifically the Ventura River Total Maximum Daily Load (TMDL)—the District removed 199 tons of trash from the Main Street Bridge area in February and September 2012. This effort included removal of approximately seven acres of invasive, non-native giant reed (<i>Arundo Donax</i>). Follow-up treatments are planned two-to-three times annually for the next five years. Removal of giant reed and other non-native vegetation on approximately 1,000 acres in the upper Ventura River Watershed and tributaries has been ongoing since 2007 and will continue for about 15 years into the future.</p>
25	After every exercise or event, an After Action Report should be completed.	The Sheriff's OES and lead agencies currently complete and submit After Action

	<p>The After Action Report has two components: (1) it captures observations and recommendations based on incident objects associated with the capabilities and tasks; and, (2) an Improvement Plan which identifies corrective actions, assigning them to responsible parties, and establishes targets for their completion.</p>	<p>Reports to State and Federal authorities following all occurrences.</p> <p>The Sheriff's OES recently completed the AAR for the Golden Guardian Earthquake Exercise held on May 16, 2012.</p> <p>The County uses the Homeland Security Exercise and Evaluation program for documenting and tracking after incident actions and recommendations. The State-approved AAR Survey will also be implemented in 2012.</p>
26	<p>Implement appropriate life/safety warning/evacuation systems in Ventura County, including the Emergency Alert System, Flood Threat Recognition System, Reverse 911 System, and Tsunami Watch and Warning messages during an event or disaster.</p>	<p>Ventura County uses both a hybrid telephonic notification system and the Emergency Alert System to provide public alert and warning functions. The telephonic system is regularly tested through its use to activate response teams throughout the County. The mass call feature is tested annually in multiple areas of the County. The Emergency Alert System is activated every other month by the Sheriff's OES and as needed by the National Weather Service and the California Highway Patrol (for AMBER Alerts).</p> <p>The Sheriff's OES is implementing "VC Alert System" which replaces the Reverse 911 System. The VC ALERT System was launched in January 2012 and currently has 18,594 citizen opt-ins.</p> <p>The Sheriff's OES Duty Officers receive direct notifications from the National Weather Service and relay those warnings and alerts to jurisdictions or the public as necessary via the telenotification or Emergency Alert System.</p>

# county of ventura

**PUBLIC WORKS AGENCY**  
**JEFF PRATT**  
Agency Director

October 22, 2013

Ventura County Board of Supervisors  
800 South Victoria Avenue  
Ventura, CA 93009

Watershed Protection District  
Tully Clifford, Director

Transportation Department  
David Fleisch, Director

Engineering Services Department  
Herbert L. Schwind, Director

Water & Sanitation Department  
R. Reddy Pakala, Director

Central Services Department  
Janice Turner, Director

**Subject:** Receive and File the County of Ventura Report on the 2013 Status of the Ventura County Hazard Mitigation Plan Within Unincorporated Areas of Ventura County as Required for Year 3 Recertification in the Community Rating System Program.  
All Supervisorial Districts, All Zones

**Recommendation:**

Receive and file the County of Ventura Report on the 2013 Status of the Ventura County Hazard Mitigation Plan within Unincorporated Areas of Ventura County as required for Year 3 Recertification in the Community Rating System (CRS).

**Fiscal Mandate/Impact:**

Preparation of this Board item requires minimal staff time, which can be accommodated within the existing budget.

**Executive Summary:**

As part of the CRS Recertification process, the County is required to provide the Federal Emergency Management Agency (FEMA) an annual report on the implementation status of the Ventura County Hazard Mitigation Plan (HMP) for unincorporated areas of Ventura County. This report summarizes the activities undertaken in 2013 and demonstrates the County's ongoing commitment to providing community safety and protection from flooding and other hazards, which is a key goal of the CRS program.

**Discussion:**

In 2005, your Board adopted the first HMP, which focused on threats posed by floods, earthquakes, geological hazards, and wildfires. As required by the Federal Disaster Mitigation Act of 2000, this Plan must be updated every five years in order to continue to be eligible to receive federal assistance during declared disasters and emergencies, as





Ventura County Board of Supervisors  
October 22, 2013  
Page 2

well as to be able to apply for funding under certain FEMA grant programs. As in the development of the 2005 HMP, the County Sheriff's Office of Emergency Services took the lead and coordinated 40 other communities and special districts within the Ventura County Operational Area, including the County Public Works Agency, in the preparation of the 2010 HMP. The HMP serves to enhance public awareness and understanding, provides a decision-making tool for management, strengthens local policies for hazard mitigation capabilities, provides inter-jurisdictional coordination of mitigation-related programming, and achieves regulatory compliance. The HMP has been updated to meet all state and federal requirements and was adopted by your Board on December 14, 2010. The Plan was approved by FEMA on February 17, 2011.

On October 1, 2011, Unincorporated Ventura County officially became a Class 6 CRS community. Through the County's ongoing implementation of floodplain management programs that exceed the minimum protection and mitigation requirements of the National Flood Insurance Program (NFIP), floodplain property owners in the unincorporated areas of Ventura County receive up to a 20% discount each year on their flood insurance premiums.

To remain in good standing in the CRS, the County must recertify each year and provide documentation that demonstrates it continues to implement all CRS activities that earned CRS credit points for the County's Class 6 rating.

An important Recertification requirement is to report to your Board and the state NFIP Coordinator's Office each year on the progress being made towards implementing the recommendations contained in Appendix G of Ventura County's HMP. Agencies involved in implementation include the County Sheriff's Office of Emergency Services, the Public Works Agency, the Watershed Protection District, the Ventura County Fire Protection District, General Services Agency, and the Resource Management Agency.

#### **Status Update of the HMP:**

Exhibit 1 presents the 26 recommendations contained in Appendix G of the HMP and summarizes the actions that were undertaken in 2013. Recommendations focus primarily on inspections for potential structural deficiencies and retrofitting of critical facilities and transportation systems in unincorporated Ventura County, project partnerships with FEMA, implementing vegetation management practices to protect properties from wildfires, and establishing hazard warning and public evacuation systems. Most of the recommendations are being implemented and are part of the normal business operations of the County. This demonstrates the County's ongoing commitment to providing community safety and protection from flooding and other hazards, which is a key goal of the CRS program.

This item has been reviewed by the following agencies:

- Public Works (Transportation, Development and Inspection Services, Integrated Waste Management, and Watershed Protection District)



Ventura County Board of Supervisors  
October 22, 2013  
Page 3

- Ventura County Sheriff's Office of Emergency Services
- Ventura County Fire Protection District
- General Services Agency
- Resource Management Agency (Operations Information Systems)

In addition, this item has been reviewed by the County Executive Office, County Counsel, and the Auditor-Controller's Office. If there are any questions, please feel free to contact me at 654-2073 or Tully Clifford, Director of the Watershed Protection District, at 654-2040.



Jeff Pratt  
Director

Attachment: Exhibit 1 – Status of the 2013 Ventura County Hazard Mitigation Plan (HMP), Appendix G



## Exhibit 1

## STATUS OF THE 2013 VENTURA COUNTY HAZARD MITIGATION PLAN (HMP), APPENDIX G

Hazard Mitigation Plan Recommendation	Description	Response
1.	Create a GIS-based/Accela pre-application review for new construction and major remodels in hazard areas, such as levee breaks, high and/or very low and/or very high wildfire areas.	<p>The Accela Automation Land Records Management and Permit Processing/Tracking System is an interdepartmental electronic permit processing and tracking system that is currently being used by the Public Works Agency, Resource Management Agency, and the Ventura County Fire Protection District. It is planned to be accessible online to the general public in the near future. It is a GIS system that integrates flood, wildfire, landslide, liquefaction, and other hazard information (mapping) with land-use planning, transportation, site grading, and other County permit processes.</p> <p>Accela enables all County staff to access a single, common, and comprehensive information data base, thereby improving the delivery of permit-related services, including technical reviews and approvals, code enforcement, and issuances of land-use development entitlements.</p>
2.	Integrate the 2010 Hazard Mitigation Plan (HMP), in particular the hazard analysis and mitigation strategy sections, into local planning documents, including the General Plan, emergency operation plans, and capital improvement plans.	<p>The County Sheriff's Office of Emergency Services (OES) has completed the 2013 Emergency Operations Plan (EOP) update. The 2013 EOP is currently under review by the Emergency Planning Council; Plan Review Committee. The Emergency Planning Council 2013 EOP adoption date is expected in January 2014.</p> <p>OES is currently in the process of developing a 2014 Ventura County Operational Area Disaster Recovery Plan and Housing Recovery Plan due to be completed in 2014. The hazard analysis from the 2010 HMP will be integrated into these plans.</p> <p>OES and the County Planning Division will discuss integrating the hazard analysis and mitigation strategy of the HMP into the Safety Element of the County's General Plan.</p>
3.	Seismic structural retrofit or replacement of County and local ramps and bridges that are categorized as structurally deficient by CalTrans are located in high-ground shaking areas and/or are necessary for first responders to use during an emergency.	<p>The County of Ventura does not maintain road ramps. This is CalTrans' responsibility. Currently, there are no County of Ventura bridges with seismic structural deficiencies as determined through regular inspections.</p> <p>In 2011, the PWA Transportation Department received a \$150,000 grant from the Federal Highway Bridge Program to prepare a scope of work for any repairs or replacements needed for three bridges that have been classified by CalTrans as structurally deficient (Bridge Road, Mupu Road, and Wheeler Canyon.) The Scope of Work was completed in 2013. The recommended work is as follows: (1) Bridge Road Bridge requires replacement; (2) Mupu Road Bridge and Wheeler Canyon Road will require rehabilitation of structure.</p> <p>In 2013, PWA applied for and received \$480,000 in funds from the Federal Highway Bridge Program (HBP) for the subject projects. PWA will apply for federal funding for the construction phase.</p>
4.	Stabilize landslide-prone areas through stability improvement measures, including interceptor drains, in situ soil piles, drained earth buttresses, sub-drains, removal of slide areas, and dewatering ground.	<p>The PWA Development and Inspection Services regularly reviews all private development projects relative to grading, soils, and geology (seismic, liquefaction). Plan checking, imposing conditions of development, construction compliance, and enforcement are implemented as part of the grading and building permit application and approvals process.</p>



5.	Acquire, relocate, or elevate residential structures—in particular those that have been identified as Repetitive Loss (RL) properties within the 100-year floodplain, as financially feasible.	<p>Over the past two years, PWA staff has met with three owners of severe repetitive-loss properties in unincorporated Ventura County to determine if they would be interested in selling, relocating, or elevating their homes. Residents responded that, due to financial considerations, they were not interested in participating at this time, but might want to in the future if Federal financial assistance is made available. In 2013, Federal assistance was not available.</p> <p>Project planning and construction will be subject to available FEMA and other federal and state funding, as well as any required financial contributions from affected property owners. The District researches available funding sources on an ongoing basis.</p>
6.	Acquire, relocate, elevate, and/or floodproof critical facilities located within the 100-year floodplain, as financially feasible.	The 2010 Ventura County Hazard Mitigation Plan (HMP) identified critical facilities for the unincorporated areas of the County and the 10 incorporated cities. In 2011, the County Sheriff's OES received funding from the Urban Area Security Institute to undertake a threat and vulnerability analysis for certain critical facilities. The Study was completed in 2012. Assessments were also completed in 2012. This effort will be used as an important planning tool for determining future project priorities.
7.	<p>Reinforce County and local roads, bridges, and ramps from flooding through protective activities which may include elevating the road and installing culverts beneath the road or building a bridge across the area that experiences regular flooding. Reinstall/repair aging traffic control devices to floodproofing standard (e.g., signal lights, warning and stop signs).</p> <p>Activities also include the installation of rock rip-rap within channels at bridge approaches and ditch cleaning to maintain the capacity of ditches to drain the roadway system.</p>	<p>In 2011, the consultant completed evaluation of 78 local bridges (bridge structures less than 20-feet long) under the jurisdiction of the PWA Transportation Department. The summary of the report and findings is as follow:</p> <ul style="list-style-type: none"> <li>• \$3.2 million in bridge replacement projects</li> <li>• \$440,000 for rehabilitation/maintenance of bridges</li> <li>• The work recommended by this study has been incorporated into the Transportation Department's annual CIP and Maintenance Program. Since Federal funding for these bridge projects is not currently available, we will be seeking other funding sources.</li> </ul> <p>Also, the Transportation Department conducts annual ditch cleaning and culvert cleaning before winter to maintain the capacity of ditches and proper drainage flow to mitigate roadway flooding in the rural areas of the County.</p> <p>In 2012, the Transportation Department completed the replacement of existing Telegraph Road Bridge at Ellsworth Barranca.</p> <p>No other actions in 2013.</p>
8.	Work with FEMA Region IX to address any floodplain management issues that may have arisen from the countywide DFIRM, Community Assessment visits, and/or California Department of Water Resources (DWR).	County staff works closely with FEMA Region IX and DWR staff on a regular basis to address development design issues and regulation requirement issues. In 2010-11, the County established project partnerships with FEMA Region IX relative to updating Flood Insurance Studies (FIS) for the Ventura and Santa Clara Rivers and their major tributaries, undertaking five Cooperating Technical Partnerships (CTP studies), the ArKStorm Precipitation Modeling Study, participating in the FEMA Risk Map Hazard Mapping Project, hosting countywide technical floodplain training courses, implemented the CRS Program, and implementing the Fresno Canyon Flood Mitigation Project. The ArKStorm project was completed in October of 2012 and four of the five CTPs were completed in 2012-13. New floodplain maps are expected from FEMA by the fall of 2014.

9.	Increase participation in the NFIP by entering the CRS Program. Through enhanced floodplain management activities the CRS will allow property owners to receive a discount on their flood insurance.	Since October 2, 2011, owners of floodplain properties in the Unincorporated Ventura County have been receiving an annual policy premium discount of up to 20% on new and renewal policies as a direct result of the County's Class 6 rating.
10.	Seismic non-structural and structural retrofit of critical facilities and infrastructure.	<p>Seismic non-structural retrofits or supporting of equipment and furnishings is performed on an as-needed basis, or as requested by other County departments. Seismic structural retrofits have been identified at the East County Courthouse. Awaiting funding approval for Santa Paula Agricultural Commissioner's Building.</p> <p>The Ventura County Health Care Agency (HCA) has been implementing seismic and non-structural retrofitting of the Ventura County Medical Center (VCMC) as per SB 1953 structural (SPC) and non-structural (NPC) categories. Fainer Wing (Building 304) NPC is now complete, except for the bracing of the sprinkler systems. The sprinkler systems will be completed after the completion of the replacement hospital wing in January 2020. The design is approaching completion for the bracing of the sprinkler systems in Building 399. This work is scheduled for completion in the Fall of 2013. Building 367 has been withdrawn as the building will be demolished as part of the replacement hospital wing and functions replaced in a new facility. Time extensions have been requested for the remaining buildings based on being completed after completion of the replacement hospital wing.</p> <p>The HCA is also in the design phase of the multiple structural (SPC) and non-structural (NPC) upgrades for the buildings at VCMC Santa Paula Hospital. Work includes material testing to show compliance with the HAZUS approach to obtaining structural approval for buildings No. 1 and No. 2 through January 2030. Voluntary upgrades (VSI) will also be needed to obtain this structural approval. Work will include the addition of drag-struts at walls to improve the seismic stability of the structures. Non-structural improvements have been divided into four packages: The first two packages have been approved and the third package is being prepared for a second submission. The fourth package for bracing of the sprinklers will be accomplished by a change to the first three packages. The designs for the improvements are to be completed in December 2013 and the construction is scheduled for completion in December 2014.</p> <p>Construction of the Simi Valley Fire Stations No. 43 and No. 47 were completed and conceptual design is underway for the Ojai Fire Station No. 20, Fillmore Fire Station No. 27, and Newbury Park Fire Station No. 35. Design is anticipated to be complete around the fall of 2014 with construction of the facilities in late 2015. These fire stations will be designed and built in accordance with seismic requirements for critical facilities.</p>
11.	Manage vegetation in areas within and adjacent to rights-of-way and in close proximity to critical facilities in order to reduce the risk of tree failure and property damage. The work effort focuses mainly on ditch clean-outs.	The GSA, PWA, and the District Operations and Maintenance Division perform maintenance cleanouts on drainage ditches and bioswales on an annual schedule. Tree pruning and removal is also an annual maintenance program along certain rights-of-way under the jurisdiction of the PWA's Transportation Department. For areas under the jurisdiction of GSA, a licensed arborist conducts a tree assessment on rights-of-way and critical facilities every two years. All identified deficiencies are rectified on a priority basis.



12.	Develop a free annual tree chipping and tree pick up day that encourages residents living in very high and high to severe wind hazard areas to manage trees and shrubs at risk for falling on nearby structures.	<p>The County does not have a free-of-charge tree chipping service at this time. However, the PWA's Integrated Waste Management Division (IWMD) provides similar services through annual "Community Beautification" events which allow residents to recycle their green/yard waste at no cost. Twelve events were held in 2012.</p> <p>In addition, IWMD administers two annual "Free Dump Days" at the Simi Valley Landfill where residents of unincorporated Ventura County can recycle their green/yard waste at no cost.</p>
13.	Bolt down the roofs of critical facilities in order to prevent wind damage.	In 2005, GSA seismically upgraded the roof-to-wall connections on the County Service Building, which houses the Sheriff's 911 operation. No other roof deficiencies on GSA-maintained buildings have since been identified.
14.	Participate in the National Oceanic and Atmospheric Administration (NOAA) Tsunami Ready Program.	In 2012, the County of Ventura became certified by FEMA as a Tsunami Ready Community. Approximately 70 tsunami warning sign locations have been installed at specified locations along the County's coastline informing residents and visitors about the hazard.
15.	Implement better recordkeeping measures as well as on the part of food processors and handlers.	<p>The County Environmental Health Department (EHD) issues permits and annually inspects all retail food facilities throughout unincorporated Ventura County. Any concerns about recordkeeping are generally identified during the inspections and permittees are required to make the necessary changes.</p> <p>The State Department of Public Health Food and Drug Branch have regulatory oversight of wholesale food processing facilities.</p>
16.	Implement a fuel reduction program, such as the collection and disposal of dead fuel within open spaces and around critical facilities and residential structures located within a State Responsibility Area (SRA) or Local Responsibility Area (LRA) high or very high wildfire zone.	The Ventura County Fire Protection District utilizes a wide variety of methods and programs to reduce the effects of wild fires. Programs specific to the protection of valued resources within the wildland urban interface include vegetation modification, vegetation reduction, and public education.
17.	Create a vegetation management program that provides to the elderly, disabled, or low-income property owners who lack the resources to remove flammable vegetation around their homes.	The Ventura County Fire Protection District annually implements fuel reduction and public outreach programs that benefit all residents through the unincorporated Ventura County.
18.	Implement post-fire debris flow hillside and channel treatments; i.e., seeding, mulching, check dams/debris racks, as needed.	The Ventura County Fire Protection District annually implements fuel reduction and public outreach programs that benefit all residents throughout the unincorporated Ventura County.
19.	Encourage property owners located in dam or levee inundation hazard areas to purchase voluntary flood insurance.	<p>The County actively encourages owners of floodplain properties to purchase flood insurance through a number of outreach avenues, including the County's CRS Program (Activities 330; brochure 350; CRS website; 502: Severe Repetitive-Loss Letters and an informational flyer which is attached to all issued Floodplain Permits.)</p> <p>Copies of the 2010 ASCE brochure: "So You Live Behind A Levee!" is made available to the public on an ongoing basis at certain publicly accessible locations in the County Government Center. The brochure is distributed by County staff at public outreach meetings on levees and floodplain mapping studies.</p>
20.	Implement a fuel modification program which also includes	Through the County's land-use entitlement process administered through the RMA Planning Division, the Ventura County Fire

	residential maintenance requirements and enforcement, plan submittal and approval process, guidelines for planting, and a listing of undesirable plant species. Require buildings and developers to submit their plans complete with proposed fuel modification zones to the local fire department for review and approval prior to beginning construction.	Protection District reviews, comments, and imposes conditions of approval on all development applications, including but not limited to, maintenance requirements, required plantings, and establishment of fuel modification zones.
21.	Rehabilitate three major Ventura County District levees countywide in order to meet federal levee certification requirements found in 44 CFR 65.10. Once rehabilitated, these levees will provide flood protection from the 1% annual-chance flood event.	<p>During the October 2012 through September 2013 period, FEMA continued its ongoing internal review of the District's November 2009 Levee Certification Report (LCR) submittal packages which documented the completion of maintenance construction repairs in 2009 and 2010 for three Provisionally Accredited Levees (PALs): [i.e., ASR-2 Levee Floodwall in unincorporated Santa Rosa Valley, AS-6 Levee in Simi Valley, and SC-1 Levee in Fillmore]. Levee repairs included rock revetment rip-rap repairs, levee toe repairs, floodwall repairs, vegetation removal, and stop-log improvements. Completion of these levee rehabilitation repairs was required to document local compliance with the Federal Levee Certification requirements found in 44 CFR 65.10 for these three District levees.</p> <p>In October of 2012, the District awarded construction contracts for channel widening and deepening improvement projects which will be used by the District to document local compliance with the levee certification requirements found in 44 CFR 65.10 for the CC-3 Levee in the City of Camarillo. Project construction work is expected to be completed by CYE 2013.</p> <p>The District performed preliminary engineering design, environmental constraint assessment and rights of way survey work in support of levee rehabilitation construction projects required for the ultimate future certification of the SC-2 [downstream portion] of Sespe Creek Levee in Fillmore, and the SCR-3 Levee in Oxnard.</p> <p>The District continued an ongoing project partnership with the Los Angeles District of the United States Army Corps (USACE) in support of the levee screening submittals for the Corps-built Sespe Creek Levee in Fillmore, the SCR-1 Levee in Oxnard, and the VR-1 Levee in Ventura. District activities included providing necessary levee cross-sections, relevant hydrology and hydraulics information, and performing maintenance repair and vegetation removal work for these three levees. Additionally, in May of 2013, the District submitted a revised Letter of Intent to the USACE for the SCR-1 Levee to be improved under their System Wide Improvement Framework (SWIF) policy.</p> <p>The District continues to work with the USACE, as well as affected cities, residents, and property owners protected by District levees throughout Ventura County, in order to marshal federal, state, and local funding resources necessary to complete local levee rehabilitation projects. In the fall of 2012, the District was awarded \$9.5 million in State grant funds to complete Local Levee Evaluation (LOLE) and Local Levee Critical Repair (LLCR) work projects under the State's Local Levee Assistance Program (LLAP) for various District levees countywide.</p>



		Once local levee rehabilitation projects are successfully completed for the above mentioned levees, the District will be able to document full compliance with all applicable Federal Levee Certification requirements found in Title 44 CFR 65.10 for these eight District levees.
22.	Keep abreast of new research regarding the effects of climate change, particularly in regards to flooding, increased storms, and wildfires. Review all existing plans, codes, and other regulations to ensure the effects of climate change are addressed as appropriate once the impacts are better known and defined.	<p>From 2010-13, the County received a \$100,000 grant from FEMA to partner with FEMA Region IX and the USGS to develop a precipitation model called "ArKStorm," which simulates a rainfall event equivalent to the 1% annual chance storm (100-year) across all of Ventura County. Precipitation models are based on what FEMA calls "atmospheric rivers" of rainfall that originates in the Pacific Ocean and moves inland at specific California coastal locations, including Ventura County. Climate change data is included in the predictive modeling and risk/impact analyses.</p> <p>A tabletop emergency planning exercise was held on October 25, 2012, involving staff from the County, Sheriff's OES, local cities, FEMA, and the USGS. The goal of the ArKStorm was to determine flooding impacts on critical community infrastructure and facilities, such as bridges, hospitals, fire and police stations, nursing homes, and public gathering centers and to be better able to anticipate, plan, and respond to such impacts.</p>
23.	Consider new mitigation measures for effects related to climate change, once the impacts are better defined. For example, mitigation measures may include raising sea walls to address sea-level rise.	In December, 2011, FEMA Region IX initiated a two-year coastal engineering study for all coastal floodplain communities in Southern California. The "Open Pacific Coast Study" addresses coastal flood risk, wave hazards, and the effects of climate change. Current floodplain maps, including flood zones, boundaries, and elevations will be updated accordingly. Unincorporated Ventura County has been actively participating in this Study with FEMA. Public outreach opportunities are planned for 2014.
24.	Work with Cooperating Agencies of Ventura River Multi-Species Habitat Conservation Plan to continue to implement mitigation measures identified in the Plan; i.e., improving habitat and/or access to habitat.	<p>The Committee for the Ventura River Multi-Species Habitat Conservation Plan disbanded a few years ago. In 2008, the Ventura County Board of Supervisors (BOS) certified the Ventura County Watershed Protection District's "Final Program Environmental Impact Report" which adopted 26 environmental Best Management Practices (BMPs) for ongoing routine operations and maintenance improvements to the Ventura River and its tributaries.</p> <p>In 2013, the District was actively involved in a number of improvement efforts along the Ventura River through its operations and maintenance program, including removal of vegetation on levees (as per FEMA and USACE guidelines), removal of 96 tons of trash and debris, removal of sediment in Ventura River channels and debris basins, and maintenance of District signs and fences.</p> <p>To meet its obligations under the National Pollutant Discharge Elimination System (NPDES) specifically the Ventura River Total Maximum Daily Load (TMDL) the District was actively involved in 2013 with the removal of invasive, non-native giant reed (<i>Arundo Donax</i>). Follow-up treatments are planned 2-3 times annually for the next 5 years. Removal of giant reed and other non-native vegetation on approximately 1,000 acres in the Upper Ventura River Watershed and tributaries has been ongoing since 2007 and continues for about 15 years into the future.</p>
25.	After every exercise or event, an After Action Report should be completed. The After Action Report has two components:	The Sheriff's OES and lead agencies currently complete and submit After Action Reports to state and federal agencies following all occurrences.

	(1) It captures observations and recommendations based on incident objects associated with the capabilities and tasks; and (2) an Improvement Plan which identifies corrective actions, assigning them to responsible parties, and establishes targets for their completion.	The County uses the Homeland Security Exercise and Evaluation Program for documenting and tracking after-incident actions and recommendations.
26.	Implement appropriate life/safety warning/evacuation systems in Ventura County, including the Emergency Alert System, Flood Threat Recognition System, Reverse 911 System, and Tsunami Watch and Warning messages during an event or disaster.	<p>Ventura County uses various systems to communicate important life/safety information during an emergency. The two primary systems responsible for the bulk of emergency notifications are the Emergency Alert System (EAS) and the Ventura County Alert Emergency Notification System.</p> <p>The Emergency Alert System is a joint effort among local Cumulus Media broadcast radio stations, the National Weather Service, and the Ventura County Sheriff's Office. All three agencies have the ability to activate the system and interrupt regular cable television and radio broadcast programming with important information. Locally, 100.7 KHAY, 95.1 KBBY, and AM 1450 KVEN all carry emergency alert system broadcasts.</p> <p>In addition to the Emergency Alert System, the Sheriff's OES—in conjunction with all Ventura County Cities—operates and maintains the VC Alert Emergency Notification System. VC Alert is housed in various powerful datacenters throughout the United States and is capable of sending out 100,000 text messages per hour and 100,000 e-mails per hour. The system contains all listed and unlisted land line telephone numbers, in addition to 25,000 records for Ventura County residents who have provided their personal cell phone numbers and e-mail addresses for emergency use.</p>



# county of ventura

**PUBLIC WORKS AGENCY**  
**JEFF PRATT**  
Agency Director

October 28, 2014

Ventura County Board of Supervisors  
800 South Victoria Avenue  
Ventura, CA 93009

Watershed Protection District  
**Tully K. Clifford**, Director

Transportation Department  
**David L. Fleisch**, Director

Engineering Services Department  
**Herbert L. Schwind**, Director

Water & Sanitation Department  
**David J. Sasek**, Director

Central Services Department  
**Janice E. Turner**, Director

**Subject: Receive and File the County of Ventura Report on the 2014 Status of the Ventura County Hazard Mitigation Plan Within Unincorporated Areas of Ventura County as Required for Year 4 Recertification in the Community Rating System Program.**  
**All Supervisorial Districts; All Zones**

**Recommendation:**

Receive and file the County of Ventura Report on the 2014 Status of the Ventura County Hazard Mitigation Plan (HMP) within Unincorporated Areas of Ventura County as required for Year 4 Recertification in the Community Rating System (CRS).

**Fiscal Mandate/Impact:**

Preparation of this Board item requires minimal staff time, which can be accommodated within the existing budget.

**Executive Summary:**

As part of the CRS Recertification process, the County is required to provide the Federal Emergency Management Agency (FEMA) an annual report on the implementation status of the Ventura County HMP for Unincorporated Areas of Ventura County. This report summarizes the activities undertaken in 2014 and demonstrates the County's ongoing commitment to providing community safety and protection from flooding and other hazards, which is a key goal of the CRS program.

**Discussion:**

In 2005, your Board adopted the first HMP, which focused on threats posed by floods, earthquakes, geological hazards, and wildfires. As required by the Federal Disaster Mitigation Act of 2000, this Plan must be updated every five years in order to continue to be eligible to receive federal assistance during declared disasters and emergencies,



Hall of Administration L # 1600  
800 S. Victoria Avenue, Ventura, CA 93009 • (805) 654-2018 • FAX (805) 654-3952 • <http://www.ventura.org/pwa>



Ventura County Board of Supervisors  
October 28, 2014  
Page 2

as well as to be able to apply for funding under certain FEMA grant programs. As in the development of the 2005 HMP, the County Sheriff's Office of Emergency Services (OES) took the lead and coordinated 40 other communities and special districts within the Ventura County Operational Area, including the County Public Works Agency, in the preparation of the 2010 HMP. The HMP serves to enhance public awareness and understanding, provides a decision-making tool for management, strengthens local policies for hazard mitigation capabilities, provides inter-jurisdictional coordination of mitigation-related programming, and achieves regulatory compliance.

The HMP has been updated to meet all state and federal requirements and was adopted by your Board on December 14, 2010. The Plan was approved by FEMA on February 17, 2011. The next 5-year HMP Update is scheduled to be completed by the County Sheriff's OES and forwarded to your Board for adoption by September 29, 2015. This will ensure that the County of Ventura remains in good standing with the CRS Program.

On October 1, 2011, Unincorporated Ventura County officially became a Class 6 CRS community. Through the County's ongoing implementation of floodplain management programs that exceed the minimum protection and mitigation requirements of the National Flood Insurance Program (NFIP), floodplain property owners in the unincorporated areas of Ventura County receive up to a 20% discount each year on their flood insurance premiums.

To remain in good standing in the CRS, the County must recertify each year and provide documentation that demonstrates it continues to implement all CRS activities that earned CRS credit points for the County's Class 6 rating.

An important Recertification requirement is to report to your Board and the state NFIP Coordinator's Office each year on the progress being made towards implementing the recommendations contained in Appendix G of Ventura County's HMP. Agencies involved in implementation include the County Sheriff's Office of Emergency Services, the Public Works Agency, the Watershed Protection District, the Ventura County Fire Protection District, General Services Agency, and the Resource Management Agency.

**Status Update of the HMP:**

Exhibit 1 presents the 26 recommendations contained in Appendix G of the HMP and summarizes the actions that were undertaken in 2014. Recommendations focus primarily on inspections for potential structural deficiencies and retrofitting of critical facilities and transportation systems in unincorporated Ventura County, project partnerships with FEMA, implementing vegetation management practices to protect properties from wildfires, and establishing hazard warning and public evacuation systems. Most of the recommendations are being implemented and are part of the normal business operations of the County. This demonstrates the County's ongoing commitment to providing community safety and protection from flooding and other hazards, which is a key goal of the CRS program.



Ventura County Board of Supervisors  
October 28, 2014  
Page 3

This item has been reviewed by the following agencies:

- Public Works (Transportation, Development and Inspection Services, Integrated Waste Management, and Watershed Protection District)
- Ventura County Sheriff's Office of Emergency Services
- Ventura County Fire Protection District
- General Services Agency
- Resource Management Agency (Operations Information Systems)

In addition, this item has been reviewed by the County Executive Office, County Counsel, and the Auditor-Controller's Office. If there are any questions, please feel free to contact me at 654-2073 or Tully Clifford, Director of the Watershed Protection District. He can be reached at 654-2040.



Jeff Pratt  
Director

Attachment: Exhibit 1 – Status of the 2014 Ventura County Hazard Mitigation Plan (HMP), Appendix G



## Exhibit 1

## STATUS OF THE 2014 VENTURA COUNTY HAZARD MITIGATION PLAN (HMP), APPENDIX G

Hazard Mitigation Plan Recommendation	Description	Response
1.	Create a GIS-based/Accela pre-application review for new construction and major remodels in hazard areas, such as levee breaks, high and/or very low and/or very high wildfire areas.	<p>The Accela Automation Land Records Management and Permit Processing/Tracking System is an interdepartmental electronic permit processing and tracking system that is currently being used by the Public Works Agency, Resource Management Agency, and the Ventura County Fire Protection District. It is a GIS system that integrates flood, wildfire, landslide, liquefaction, and other hazard information (mapping) with land-use planning, transportation, site grading, and other County permit processes.</p> <p>Accela enables County staff to access a single, common, and comprehensive information data base, thereby improving the delivery of permit-related services, including technical reviews and approvals, code enforcement, and issuances of land-use development entitlements.</p>
2.	Integrate the 2010 Hazard Mitigation Plan (HMP), in particular the hazard analysis and mitigation strategy sections, into local planning documents, including the General Plan, emergency operation plans, and capital improvement plans.	<p>The County Sheriff's Office of Emergency Services (OES) has completed the update, review, and approval processes for the 2014 Emergency Operations Plan. OES continues to develop a County-wide Recovery Plan and has completed a basic document with annexes to follow.</p> <p>The Housing Recovery Annex is under review by Area Housing Authorities. Both the Hazard Mitigation Plan and Emergency Operations Plan are aligned with the County General Plan, Safety Element, and the Hazards Appendix.</p>
3.	Seismic structural retrofit or replacement of County and local ramps and bridges that are categorized as structurally deficient by CalTrans are located in high-ground shaking areas and/or are necessary for first responders to use during an emergency.	<p>The County of Ventura does not maintain road ramps. This is CalTrans' responsibility. Currently, there are no County of Ventura bridges with seismic structural deficiencies as determined through regular inspections.</p> <p>In 2011, the PWA Transportation Department received a \$150,000 grant from the Federal Highway Bridge Program to prepare a scope of work for any repairs or replacements needed for three bridges that have been classified by CalTrans as structurally deficient (Bridge Road, Mupu Road, and Wheeler Canyon.) The Scope of Work was completed in 2013. The recommended work is as follows: (1) Bridge Road Bridge requires replacement; (2) Mupu Road Bridge and Wheeler Canyon Road will require rehabilitation of structure. Currently programmed with Federal funds for design, construction, and construction engineering. Estimated construction in late 2016.</p>
4.	Stabilize landslide-prone areas through stability improvement measures, including interceptor drains, in situ soil piles, drained earth buttresses, sub-drains, removal of slide areas, and dewatering ground.	The PWA Development and Inspection Services regularly reviews all private development projects relative to grading, soils, and geology (seismic, liquefaction). Plan checking, imposing conditions of development, construction compliance, and enforcement are implemented as part of the grading and building permit application and approvals process.
5.	As financially feasible, acquire, relocate, or elevate residential structures, in particular those that have been identified as Repetitive Loss (RL) properties within the 100-year floodplain.	Since 2010, PWA staff has met with three owners of Severe Repetitive-Loss properties in unincorporated Ventura County to determine if they would be interested in selling, relocating, or elevating their homes. Residents responded that, due to financial considerations, they were not interested in participating at this time, but might want to in the future if Federal financial

		assistance is made available. In 2013, Federal assistance was not available. During the 2014 FEMA Community Assistance Visitation (CAV), FEMA informed County staff that there may be funding available in late 2014 or early 2015 to address Severe Repetitive Loss properties in Unincorporated Ventura County. Staff will continue to work with FEMA and report back to your Board if this opportunity materializes.
6.	Acquire, relocate, elevate, and/or floodproof critical facilities located within the 100-year floodplain, as financially feasible.	The 2010 Ventura County Hazard Mitigation Plan (HMP) identified critical facilities for unincorporated areas of the County and 10 cities. Grant funding has been used to identify and evaluate some of the critical facilities. Other grant funds have been used to strengthen facilities and make them more resilient. Data from those evaluations will be used in the 2015 HMP. If identified, additional hazards will be included in the 2015 HMP.
7.	<p>Reinforce County and local roads, bridges, and ramps from flooding through protective activities which may include elevating the road and installing culverts beneath the road or building a bridge across the area that experiences regular flooding. Reinstall/repair aging traffic control devices to floodproofing standard (e.g., signal lights, warning and stop signs).</p> <p>Activities also include the installation of rock rip-rap within channels at bridge approaches and ditch cleaning to maintain the capacity of ditches to drain the roadway system.</p>	<p>In 2011, the consultant completed evaluation of 78 local bridges (bridge structures less than 20-feet long) under the jurisdiction of the PWA Transportation Department. The summary of the report and findings is as follow:</p> <ul style="list-style-type: none"> <li>• \$3.2 million in bridge replacement projects</li> <li>• \$440,000 for rehabilitation/maintenance of bridges</li> <li>• The work recommended by this study has been incorporated into the Transportation Department's annual CIP and Maintenance Program. Since Federal funding for these bridge projects is not currently available, we will be seeking other funding sources.</li> </ul> <p>Also, the Transportation Department conducts annual ditch cleaning and culvert cleaning before winter to maintain the capacity of ditches and proper drainage flow to mitigate roadway flooding in the rural areas of the County.</p> <p>In 2012, the Transportation Department completed the replacement of existing Telegraph Road Bridge at Ellsworth Barranca.</p> <p>In 2014-2015, the In-Design Phase will be undertaken for structural bridge improvements on Bridge Road Bridge, Mupu Road Bridge, and Wheeler Canyon Road Bridge.</p> <p>On July 15, 2014, a Design and Development contract was awarded to the Consultant.</p>
8.	Work with FEMA Region IX to address any floodplain management issues that may have arisen from the countywide DFIRM, Community Assessment visits, and/or California Department of Water Resources (DWR).	County staff works closely with FEMA Region IX and DWR staff on a regular basis to address development design issues and regulation requirement issues. In 2010-11, the County established project partnerships with FEMA Region IX relative to updating Flood Insurance Studies (FIS) for the Ventura and Santa Clara Rivers and their major tributaries, undertaking five Cooperating Technical Partnerships (CTP studies), the ArkStorm Precipitation Modeling Study, participating in the FEMA Risk Map Hazard Mapping Project, hosting countywide technical floodplain training courses, implemented the CRS Program, and implementing the Fresno Canyon Flood Mitigation Project. The ArkStorm project was completed in October of 2012 and four of the five CTPs were completed in 2012-13.



		New floodplain maps for the East Ojai CTP became effective on September 26, 2014. New floodplain maps for the Jepson Wash, Happy Valley, and Orcutt Canyon CTPs are expected from FEMA by the Spring of 2015.
9.	Increase participation in the NFIP by entering the CRS Program. Through enhanced floodplain management activities the CRS will allow property owners to receive a discount on their flood insurance.	Since October 2, 2011, owners of floodplain properties in the Unincorporated Ventura County have been receiving an annual policy premium discount of up to 20% on new and renewal policies as a direct result of the County's Class 6 rating. The unincorporated Ventura County will be re-applying to the CRS program on October 1, 2015.
10.	Seismic non-structural and structural retrofit of critical facilities and infrastructure.	<p>Seismic non-structural retrofits or supporting of equipment and furnishings is performed on an as-needed basis, or as requested by other County departments.</p> <p>The Ventura County Health Care Agency (HCA) has been implementing seismic and non-structural retrofitting of the Ventura County Medical Center (VCMC) as per SB 1953 structural (SPC) and non-structural (NPC) categories. Fairer Wing (Building 304) NPC is now complete in the acute areas, except for the bracing of the sprinkler systems. The sprinkler systems will be completed prior to the completion of the replacement hospital wing in May 2017. The bracing of the sprinkler systems in Building 399 has been completed. Building 367 has been withdrawn as the building will be demolished as part of the replacement hospital wing and functions replaced in a new facility. Time extensions have been granted for the remaining buildings based on being completed after completion of the replacement hospital wing or by January 2020.</p> <p>The HCA is also in the design phase of the multiple structural (SPC) and non-structural (NPC) upgrades for the buildings at VCMC Santa Paula Hospital. Work includes material testing to show compliance with the HAZUS approach to obtaining structural approval for buildings No. 1 and No. 2 through January 2030. Voluntary upgrades (VSI) will also be needed to obtain this structural approval. Work will include the addition of drag-struts at walls to improve the seismic stability of the structures. Non-structural improvements have been divided into four packages: The first two packages have been approved and the third package is being prepared for a second submission. The fourth package for bracing of the sprinklers will be accomplished by a change to the first three packages. The designs for the improvements are completed and the construction is scheduled for completion around December 2014.</p> <p>Construction of the Ojai Fire Station No. 20, Fillmore Fire Station No. 27, and Newbury Park Fire Station No. 35 is expected by mid-2015 with the construction of Fillmore starting in the spring and Newbury Park in the summer. These fire stations will be designed and built in accordance with seismic requirements for critical facilities.</p>
11.	Manage vegetation in areas within and adjacent to rights-of-way and in close proximity to critical facilities to reduce the risk of tree failure and property damage. The work effort	The GSA, PWA, and the District Operations and Maintenance Division perform maintenance cleanouts on drainage ditches and bioswales on an annual schedule. Tree pruning and removal is also an annual maintenance program along certain rights-of-way under the jurisdiction of the PWA's Transportation Department.



	focuses mainly on ditch clean-outs.	For areas under the jurisdiction of GSA, a licensed arborist conducts a tree assessment on rights-of-way and critical facilities every two years. All identified deficiencies are rectified on a priority basis.
12.	Develop a free annual tree chipping and tree pick up day that encourages residents living in very high and high-to-severe wind hazard areas to manage trees and shrubs at risk for falling on nearby structures.	<p>The County does not have a free-of-charge tree chipping service at this time. However, the PWA's Integrated Waste Management Division (IWMD) provides similar services through annual "Community Beautification" events which allow residents to recycle their green/yard waste at no cost. Fourteen events were held in 2013.</p> <p>In addition, IWMD administers annual "Free Dump Days" at the Simi Valley Landfill where residents of unincorporated Ventura County can recycle their green/yard waste at no cost.</p>
13.	Bolt down the roofs of critical facilities in order to prevent wind damage.	In 2005, GSA seismically upgraded the roof-to-wall connections on the County Service Building, which houses the Sheriff's 911 operation. No other roof deficiencies on GSA-maintained buildings have since been identified.
14.	Participate in the National Oceanic and Atmospheric Administration (NOAA) Tsunami Ready Program.	In 2012, the County of Ventura became certified by FEMA as a Tsunami Ready Community. Approximately 70 tsunami warning sign locations have been installed at specified locations along the County's coastline informing residents and visitors about the hazard.
15.	Implement better recordkeeping measures as well as on the part of food processors and handlers.	<p>The County Environmental Health Department (EHD) issues permits and annually inspects all retail food facilities throughout unincorporated Ventura County. Any concerns about recordkeeping are generally identified during the inspections and permittees are required to make the necessary changes.</p> <p>The State Department of Public Health Food and Drug Branch have regulatory oversight of wholesale food processing facilities.</p>
16.	Implement a fuel reduction program, such as the collection and disposal of dead fuel within open spaces and around critical facilities and residential structures located within a State Responsibility Area (SRA) or Local Responsibility Area (LRA) high or very high wildfire zone.	The Ventura County Fire Protection District utilizes a wide variety of methods and programs to reduce the effects of wild fires. Programs specific to the protection of valued resources within the wildland urban interface include vegetation modification, vegetation reduction, and public education.
17.	Create a vegetation management program that provides services to the elderly, disabled, or low-income property owners who lack the resources to remove flammable vegetation around their homes.	The Ventura County Fire Protection District annually implements fuel reduction and public outreach programs that benefit all residents through the unincorporated Ventura County.
18.	Implement post-fire debris flow hillside and channel treatments; i.e., seeding, mulching, check dams/debris racks, as needed.	The Ventura County Fire Protection District annually implements fuel reduction and public outreach programs that benefit all residents throughout the unincorporated Ventura County.

19.	Encourage property owners located in dam or levee inundation hazard areas to purchase voluntary flood insurance.	<p>The County actively encourages owners of floodplain properties to purchase flood insurance through a number of outreach avenues, including the County's CRS Program (Activities 330; brochure 350; CRS website; 502: Severe Repetitive-Loss Letters, and an informational flyer which is attached to all issued Floodplain Permits.)</p> <p>Copies of the 2010 ASCE brochure: "So You Live Behind A Levee!" are made available to the public on an ongoing basis at certain publicly accessible locations in the County Government Center. The brochure is distributed by County staff at public outreach meetings on levees and floodplain mapping studies.</p>
20.	Implement a fuel modification program which also includes residential maintenance requirements and enforcement, plan submittal and approval process, guidelines for planting, and a listing of undesirable plant species. Require buildings and developers to submit their plans complete with proposed fuel modification zones to the local fire department for review and approval prior to beginning construction.	<p>Through the County's land-use entitlement process administered through the RMA Planning Division, the Ventura County Fire Protection District reviews, comments, and imposes conditions of approval on all development applications, including but not limited to, maintenance requirements, required plantings, and establishment of fuel modification zones.</p>
21.	Rehabilitate eight major Ventura County District levees countywide in order to document local compliance with the Federal Levee Certification Regulatory federal levee certification regulatory requirements found in 44 CFR 65.10. Once rehabilitated and certified, these eight District levees will be accredited by FEMA on Digital Flood Insurance Maps (DFIRMs) as provide flood protection from the 1% annual-chance flood event.	<p>During the October 2013 through September 2014 period, FEMA continued its ongoing internal review of the District's November 2009 Levee Certification Report (LCR) submittal packages which documented the completion of maintenance construction repairs in 2009 and 2010 for three Provisionally Accredited Levees (PALs): [i.e., ASR-2 Levee Floodwall in unincorporated Santa Rosa Valley, AS-6 Levee in Simi Valley, and SC-1 Levee in Fillmore]. Levee repairs included rock revetment rip-rap repairs, levee toe repairs, floodwall repairs, vegetation removal, and stop-log improvements. Completion of these levee rehabilitation repairs was required to document local compliance with the Federal Levee Certification requirements found in 44 CFR 65.10 for these three District levees.</p> <p>In March, 2014, the District's Design and Construction Division completed the construction contract close-out work for Calleguas Creek channel widening and deepening improvement projects which will be used by the District to document local compliance with the levee certification requirements found in 44 CFR 65.10 for the CC-3 Levee in the City of Camarillo.</p> <p>The District completed preliminary engineering design, environmental constraint assessment and rights of way survey work in support of levee rehabilitation construction projects required for the ultimate future certification of the SC-2 [downstream portion] of Sespe Creek Levee in Fillmore, and the SCR-3 Levee in Oxnard. Ongoing coordination between the District and the USACE required to complete final design plans and construction specifications for the SC-2 Levee project continued during the reporting period.</p> <p>The District continued to develop an ongoing project partnership with the Los Angeles District of the USACE in support of the</p>



		<p>rehabilitation of the SCR-1 Levee. In December of 2013, the District and USACE met to review the District's draft Initial Appraisal Report (IAR) in support of the new start for a Section 216 Feasibility Study for the SCR-1 Levee in Oxnard. In July of 2014, the USACE agreed to facilitate the completion of the IAR for submittal to USACE South Pacific Division (SPD) and Headquarters USACE in Washington, D.C., in support of the potential new start Reconnaissance Study submitted by the District in March of 2014 for a potential new start in Federal Fiscal Year 2016.</p> <p>The District continues to work closely with the USACE, as well as affected cities, residents, and property owners protected by District levees throughout Ventura County, in order to marshal federal, state, and local funding resources necessary to complete local levee rehabilitation projects.</p> <p>Once levee rehabilitation projects are successfully completed for the above-mentioned levees, the District will be able to document full compliance with all applicable Federal Levee Certification requirements found in Title 44 CFR 65.10 for all of these District owned and operated levees.</p>
22.	<p>Keep abreast of new research regarding the effects of climate change, particularly in regards to flooding, increased storms, and wildfires. Review all existing plans, codes, and other regulations to ensure the effects of climate change are addressed as appropriate once the impacts are better known and defined.</p>	<p>From 2010-13, the County received a \$100,000 grant from FEMA to partner with FEMA Region IX and the USGS to develop a precipitation model called "ArkStorm," which simulates a rainfall event equivalent to the 1% annual chance storm (100-year) across all of Ventura County. Precipitation models are based on what FEMA calls "atmospheric rivers" of rainfall that originates in the Pacific Ocean and moves inland at specific California coastal locations, including Ventura County. Climate change data is included in the predictive modeling and risk/impact analyses.</p> <p>A tabletop emergency planning exercise was held on October 25, 2012, involving staff from the County, Sheriff's OES, local cities, FEMA, and the USGS. The goal of the ArkStorm was to determine flooding impacts on critical community infrastructure and facilities, such as bridges, hospitals, fire and police stations, nursing homes, and public gathering centers and to be better able to anticipate, plan, and respond to such impacts.</p>
23.	<p>Consider new mitigation measures for effects related to climate change, once the impacts are better defined. For example, mitigation measures may include raising sea walls to address sea-level rise.</p>	<p>In December, 2011, FEMA Region IX initiated a four-year coastal engineering study for all coastal floodplain communities in Southern California. The "Open Pacific Coast Study" addresses coastal flood risk, wave hazards, and the effects of climate change. Current floodplain maps including flood zones, boundaries, and elevations will be updated accordingly. Unincorporated Ventura County has been actively participating in this Study with FEMA. Public outreach opportunities are planned for late summer of 2015.</p>
24.	<p>Work with Cooperating Agencies of Ventura River Multi-Species Habitat Conservation Plan to continue to implement mitigation measures identified in the Plan; i.e., improving habitat and/or access to habitat.</p>	<p>The Committee for the Ventura River Multi-Species Habitat Conservation Plan disbanded a few years ago. In 2008, the Ventura County Board of Supervisors (BOS) certified the Ventura County Watershed Protection District's "Final Program Environmental Impact Report" which adopted 26 environmental Best Management Practices (BMPs) for ongoing routine operations and maintenance improvements to the Ventura River and its tributaries.</p>

		<p>In 2014, the District was actively involved in a number of improvement efforts along the Ventura River and its tributaries through its San Antonio operations and maintenance program, including removal of vegetation on levees (as per FEMA and USACE guidelines), removal of 0.34 tons of trash and debris, removal of sediment in Ventura River channels and debris basins, and maintenance of District signs and fences.</p> <p>To meet its obligations under the National Pollutant Discharge Elimination System (NPDES) specifically the Ventura River Total Maximum Daily Load (TMDL) the District was actively involved in 2014 with the removal of invasive, non-native giant reed (<i>Arundo Donax</i>). Follow-up treatments are planned 2-3 times annually for the next 4 years. Removal of giant reed and other non-native vegetation on approximately 1,000 acres in the Upper Ventura River Watershed and tributaries has been ongoing since 2007 and continues for about 15 years into the future.</p>
25.	<p>After every exercise or event, an After Action Report should be completed. The After Action Report has two components: (1) It captures observations and recommendations based on incident objects associated with the capabilities and tasks; and (2) an Improvement Plan which identifies corrective actions, assigning them to responsible parties, and establishes targets for their completion.</p>	<p>The Sheriff's OES and lead agencies currently complete and submit After Action Reports to state and federal agencies following all occurrences.</p> <p>The County uses the Homeland Security Exercise and Evaluation Program for documenting and tracking after-incident actions and recommendations.</p>
26.	<p>Implement appropriate life/safety warning/evacuation systems in Ventura County, including the Emergency Alert System, Flood Threat Recognition System, Reverse 911 System, and Tsunami Watch and Warning messages during an event or disaster.</p>	<p>Ventura County uses various systems to communicate important life/safety information during an emergency. The two primary systems responsible for the bulk of emergency notifications are the Emergency Alert System (EAS) and the "Ventura County Emergency Alert Notification System."</p> <p>The Emergency Alert Notification System is a joint effort among local Cumulus Media broadcast radio stations, the National Weather Service, and the Ventura County Sheriff's Office. All three agencies have the ability to activate the system and interrupt regular cable television and radio broadcast programming with important information. Locally, 100.7 KHAY, 95.1 KBBY, and AM 1450 KVEN all carry emergency alert system broadcasts.</p> <p>In addition to the Emergency Alert Notification System, the Sheriff's OES in conjunction with all Ventura County Cities operates and maintains the VC Alert Emergency Notification System. VC Alert is housed in various powerful datacenters throughout the United States and is capable of sending out 100,000 text messages per hour and 100,000 e-mails per hour. The system contains all listed and unlisted land line telephone numbers, in addition to 30,000 records for Ventura County residents who have provided their personal cell phone numbers and e-mail addresses for notification purposes.</p>

*This page intentionally left blank*

## Annex A

### Activity 610 – Flood Warning Program



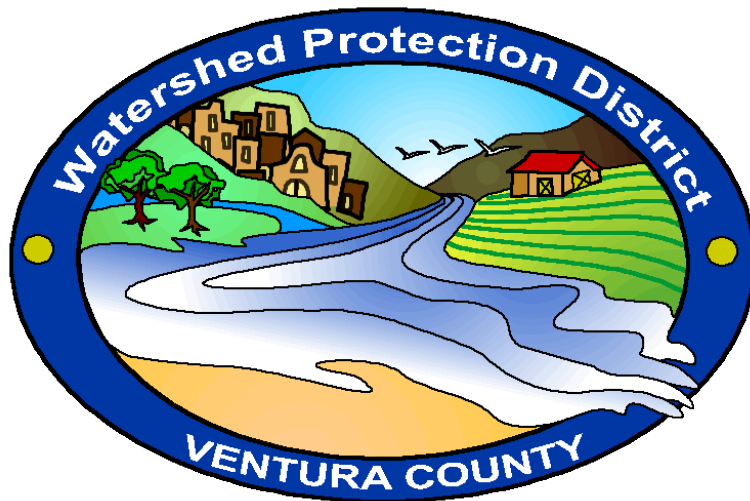
*This page intentionally left blank*

F  
L  
O  
O  
D  
  
W  
A  
R  
N  
I  
N  
G  
  
R  
E  
S  
P  
O  
N  
S  
E

# **FLOOD WARNING PROGRAM AND RESPONSE ANNEX (CRS ACTIVITY 610)**

**August 2015**  
**For Use with Multi-Hazard Mitigation Plan**

**Ventura County Watershed Protection District  
Watershed Resources and Technology Division  
Hydrology Section**



**Project Number:** 21961

**Prepared By:** Scott Holder

**Reviewed By:**

**Report Date:** August 17, 2015

## **611.b.(2) FLOOD HAZARD**

Ventura County is located in southwestern California between Santa Barbara and Los Angeles Counties. The county has a population of over 750,000 living mostly in the southern part of the county. The county consists of 10 incorporated cities which are also located in the southern part of Ventura County. Three primary water sources flow through the populated areas in the southern part of the county: Ventura River, Santa Clara River, and Calleguas Creek. There are also several smaller creeks and urban drains that flows directly to the ocean. The northern part of the county is largely unpopulated and federal land managed by the United States Forest Service. The county contains some mountainous terrain with the highest elevation at Mount Pinos with an elevation of 8,831 feet located 38 miles from the ocean. In the Ventura Watershed there is an elevation change of 4,500 feet in just 4 miles. This mountainous terrain creates higher rainfall in the mountains that runs off toward the populated areas.

The flood hazards in Ventura County can be broadly classified as follows:

**Urban and Small Stream Flooding:** Numerous small channels, agricultural drainage ditches and urban drains cover much of the flatter parts and urban areas of Ventura County. Flooding in these areas are due to high intensity rainfall occurring over a very short period of time. The flooding is usually shallow and mainly affect roadways and other low lying areas. All flooding of this type will be listed as urban.

**Upland Flooding:** The mountainous terrain of northern Ventura County and the hills in the central and eastern parts of the county give rise to numerous annual streams, many draining into steep canyons. These streams are subject to floods of relatively short duration, often following high-intensity rainfall. Such floods may occur with little warning and carry large quantities of sediment and debris. Many of the watersheds located near populated areas contain dams or debris basins designed to attenuate flow and trap debris, reducing the effects on downstream communities.

**Post-Fire Debris Flow:** Wildfires are a common occurrence in the same areas affected by the upland flooding. The fires usually occur during the late summer and fall, when the vegetation is dry and weather conditions are favorable for rapid fire growth. The fire affects the area burned by reducing the infiltration and increasing the runoff. When the storm arrives, moderate intensity rain can cause ash and other debris to start flowing. This debris can clog culverts and other drainage systems. The debris can cause issues along streets and other areas outside the floodplain and are usually localized to the location of the moderate and heavy rain.

**Broad Floodplains:** The Santa Clara River, Ventura River, and Calleguas Creek watersheds drain to the broad coastal plain in the southern part of Ventura County. This plain is subject to inundation during longer intervals of rain, typically as a result of a series of winter storms and atmospheric river events. These floods typically have longer duration and may be forecasted with more warning time. Calleguas Creek, which crosses a majority of the county's urban areas, is also subject to extensive flooding. Numerous levees have been built to protect agricultural lands along the River, which due to its sediment

load has historically migrated across the valley floor during flood intervals. These levees are typically not sufficient to withstand severe flood events. All flooding of this type will be listed as floodplain.

**Alluvial Fan Flooding:** Ventura County being in a semi-arid climate has some areas that are alluvial fans at the mouth of some canyons. Flooding on the alluvial fan occurs during significant storms where water breaks out of the main channels. Unlike the broad floodplains, flooding is varied and usually very shallow in areas away from the main channel. Areas affected by flooding can change from storm to storm.

**Coastal Flooding:** The county's 43 mile coastline is subject to tidal flooding, storm surge and wave action, which usually occurs during winter storms. This is usually referred to as the Coastal High Hazard Zone or VE Zone. The effects of coastal flooding are generally confined to a narrow area immediately adjacent to the tidal zone. However, the effects of coastal flooding can be severe – in addition to wave action, beach and bluff erosion can cause significant damage to coast-side homes and infrastructure. Coastal flooding may also occur as the result of tsunamis, which are extreme tidal surges caused by earthquakes or massive undersea landslides that occur locally or at great distances.

### **Flood History and Development Exposure**

**Flood History:** Ventura County has had a history of floods over the years. The earliest report of flooding occurred in 1862. Since 1862 floods have occurred in 1867, 1884, 1911, 1914, 1938, 1941, 1943, and 1944 (Warren 1945). In modern times Ventura County has had floods in 1969, 1978, 1980, 1983, 1992, 1995, 1998, and 2005. The largest and most damaging recorded floods in the Santa Clara and Ventura watersheds occurred in 1969. The combined effects of the 1969 flood were disastrous: 13 people lost their lives, and property damage was estimated at \$60 million (1969 dollars). Calleguas Creek had two significant damaging floods in 1980 and 1983. The 1980 flood caused approximately \$9 million damage to the Point Mugu Naval Base due to flooding and sediment deposition. In 1983 repairs to flood control facilities were estimated to cost \$15 million. Damage to other public and private facilities were estimated to be approximately \$39 million with little more than half that total due to damage to agricultural lands.

**Development Exposed to Flooding:** In the unincorporated area of Ventura County there are roughly 3500 structures within the Special Flood Hazard Area (SFHA) and the Coastal High Hazard Zone (VE). Development consists of predominately agricultural and residential structures. There are several critical facilities within the floodplain including two elementary schools, a fire station, water supply facility, oil production wells and processing facility, and a soon to be decommissioned waste water treatment plant. Majority of the floodplain has been designated as agricultural and open space with the exception of areas that are already developed. The incorporated cities have various types of development including residential, commercial, and industrial. Similar to the unincorporated Ventura County, some cities have some open space and/or agriculture uses in the floodplains.

### **611.b.(3) Flood Inundation Maps**

Flood inundation maps are integrated with the Flood Warning System and the Flood Response Plan. For areas of the Special Flood Hazard Area along major rivers and streams that are affected by broad floodplains and/or upland flooding, these watercourses will have five inundation levels for the (i) Bankfull and Below, (ii) Action, (iii) Flood, (iv) Moderate Flood, and (v) Major Flood levels. These levels are attached to observed stream gages operated by Ventura County Watershed Protection District (VCWPD), the United States Geological Survey (USGS), and the California Department of Water Resources (CDWR) and/or critical forecast locations and can be turned on in the online Response Plan to show the specific inundation area along with specific impact locations. The inundation levels for coastal areas use existing Coastal High Hazard (VE) Zone inundation and the tsunami inundation areas.

### **611.b.(4) Flood Warning and Response**

The Flood Warning and Response Annex describes the responsibilities and duties of the multiple agencies that cover Ventura County and the 10 incorporated cities. This document covers the different parts of the plan by covering each aspect of the plan including the Flood Threat Recognition System (FTR), Emergency Warning Dissemination (EWD), Flood Response Operations (FRO), and Critical Facilities Planning (CFP).

### **611.b.(5) Community Outreach**

Information about the Flood Warning System resides on the County's public websites: CRS 330 - (<http://www.vcfloodinfo.com>, which points users to the Flood Warning site - <http://www.vcwatershed.net/fws/VCAHPS>) which shows impact locations and flood levels along with the inundation areas. The vcfloodinfo.com site is published in the CRS 330 brochure entitled "Are You Prepared for a Flood in Your Neighborhood?" The CRS 330 brochure is sent annually to all residents in the Special Flood Hazard Area (SFHA) in the unincorporated areas of Ventura County.

### **612.a FLOOD THREAT RECOGNITION SYSTEM (FTR)**

On behalf of the County of Ventura, the Ventura County Watershed Protection District (VCWPD) has the responsibility to operate and maintain a Level 3: Automated Flood Warning System for the Flood Threat Recognition System that covers all of the unincorporated areas of Ventura County and the 10 incorporated cities. The Flood Threat Recognition System consists of the following components:

- Self-reporting rain and stream gages placed in strategic locations along major rivers and streams and in mountainous and urban areas to provide real-time data for monitoring storms and



flooding conditions. These gages transmit the data by radio signal through a local radio network to the VCWPD's Storm Operations Centers or by radio signal through the NOAA GOES Satellite to Wallops Island, VA and via the internet to the operation centers.

- VCWPD's Primary and backup Storm Operation Centers are equipped to receive the radio signals from the self-reporting gages. The Centers are also equipped to receive data via the Internet from Wallops Island, VA. and other web sources. Computers are used to receive and process the data. The computers also run the hydrologic models and prepare Internet content. The Centers also have multiple phone lines for communication purposes.
- Specific rain and stream gages are mapped and identified to provide warnings for each watercourse, reservoirs and debris basins across Ventura County including each city. Web displays provide a map view of rainfall totals and stream levels. Each stream gage has an Ventura County Advance Hydrologic Prediction System (VCAHPS) display to show the current stream level, and time and magnitude of the predicted flood level(s). Links are given to inundation maps, specific impacts, and response actions. Appendix A lists all rain gages used in the Flood Warning System. Appendix B lists all stream gage VCAHPS displays.
- Hydrologic models provide forecasts of the magnitude and timing of peak flows. Multiple models are used to provide coverage for the three major watersheds and several smaller watersheds within Ventura County. These forecasts are viewable on the Internet to County and City emergency personnel and provide a list of potential impacts in each watershed. Appendix B also lists the forecast models used for each VCAHPS.
- When required, a VCWPD Hydrologist is available to monitor the storm and hydrologic models. The Hydrologist can be positioned at the Emergency Operations Center and provides hydrologic knowledge to emergency personnel on how the channels are responding to the storm and to clarify any discrepancies between observed peaks and forecasted peaks. VCWPD staff is also responsible for maintaining the self-reporting gages and the computer systems in the Storm Operations Centers located at the County of Ventura Government Center as Saticoy Yard.
- Flood Warnings, Post-Fire Debris flows, and coastal flooding warnings are issued by the National Weather Service office in Oxnard, CA. Tsunami warnings are issued by the Pacific Tsunami Warning Center in Hawaii. The Ventura County Sheriff's Office of Emergency Services (VCOES) can activate warning procedures during emergencies. Both the NWS and VCOES consult with Storm Operations Center staff to determine the magnitude and location of flooding events. Evacuations are handled by local police and fire agencies and are coordinated through the VCOES. The Storm Operations Center staff provide planning and intelligence information for VCOES so they can prioritize incidents and implement emergency procedures.
- Alarm criteria for specific flood levels and rainfall rates are set by specific thresholds for each gage. Once an alarm is triggered, an alarm message is sent via e-mail, pager text, SMS cell text, and Twitter message to County emergency personnel. The Twitter message is sent to a public account and can be monitored by the public, media, and other County and City emergency personnel and the National Weather Service.

### **Self-Reporting Rain and Stream Gages**

The Ventura County Watershed Protection District (VCWPD) operates 90 self-reporting rain gages and 30 self-reporting stream gages. VCWPD also receives telemetered data for 65 additional rain gages and 23 stream gages operated by other agencies including the United States Geological Survey, Los Angeles Department of Public Works, and the California Department of Water Resources. The data provided by these gages are used in the hydrologic models for determining the amount of runoff. Tables 1 - 10 breaks down of the number of gages used for each of the major watersheds and by some smaller watersheds. Figures 1-10 show the placement of gages for each watershed.

### **Storm Operations Centers**

The primary Storm Operations Center is located at the Hall of Administration at the County Government Center in Ventura, CA, outside the 500-year floodplain. The backup Storm Operations Center is located at the Saticoy Operations Yard in Ventura, CA. Both centers have computers to receive telemetered data from the self-reporting rain and stream gages. They also contain computers that run the hydrologic models along with communication infrastructure. The primary center has multiple computers with backup systems and power. The system can operate even if one or more computers fail. The backup operations center provides a redundant communications path for the self-reporting gages in case the primary radio or antenna fails. The backup operations center can be staffed in case the primary center building cannot be occupied due to another emergency. The system can be monitored and operated remotely. Personnel can monitor the system from the County Emergency Operations Center located in the Sheriff's Building at the main County Complex, providing direct communication to the agencies that execute warnings and evacuations.

### **Training, Testing, and Maintenance of Flood Warning System**

Storm Operations Center staff is responsible for making sure that the computer systems at both the primary and backup centers are operating and performing their tasks. The staff is also responsible for making sure that the self-reporting rain and stream gages are transmitting and reporting the correct data. The self-reporting gages provide from 2 to 24 timed reports a day. The gages are also capable of transmitting event reports during storm events. The data are checked regular basis during non-storm events and checked frequently during storm events. Any issues with self-reporting gages maintained by VCWPD are flagged and scheduled for emergency maintenance. Notices are sent to operators of gages not maintained by VCWPD if the gage stops reporting or is the data looks incorrect. All self-reporting gages have regular maintenance schedules from every 3 months to once a year depending on the gage. If the issue is with any of the computer systems, VCWPD staff will determine the cause and provide a solution so data collection and model updates continue without interruption.

VCWPD conducts at least one exercise each year with the Ventura County Public Works and the Sheriff's Office of Emergency Services (OES). This exercise is used to refresh emergency and District personnel on the VCAHPS and Flood Warning Program. Simulated storms events are used to indicate problem areas and VCWPD managers and emergency managers determine which response plans are implemented. This exercise is to test inter-operable communication between emergency managers, VCWPD managers, transportation engineers, finance managers, operations and maintenance personnel, and community planners. VCWPD hydrologist is available to provide the analysis services that are needed during larger storm events. VCWPD also attends a Winter Coordination Meeting hosted by the National Weather Service Office in Oxnard. This meeting goes over coordination with the NWS and surrounding agencies and counties for the upcoming winter storms.

Further testing and training are conducted during the first and second smaller storms of the rainy season. At this time the automated processes are checked and communication procedures are tested. This exercise is to refresh procedures for the VCWPD staff and to check all self-reporting gages and the performance of the hydrologic forecast models. These exercises fine tune the system so it is ready for the remainder of the rainy season.

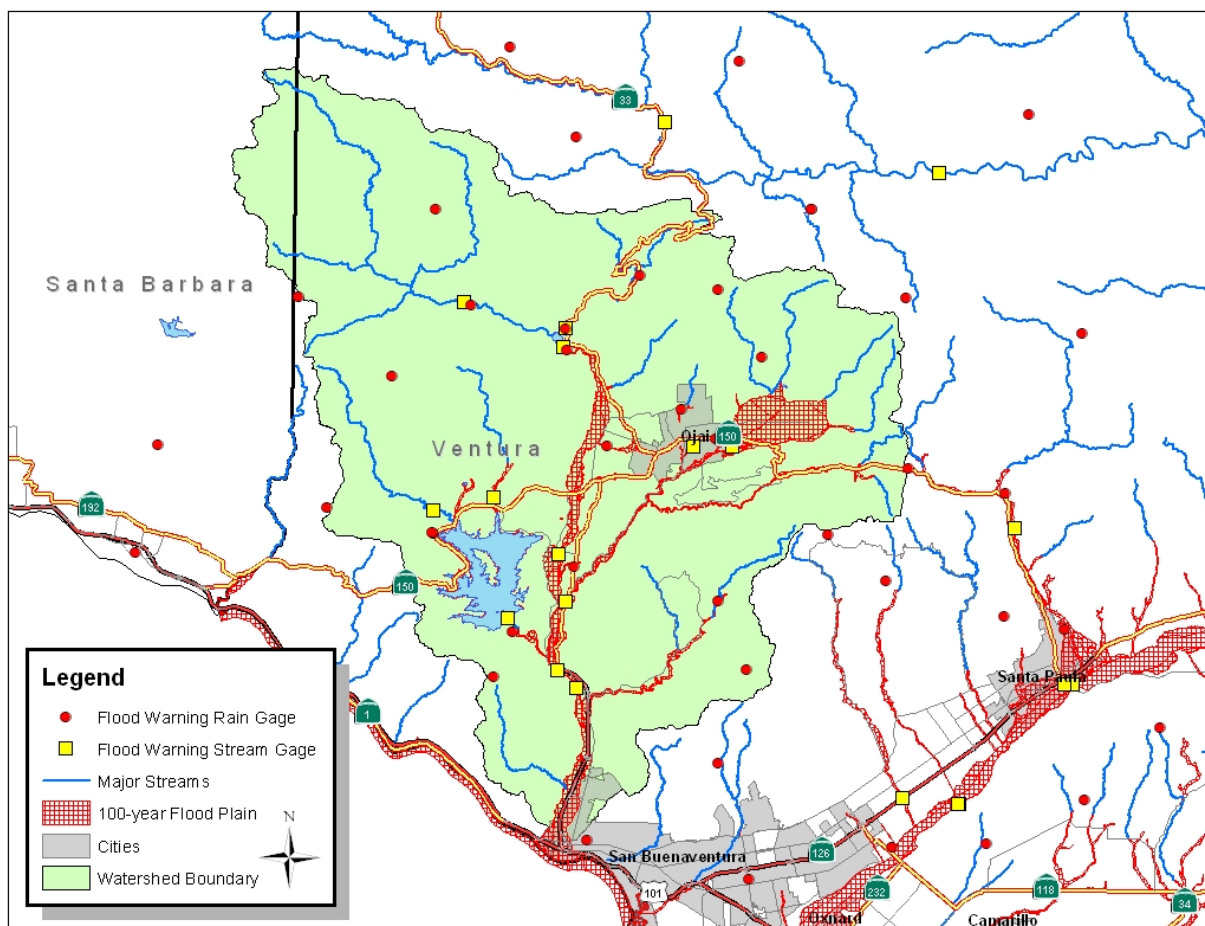
#### **612.a. WATERCOURSE IDENTIFICATION AND IMPACT ADJUSTMENT**

Ventura County is divided into 10 distinct watersheds. Each watershed lists each significant watercourse, the type of flood hazard, number of structures and the warning criteria and gages, and forecast points used for each watercourse. The watercourses and watersheds are describes as follows:

**Ventura River:** This watershed is located in the southwestern part of Ventura County. It is roughly 226 square miles and flows from north to south (see Figure 1). This watershed contains some of the most rugged topography in Ventura County. Average rainfall averages from 14 inches near the coast to 38 inches in the mountains. The largest recorded rainfall for all of Ventura County, 97.58 inches, was recorded in the Ventura Watershed by the Murrietta Divide gage in 2005. The watershed contains two reservoirs: Lake Casitas and Matilija Reservoir. Lake Casitas was completed in 1959 as part of the U. S. Bureau of Reclamation Ventura River Project, and has an active capacity of 251,000 acre-feet. This reservoir's primary function is for water supply but has attenuated flood flows along the Coyote Creek during every flood event since it was built. The other reservoir is Matilija Reservoir and was built by the Ventura County Flood Control District in 1959. This reservoir originally contained a capacity of 7,018 acre-feet but has slowly filled with sediment and now currently has about 500 acre-feet of capacity remaining. This reservoir has only minimal attenuation effects on peak flows along the Matilija Creek tributary.

Common areas for flooding in the Ventura River watershed in unincorporated areas are along the Ventura River from Meiners Oaks to just north of the City of Ventura, along tributaries in the east Ojai alluvial fan including Thacher Creek, along San Antonio Creek from the alluvial fan to the Ventura River, along Live Oak Creek, along Coyote Creek below Casitas Dam, and along the Canada Larga tributary. These areas are monitored using stream gages and have forecasted stream flows.

Other areas, including areas near Live Oak Creek, Casitas Springs, and the remaining small and urban creeks, flood during periods of higher intensity rains when the ground is saturation. These areas are monitored using the rainfall network and are warned when rainfall intensities reach specific thresholds for each area.



**Figure 1:** Ventura River Watershed Flood Warning System Coverage and floodplain

**Jurisdiction: Ventura County**

<b>Watercourse</b>	<b>Hazard</b>	<b>Warning Criteria</b>	<b>VCAHPS/Gages</b>	<b>F/O*</b>	<b>Structures</b>
Matilija Creek	Upland/Floodplain	River Stage/Flow	602, 603, 690	Both	0
North Fork Matilija	Upland/Floodplain	River Stage/Flow	604	Both	0
Ventura River	Floodplain	River Stage/Flow	608, 609	Both	395
Happy Valley Drain	Urban/Floodplain	River Stage/Flow and Rainfall Intensity	633, Rain 218	Both	46
San Antonio Creek	Floodplain	River Stage/Flow	605, 651	Both	123
Thacher Creek	Floodplain	River Stage/Flow and Rainfall Intensity	669, Rain 030, 301	Both	168
Coyote Creek	Floodplain	River Stage/Flow	600, 606, 691	Both	7
Canada Larga Cr	Upland/Floodplain	River Stage/Flow	630	Fcst	59
Fox Canyon Drain	Urban	River Stage/Rain Intensity	MO-OJA, Rain 165, 301	Both	0
Lion Canyon	Upland	Rain Intensity	Rain 065, 163	Obs	24
Oak View Drain	Urban	Rain Intensity	Rain 004, 140	Obs	45
South Like Oak Creek	Urban/Upland	Rain Intensity	Rain 004, 140	Obs	65
Mira Monte Drain	Urban/Upland	Rain Intensity	Rain 140, 218	Obs	46
Cozy Dell Canyon	Upland	Rain Intensity	Rain 134, 165	Obs	8
Happy Vly Drain So	Urban/Upland	Rain Intensity	Rain 218	Obs	13
Crooked-Drone Cr	Upland/Alluvial	Rain Intensity	Rain 165, 301	Obs	34
Chaparral Rd Drain	Upland/Alluvial	Rain Intensity	Rain 301	Obs	15
McNell Creek	Upland/Alluvial	Rain Intensity	Rain 301	Obs	114
Reeves Creek	Upland/Alluvial	Rain Intensity	Rain 301	Obs	25
All Other Creeks	Upland/Urban	Rain Intensity	Rain Gages	Obs	0
Total					1187

**Jurisdiction: City of Ojai**

<b>Watercourse</b>	<b>Hazard</b>	<b>Warning Criteria</b>	<b>VCAHPS/Gages</b>	<b>F/O*</b>	<b>Structures</b>
Fox Canyon Drain	Urban	River Stage/Rain Intensity	MO-OJA, Rain 165, 301	Both	N/A
San Antonio Creek	Floodplain	River Stage/Flow	605, 651	Both	N/A
All other Creeks	Upland/Urban	Rain Intensity	Rain Gages	Obs	N/A
Total					N/A

**Jurisdiction: City of Ventura**

<b>Watercourse</b>	<b>Hazard</b>	<b>Warning Criteria</b>	<b>VCAHPS/Gages</b>	<b>F/O*</b>	<b>Structures</b>
Ventura River	Floodplain	River Stage/Flow	608	Both	N/A
All other Creeks	Upland/Urban	Rain Intensity	Rain Gages	Obs	N/A
Total					N/A

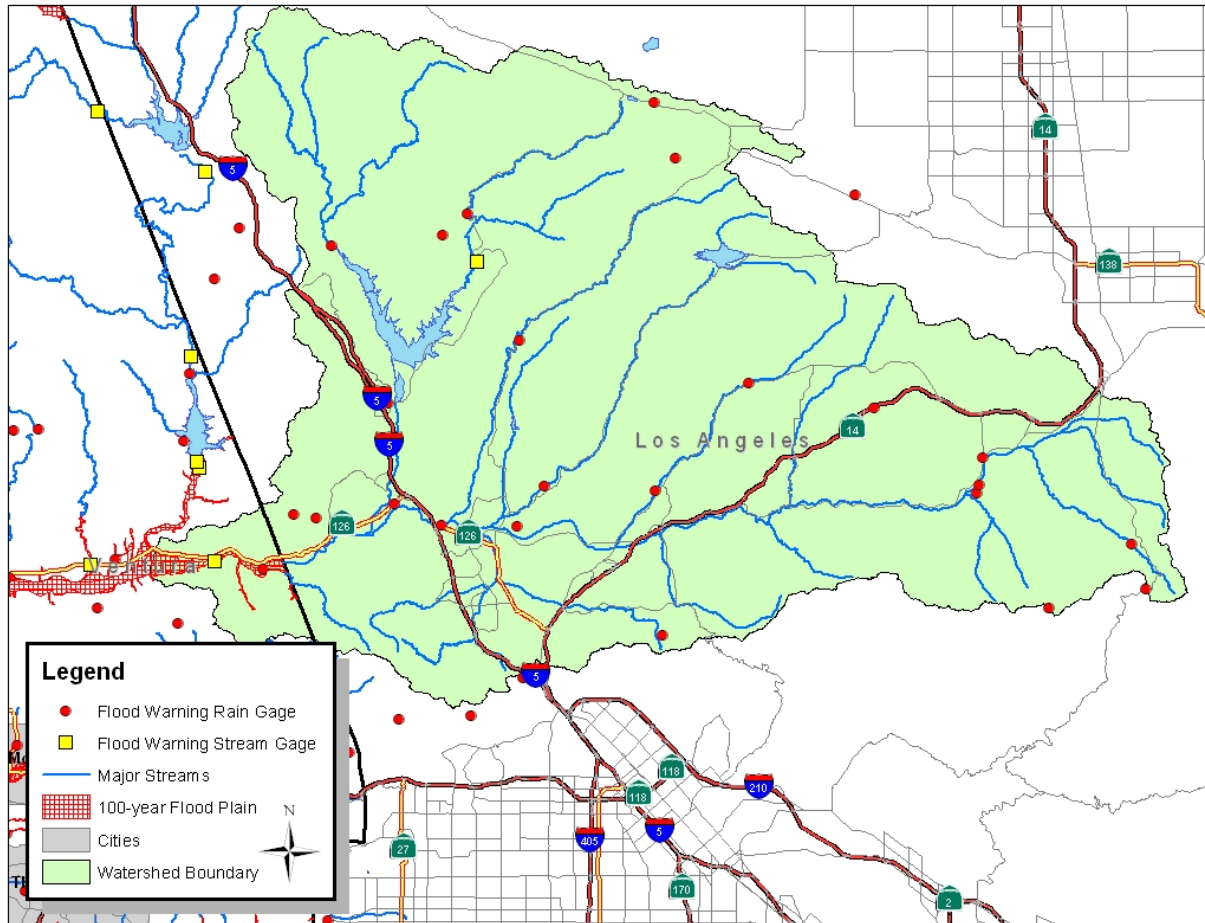
**Table 1:** Watercourse with Warning Criteria, Jurisdiction and Structures within floodplain for all jurisdictions in the Ventura River Watershed; F/O column list if the site has observed data only (O), forecasted data only (F), or both.

**Santa Clara River:** This watershed covers most of Ventura County. It is roughly 1,625 square miles and starts just north of the Ventura River (Sespe Creek) and extends into central Los Angeles County. It winds through the Santa Clara River valley past the incorporated communities of Fillmore, Santa Paula, Oxnard, and Ventura to the Pacific Ocean. The average rainfall ranges from less than 12 inches in the Upper Santa Clara in Los Angeles County to 30 inches in the Upper Sespe Creek. The watershed contains four reservoirs: Pyramid Lake, Lake Piru, Castaic Lake, and Bouquet Reservoir. Pyramid Lake, built in 1971 has a capacity of 171,200 acre-feet. Although it has significant capacity, it is operated as part of the State Water Project and is kept full. This reservoir operates on volume-in should equal volume-out but has a capability of diverting water to Castaic Lake through the Angeles Diversion Tunnel. This operation can reduce peak flows along Piru Creek. There has never been an uncontrolled spill from Pyramid Lake. Lake Piru, built in 1955 has a capacity of 88,340 acre-feet. This reservoir does assist in attenuating flows along Piru Creek until it becomes full. This reservoir is operated for water supply which includes using the supply for groundwater recharge. This helps to reduce the level prior to winter storms increasing the capacity for flood retention. Castaic Lake, built in 1972, has a capacity of 323,700 acre feet. This reservoir is operated for water supply but is kept well below maximum capacity. This reservoir attenuates flows along Castaic Creek and can help store flows from Piru Creek that were diverted through the Angeles Diversion Tunnel. No uncontrolled release has occurred from Castaic Lake since the reservoir was built. Bouquet Reservoir has a capacity of 36,500 acre-feet. This reservoir has negligible effects on peak flows in Ventura County since it only has small controlled releases.

The Santa Clara River watershed is divided into four distinct basins as follows:

**Upper Santa Clara Basin:** This basin, approximately 669 square miles, is the part of the Santa Clara River Watershed that originates in Los Angeles County (see Figure 2). A small section between Piru Creek and the Los Angeles County Line resides in Ventura County. This basin is generally drier than the remainder of the watershed. The main contributor to runoff comes from the urbanized area and the higher elevations areas. This watershed contributes roughly about 15 to 25% of the peak flow at the lower reaches during flooding events. Flooding areas in unincorporated Ventura County occur along the floodplain between the County line with Los Angeles and the confluence with Piru Creek. Damage is usually limited to the agricultural areas that found in the floodplain along the River. Monitoring for areas in Los Angeles County is handled by Los Angeles County Department of Public Works. VCWPD monitors the data from Los Angeles County to provide advanced warning of any flood moving into Ventura County and to increase accuracy of hydrologic models.





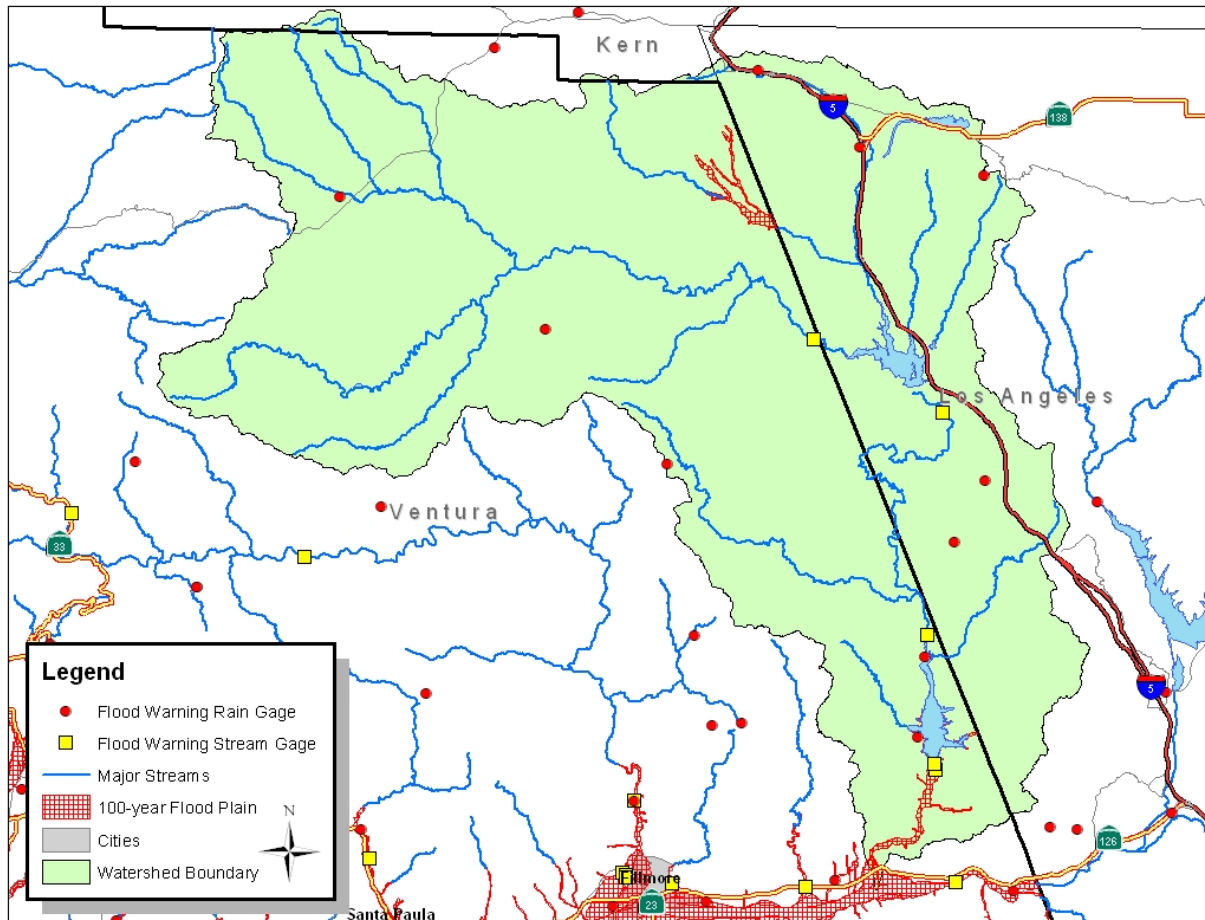
**Figure 2:** Upper Santa Clara River Basin (Santa Clara River Watershed)

**Jurisdiction: Ventura County**

Watercourse	Hazard	Warning Criteria	VCAHPS/Gages	F/O*	Structures
Santa Clara River	Floodplain	River Stage/Flow	707	Both	0
All other Creeks	Upland	Rain Intensity	Rain Gages	Obs	0
Total					0

**Table 2:** Watercourse with Warning Criteria, Jurisdiction and Structures within floodplain for all jurisdictions in the Upper Santa Clara Basin; F/O column list if the site has observed data only (obs), forecasted data only (fcst), or both.

**Piru Creek Basin:** This basin, approximately 438 square miles, is mostly forestry lands in the north eastern part of Ventura County (see Figure 3). The flow in this basin is regulated by operations at Pyramid Lake and Lake Piru. Flow along this basin contributes from 5 to 25% of the peak flow on the lower reaches of the Santa Clara River during flood events depending on the capacity of Lake Piru. Flooding in this basin is limited to the area below Lake Piru to the confluence with the Santa Clara River. This includes the unincorporated community of Piru. The usual cause of flooding is debris restricting flows on bridges causing flooding. Several stream gages are located between Pyramid Lake and Santa Felicia Dam (Lake Piru) to provide warning for the floodplain area below the dam.



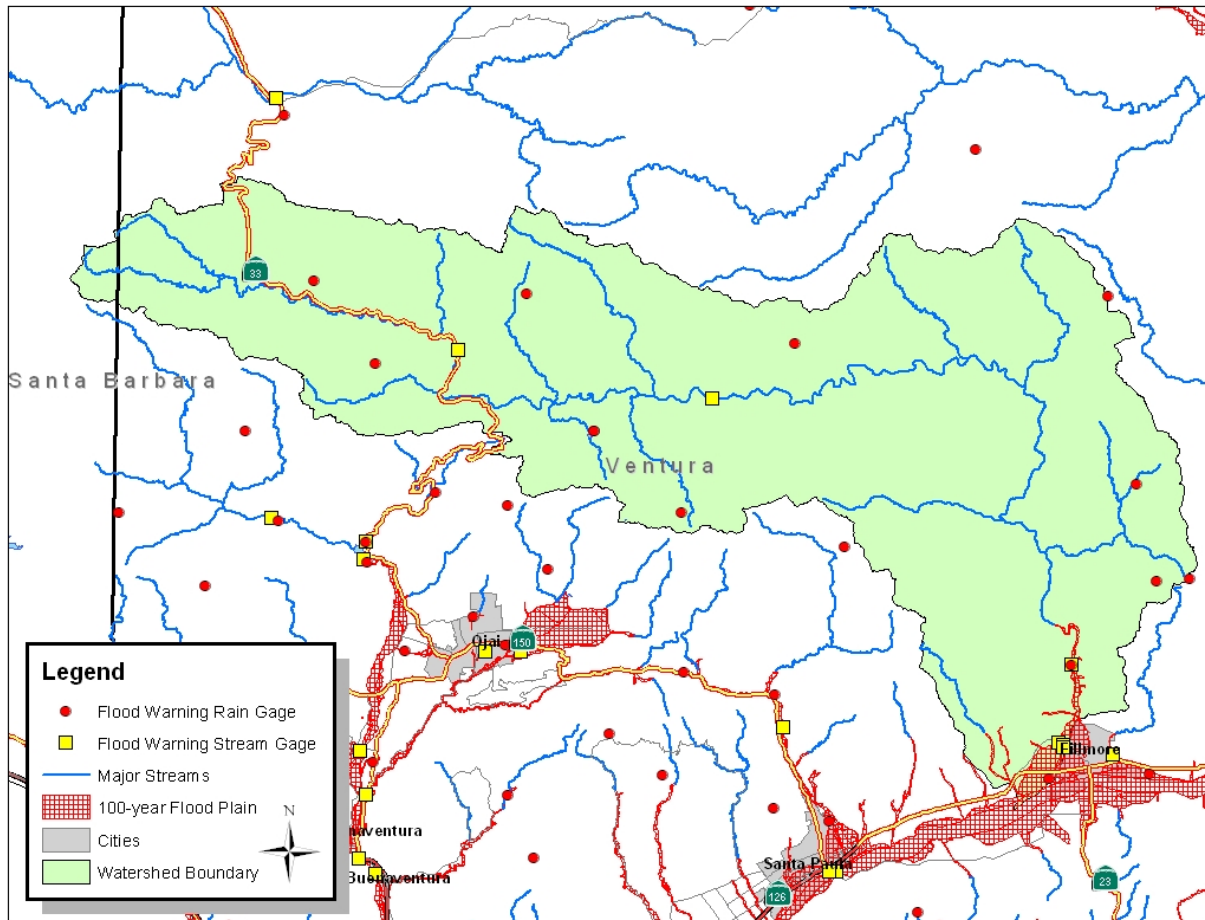
**Figure 3:** Piru Creek Basin (Santa Clara River Watershed)

**Jurisdiction: Ventura County**

Watercourse	Hazard	Warning Criteria	VCAHPS/Gages	F/O*	Structures
Piru Creek	Floodplain	River Stage/Flow	705, 793	Both	141
All other Creeks	Upland	Rain Intensity	Rain 106, 160	Obs	4
Total					145

**Table 3:** Watercourse with Warning Criteria, Jurisdiction and Structures within floodplain for all jurisdictions in the Piru Creek Basin; F/O column list if the site has observed data only (obs), forecasted data only (fcst), or both.

**Sespe Creek Basin:** This basin, approximately 269 square miles, is mostly forestry lands in the central portion of Ventura County (see Figure 4). The upper part of the watershed extends into part of Santa Barbara County. This creek flows east, then south before connecting to the Santa Clara River. This basin contributes from 55 to 60% of the peak flow on the lower reaches of the Santa Clara River during flood events. Flooding along this basin in unincorporated Ventura County is limited to the floodplain along Sespe Creek just north and west of the City of Fillmore. Smaller tributaries are limited to upland flooding during high intensity storms when the ground is saturated.



**Figure 4:** Sespe Creek Basin (Santa Clara River Watershed)

**Jurisdiction: Ventura County**

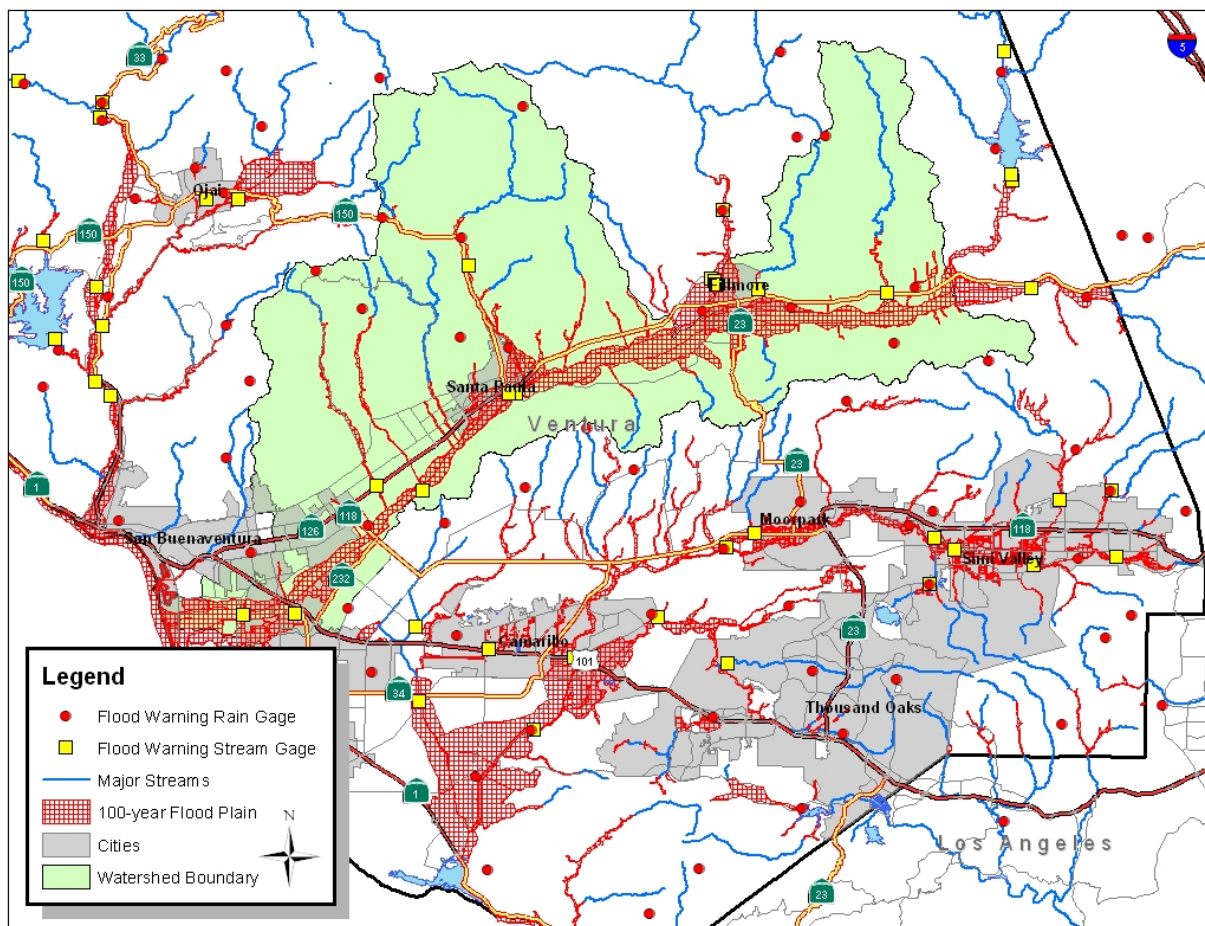
Watercourse	Hazard	Warning Criteria	VCAHPS/Gages	F/O	Structures
Sespe Creek	Floodplain	River Stage/Flow	710, 721, 722	Both	27
Jepson Wash	Upland	Rain Intensity	Rain 140, 199	Obs	16
All other Creeks	Upland	Rain Intensity	Rain 199	Obs	3
Total					46

#### Jurisdiction: City of Fillmore

Watercourse	Hazard	Warning Criteria	VCAHPS/Gages	F/O	Structures
Sespe Creek	Floodplain	River Stage/Flow	710, 721, 722	Both	N/A
All other Creeks	Upland	Rain Intensity	Rain 199	Obs	N/A
Total					N/A

**Table 4:** Watercourse with Warning Criteria, Jurisdiction and Structures within floodplain for all jurisdictions in the Sespe Creek Basin

**Lower Santa Clara Basin:** This basin, approximately 247 square miles, covers most of the populated portion of the watershed (see Figure 5). Two tributaries in this basin, Santa Paula Creek and Hopper Creek contribute roughly 20% and 12% respectively of the peak flow on the lower reaches of the Santa Clara River during storm events. Flooding can occur along the floodplain of the Santa Clara River from Piru to the Pacific Ocean which includes the unincorporated area of Bardsdale, El Rio and unincorporated areas between the Cities of Ventura and Oxnard in the lower section of the river. Flooding also can occur along many of the tributaries including Grimes Canyon, Todd Barranca, Ellsworth Barranca, Hopper Creek, and Santa Paula Creek east of the City of Santa Paula, and Haines Barranca. Smaller tributaries are limited to upland flooding during high intensity storms rainfall events.



**Figure 5:** Lower Santa Clara River Basin (Santa Clara River Watershed)

**Jurisdiction: Ventura County**

<b>Watercourse</b>	<b>Hazard</b>	<b>Warning Criteria</b>	<b>VCAHPS/Gages</b>	<b>F/O</b>	<b>Structures</b>
Santa Clara River	Floodplain	River Stage/Flow	707, 723, 724, 725	Both	302
Hopper Canyon	Floodplain/Alluvial	River Stage/Flow, Rain Intensity	701, Rain 409	Both	11
Pole Creek	Upland/Floodplain	River Stage/Flow	713	Both	0
Santa Paula Creek	Upland/Floodplain	River Stage/Flow	709	Both	7
Fagan Canyon	Upland/Urban	Rain Intensity	725, Rain 245, 406	Both	0
Todd Barranca	Upland/Floodplain	River Stage/Flow, Rain Intensity	738, Rain 175, 225	Fcst	65
Ellsworth Barranca	Upland/Floodplain	River Stage/Flow	731	Both	24
Harmon Barranca	Upland/Floodplain	River Stage/Flow	732	Fcst	0
Moon Ditch	Urban/Upland	River Stage/Flow, Rain Intensity	MO-VEN, Rain 222	Both	0
El Rio Drain	Urban/Upland	River Stage/Flow, Rain Intensity	MO-OXN, Rain 239	Both	0
Edwards Canyon	Upland	Rain Intensity	Rain 106	Obs	8
Real-Warring Cyn	Upland	Rain Intensity	Rain 106	Obs	15
Torrey Canyon	Upland	Rain Intensity	Rain 242	Obs	5
Shields Canyon	Upland	Rain Intensity	Rain 171	Obs	6
Bosolo Ditch	Upland	Rain Intensity	Rain 199, 171	Obs	4
Grimes Canyon	Upland	Rain Intensity	Rain 199, 171	Obs	40
Bardsdale Ditch	Upland	Rain Intensity	Rain 199, 171	Obs	41
Reimer Ditch	Upland	Rain Intensity	Rain 199	Obs	13
O'Leary Creek	Upland	Rain Intensity	Rain 199	Obs	8
Balcom Cyn Wash	Upland	Rain Intensity	Rain 238	Obs	5
Boisey/Timber Cyn	Upland	Rain Intensity	Rain 245	Obs	12
Orcutt Canyon	Upland	Rain Intensity	Rain 245	Obs	24
Sisar Creek	Upland	Rain Intensity	Rain 065, 163, 173	Obs	37
Adams Barranca	Upland	Rain Intensity	Rain 245, 406	Obs	13
Haines Barranca	Upland	Rain Intensity	Rain 406, 175	Obs	10
All other Creeks	Upland	Rain Intensity	Various Rain	Obs	7
Total					657

**Jurisdiction: City of Fillmore**

<b>Watercourse</b>	<b>Hazard</b>	<b>Warning Criteria</b>	<b>VCAHPS/Gages</b>	<b>F/O</b>	<b>Structures</b>
Santa Clara River	Floodplain	River Stage/Flow	707, 723, 724	Both	N/A
Pole Creek	Upland/Floodplain	River Stage/Flow	713	Both	N/A
All other Creeks	Upland	Rain Intensity	Rain 199	Obs	N/A
Total					N/A

**Jurisdiction: City of Santa Paula**

<b>Watercourse</b>	<b>Hazard</b>	<b>Warning Criteria</b>	<b>VCAHPS/Gages</b>	<b>F/O</b>	<b>Structures</b>
Santa Clara River	Floodplain	River Stage/Flow	707, 723, 724	Both	N/A
Santa Paula Creek	Upland/Floodplain	River Stage/Flow	709	Both	N/A
Fagan Canyon	Upland/Urban	Rain Intensity	725, Rain 245, 406	Both	N/A
Adams Barranca	Upland	Rain Intensity	Rain 245, 406	Obs	28
All other Creeks	Upland	Rain Intensity	Rain 199	Obs	N/A
Total					N/A

**Jurisdiction: City of Ventura**

<b>Watercourse</b>	<b>Hazard</b>	<b>Warning Criteria</b>	<b>VCAHPS/Gages</b>	<b>F/O</b>	<b>Structures</b>
Santa Clara River	Floodplain	River Stage/Flow	707, 723, 724	Both	N/A
Harmon Barranca	Upland/Floodplain	River Stage/Flow	732	Fcst	N/A
Moon Ditch	Urban/Upland	River Stage/Flow, Rain Intensity	MO-VEN, Rain 222	Both	N/A
All other Creeks	Upland	Rain Intensity	Rain 199	Obs	N/A
Total					N/A

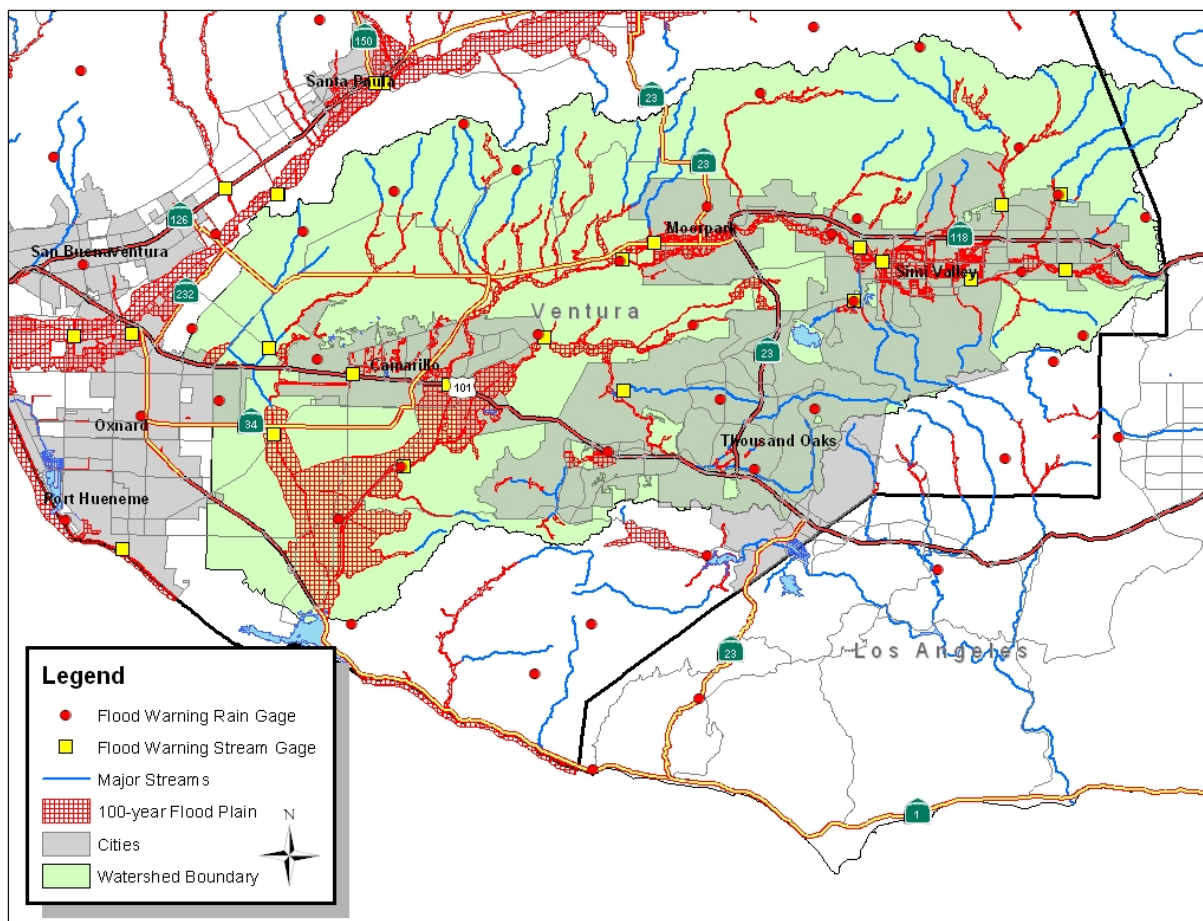
**Jurisdiction: City of Oxnard**

<b>Watercourse</b>	<b>Hazard</b>	<b>Warning Criteria</b>	<b>VCAHPS/Gages</b>	<b>F/O</b>	<b>Structures</b>
Santa Clara River	Floodplain	River Stage/Flow	707, 723, 724	Both	N/A
El Rio Drain	Urban/Upland	River Stage/Flow, Rain Intensity	MO-OXN, Rain 239	Both	N/A
All other Creeks	Upland	Rain Intensity	Rain 199	Obs	N/A
Total					N/A

**Table 5:** Watercourse with Warning Criteria, Jurisdiction and Structures within floodplain for all jurisdictions in the Lower Santa Clara River Basin



**Calleguas Creek:** This watershed covers the southeast part of Ventura County and contains most of the populated areas in Ventura County (see Figure 6). It is roughly about 335 square miles and drains the urban incorporated areas of Simi Valley, Thousand Oaks, Moorpark, Camarillo, and parts of Oxnard. Calleguas Creek flows into the Pacific Ocean at Mugu Lagoon. Average rainfall ranges from 13 inches near the coast to 20 inches in the hills. There are many basins and dams that help to attenuate peak flows during significant storms. The only reservoir in the watershed, Lake Bard, is a closed, isolated system and does not attenuate or contribute flows to Calleguas Creek. Flooding in unincorporated areas of the watershed occur along the floodplain of Arroyo Simi between Simi Valley and Moorpark, Arroyo Las Posas between Moorpark and Camarillo and along Calleguas and Conejo Creek from Camarillo to Point Mugu. Flooding also occurs along several of the tributaries including Beardsley Wash, Revolon Slough, Mugu Drain, Arroyo Santa Rosa, Fox Barranca, and Grimes Canyon. The most extensive flooding usually occurs between Camarillo and the Pacific Ocean and includes the Point Mugu Naval Air Station (Navy Base Ventura County).



**Figure 6: Calleguas Creek Watershed**

**Jurisdiction: Ventura County**

<b>Watercourse</b>	<b>Hazard</b>	<b>Warning Criteria</b>	<b>VCAHPS/Gages</b>	<b>F/O</b>	<b>Structures</b>
Arroyo Simi	Urban/Floodplain	River Stage/Flow	802, 803, 841	Both	0
Tapo Canyon	Upland/Floodplain	River Stage/Flow	804, Rain 196	Both	1
Las Lajas Canyon	Upland	River Stage/Flow	890	Both	0
Bus Canyon	Urban/Upland	River Stage/Flow, Rain Intensity	MO-SIM	Both	0
Sycamore Canyon	Urban/Upland	River Stage/Flow	891	Both	0
Walnut/Gabbert Canyons	Urban/Upland	River Stage/Flow, Rain Intensity	MO-MPK	Both	0
Arroyo Las Posas	Floodplain	River Stage/Flow	841	Both	0
Calleguas Creek	Floodplain	River Stage/Flow	805, 806	Both	172
So Branch Arroyo Conejo	Urban/Upland/ Floodplain	River Stage/Flow, Rain Intensity	830, Rain 188, 513	Both	177
NF Arroyo Conejo	Urban/Upland	River Stage/Flow, Rain Intensity	MO-THO	Both	0
Arroyo Santa Rosa	Urban/Upland	River Stage/Flow, Rain Intensity	838, Rain 502	Both	37
Conejo Creek	Urban/Upland/ Floodplain	River Stage/Flow	800, 800A	Both	20
Beardsley Wash	Urban/Floodplain	River Stage/Flow	780	Both	2
Nyland Drain	Urban/Upland	River Stage/Flow, Rain Intensity	778, Rain 239, 273	Both	107
Camarillo Hills Drain	Urban/Upland	River Stage/Flow, Rain Intensity		Both	0
Revolon Slough	Urban/Upland/ Floodplain	River Stage/Flow, Rain Intensity	776, 780	Both	47
Meier Canyon	Upland	Rain Intensity	Rain 272	Obs	24
Gillibrand Canyon	Upland	Rain Intensity	Rain 196, 242	Obs	36
So Grimes Canyon	Upland	Rain Intensity	Rain 126, 508	Obs	12
Peach Hill Wash	Upland/Urban	Rain Intensity	Rain 508	Obs	5
Hunt Wash	Upland/Urban	Rain Intensity	Rain 126, 508	Obs	12
Long Canyon	Upland/Urban	Rain Intensity	Rain 206, 508	Obs	40
Mahan Canyon	Upland/Urban	Rain Intensity	Rain 206, 508	Obs	7
Sand Canyon	Upland/Urban	Rain Intensity	Rain 206	Obs	27
Somis / Coyote / Purte Zuela	Upland/Urban	Rain Intensity	Rain 206, 512	Obs	24
Berylwood Cyn/ Fox Barranca	Upland/Urban	Rain Intensity	Rain 206, 512	Obs	74
Arroyo Santa Rosa East Trib	Upland/Urban	Rain Intensity	Rain 227, 502	Obs	24
Tierra Rejada Creek	Urban	Rain Intensity	Rain 227. 502	Obs	38
Barbara Dr Drain	Urban	Rain Intensity	Rain 500	Obs	9
Las Posas Estates Drain	Urban	Rain Intensity	Rain 509, 259	Obs	21

<b>Watercourse</b>	<b>Hazard</b>	<b>Warning Criteria</b>	<b>VCAHPS/Gages</b>	<b>F/O</b>	<b>Structures</b>
Honda Barranca and Trib	Upland/Urban	Rain Intensity	Rain 189, 507	Obs	22
So Branch Arroyo Conejo Trib	Upland/Urban	Rain Intensity	Rain 188, 513	Obs	6
Arroyo Conejo and Trib	Urban	Rain Intensity	Rain 128, 188, 169	Obs	32
North Ramona Place Drain	Urban	Rain Intensity	Rain 509, 259	Obs	7
All other Creeks	Upland/Urban	Rain Intensity	Various Rain	Obs	9
Total					992

**Jurisdiction: City of Simi Valley**

<b>Watercourse</b>	<b>Hazard</b>	<b>Warning Criteria</b>	<b>VCAHPS/Gages</b>	<b>F/O</b>	<b>Structures</b>
Arroyo Simi	Urban/Floodplain	River Stage/Flow	802, 803, 841	Both	N/A
Tapo Canyon	Upland/Floodplain	River Stage/Flow	804, Rain 196	Both	N/A
Las Lajas Canyon	Upland	River Stage/Flow	890	Both	N/A
Bus Canyon	Urban/Upland	River Stage/Flow, Rain Intensity	MO-SIM	Both	N/A
Sycamore Canyon	Urban/Upland	River Stage/Flow	891	Both	N/A
All other Creeks	Upland	Rain Intensity	Rain 199	Obs	N/A
Total					N/A

**Jurisdiction: City of Moorpark**

<b>Watercourse</b>	<b>Hazard</b>	<b>Warning Criteria</b>	<b>VCAHPS/Gages</b>	<b>F/O</b>	<b>Structures</b>
Arroyo Simi	Urban/Floodplain	River Stage/Flow	802, 841	Both	N/A
Walnut/Gabbert Canyons	Urban/Upland	River Stage/Flow, Rain Intensity	MO-MPK	Both	N/A
Arroyo Las Posas	Floodplain	River Stage/Flow	841	Both	N/A
All other Creeks	Upland	Rain Intensity	Rain 199	Obs	N/A
Total					N/A

**Jurisdiction: City of Camarillo**

<b>Watercourse</b>	<b>Hazard</b>	<b>Warning Criteria</b>	<b>VCAHPS/Gages</b>	<b>F/O</b>	<b>Structures</b>
Calleguas Creek	Floodplain	River Stage/Flow	806, 841	Both	N/A
Conejo Creek	Urban/Upland/Floodplain	River Stage/Flow	800, 800A	Both	N/A
Beardsley Wash	Urban/Floodplain	River Stage/Flow	780	Both	N/A
Camarillo Hills Drain	Urban/Upland	River Stage/Flow, Rain Intensity	MO-CAM	Both	N/A
All other Creeks	Upland	Rain Intensity	Rain 199	Obs	N/A
Total					N/A

**Jurisdiction: City of Thousand Oaks**

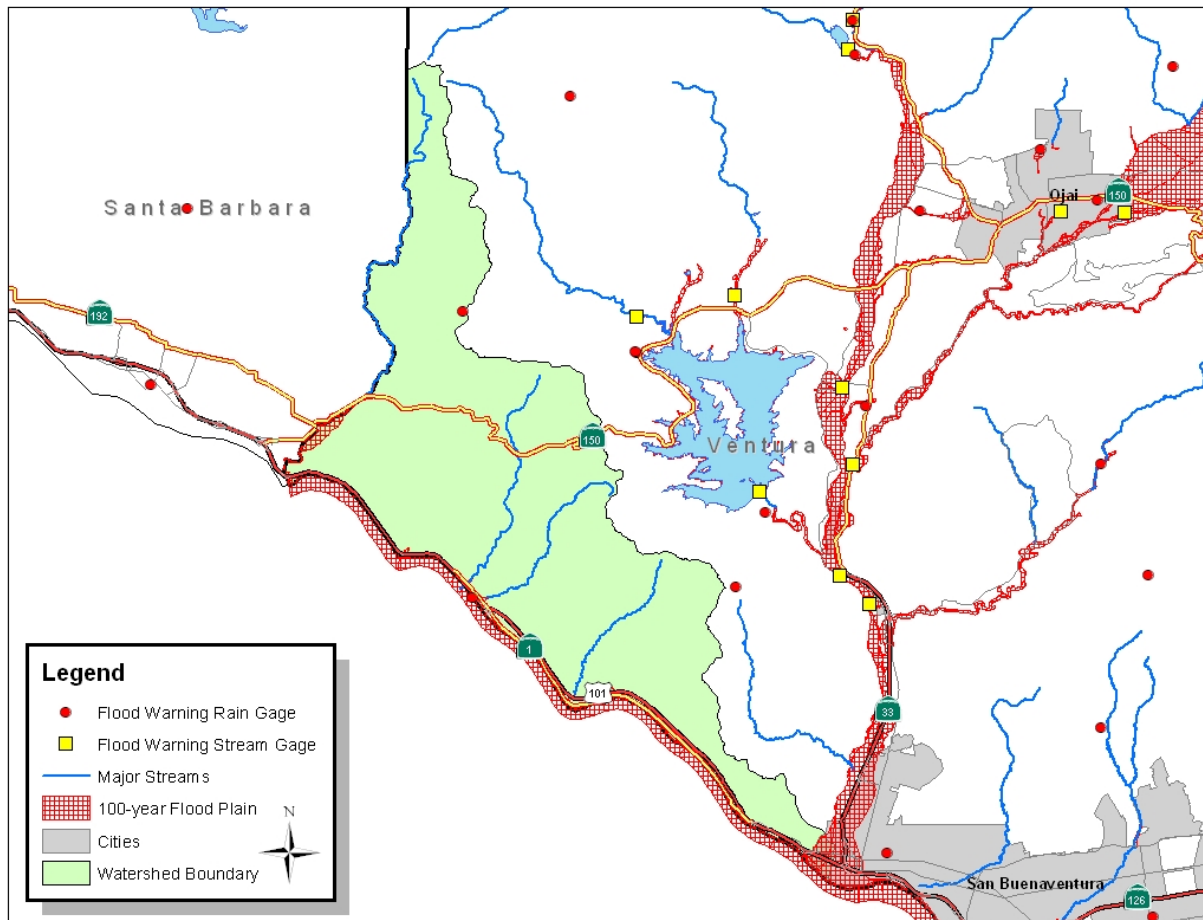
<b>Watercourse</b>	<b>Hazard</b>	<b>Warning Criteria</b>	<b>VCAHPS/Gages</b>	<b>F/O</b>	<b>Structures</b>
Conejo Creek	Urban/Upland/ Floodplain	River Stage/Flow	800, 800A	Both	N/A
So Branch Arroyo Conejo	Urban/Upland/ Floodplain	River Stage/Flow, Rain Intensity	830, Rain 188, 513	Both	N/A
NF Arroyo Conejo	Urban/Upland	River Stage/Flow, Rain Intensity	MO-THO	Both	N/A
So Branch Arroyo Conejo Trib	Upland/Urban	Rain Intensity	Rain 188, 513	Obs	N/A
Arroyo Conejo and Trib	Urban	Rain Intensity	Rain 128, 188, 169	Obs	N/A
All other Creeks	Upland	Rain Intensity	Rain 199	Obs	N/A
Total					N/A

**Jurisdiction: City of Oxnard**

<b>Watercourse</b>	<b>Hazard</b>	<b>Warning Criteria</b>	<b>VCAHPS/Gages</b>	<b>F/O</b>	<b>Structures</b>
Nyland Drain	Urban/Upland	River Stage/Flow, Rain Intensity	778, Rain 239, 273	Both	N/A
All other Creeks	Upland	Rain Intensity	Rain 199	Obs	N/A
Total					N/A

**Table 6:** Watercourse with Warning Criteria, Jurisdiction and Structures within floodplain for all jurisdictions in the Calleguas Creek Basin

**Rincon Coastal:** This area, approximately 33 square miles, covers the coastal watersheds that drain directly to the Pacific Ocean from the Ventura River west to the Santa Barbara County line (see Figure 7). Average rainfall ranges from 14 to 17 inches. Flooding usually occurs along the coast line and next to the channels as they drain into the Pacific Ocean. Coastal flooding usually occurs from two sources. The most common is high intensity rain occurring when the ground is saturated. The second is occasional and localized flooding due to high surf during extreme winter storms.



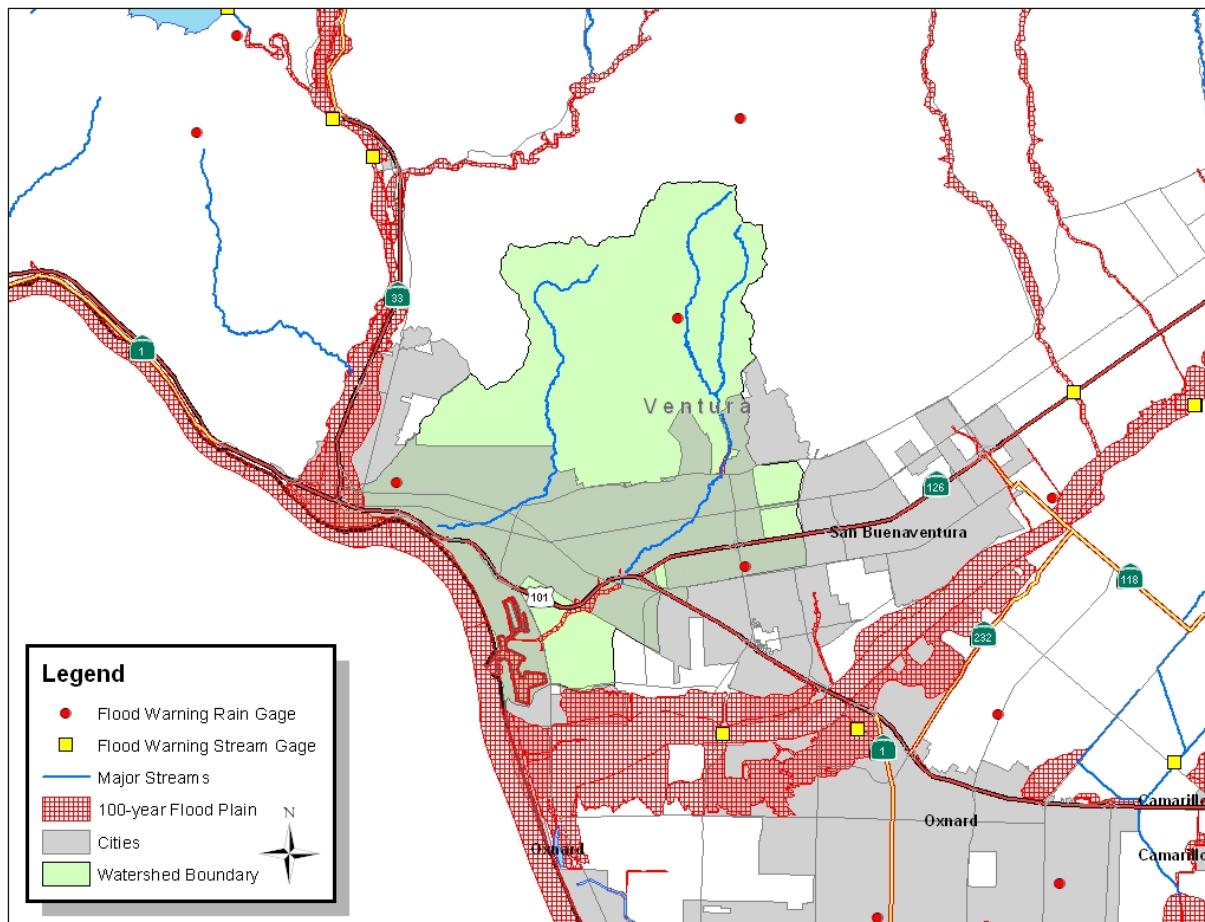
**Figure 7:** Rincon Coastal Watersheds

**Jurisdiction: Ventura County**

Watercourse	Hazard	Warning Criteria	VCAHPS/Gages	F/O	Structures
Coastal	Coastal/Upland	Rain Intensity	Rain 221, 066, 308	Obs	172
Rincon Creek	Upland	Rain Intensity	Rain SB553	Obs	51
Los Sauces Cr / Madranio Cyn	Upland	Rain Intensity	Rain 221	Obs	9
All other Creeks	Upland	Rain Intensity	Rain 221, 308	Obs	2
Total					234

**Table 7:** Watercourse with Warning Criteria, Jurisdiction and Structures within floodplain for all jurisdictions in the Lower Santa Clara River Basin.

**Ventura Coastal:** This area, approximately 23 square miles, covers the coastal watersheds that drain directly to the Pacific Ocean from the Ventura River southeast to the Lower Santa Clara River watershed (see Figure 8). Average rainfall ranges from 14 to 16 inches. These channels contain urban runoff from the City of San Buena Ventura (Ventura) and the undeveloped hills just north of the city. Flooding usually occurs along the coast line and next to the channels as they drain into the Pacific Ocean and along Arundell Barranca and tributaries from Hwy 126 to Ventura Harbor. Usually flooding is from urban and upland runoff during high intensity rainfall when the ground is saturated. Most of the basin is covered by the City of Ventura but there are some areas of unincorporated Ventura County.



**Figure 8:** Ventura Coastal Watersheds

**Jurisdiction: Ventura County**

Watercourse	Hazard	Warning Criteria	VCAHPS/Gages	F/O	Structures
Coastal	Coastal/Upland	Rain Intensity	Rain 017, 403	Obs	0
Arundell Baranca	Urban/Upland	Rain Intensity	Rain 222, 230	Obs	2
All other Creeks	Upland	Rain Intensity	Rain 221, 308	Obs	0
Total					2

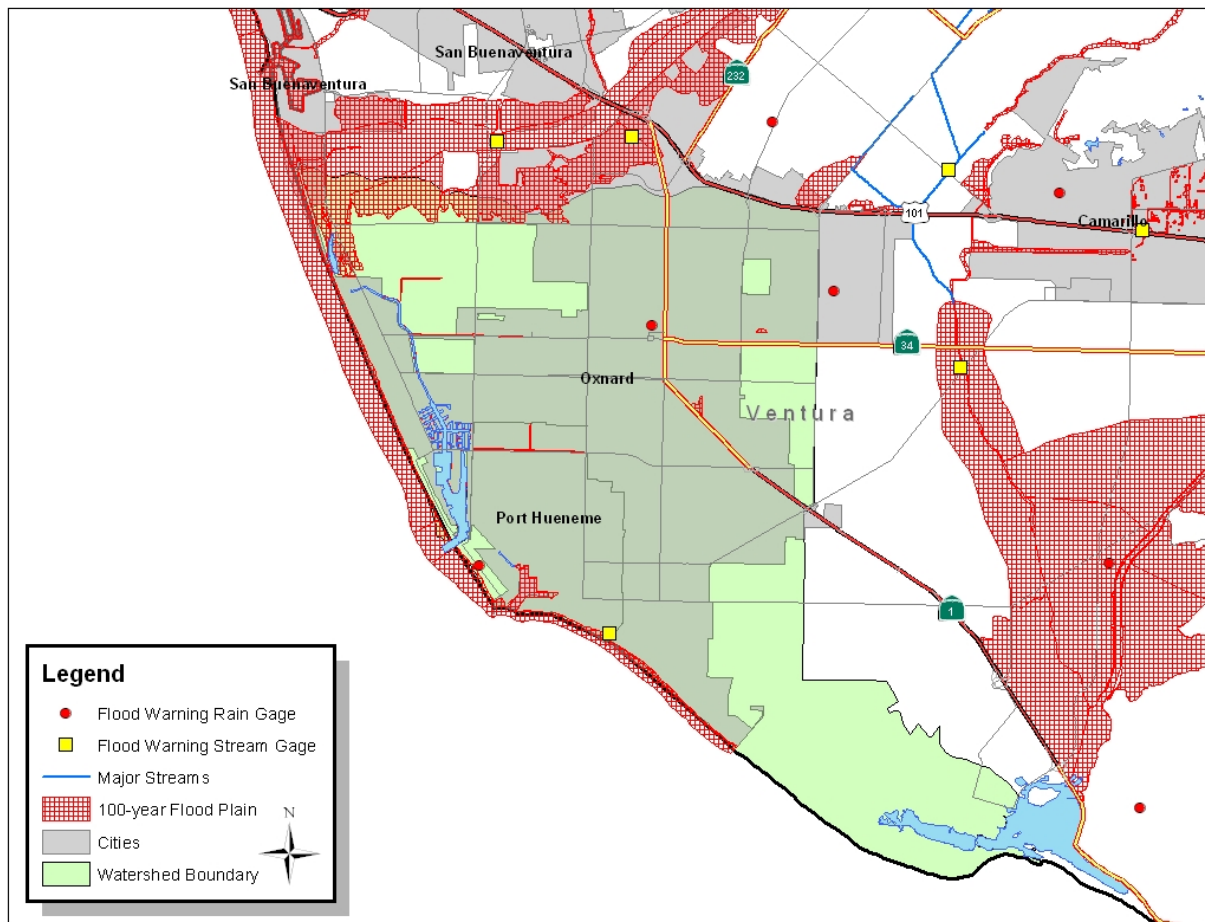


### Jurisdiction: City of Ventura

Watercourse	Hazard	Warning Criteria	VCAHPS/Gages	F/O	Structures
Coastal	Coastal/Upland	Rain Intensity	Rain 017, 403	Obs	N/A
Arundell Baranca	Urban/Upland	Rain Intensity	Rain 222, 230	Obs	N/A
Prince/San Jon	Urban/Upland	Rain Intensity	Rain 066, 230	Obs	N/A
All other Creeks	Upland	Rain Intensity	Rain 221, 308	Obs	N/A
Total					N/A

**Table 8:** Watercourse with Warning Criteria, Jurisdiction and Structures within floodplain for all jurisdictions in the Ventura Coastal Basin.

**Oxnard Coastal:** This area, approximately 40 square miles, covers the coastal watersheds that drain directly to the Pacific Ocean from the Lower Santa Clara River southeast to the Calleguas Creek watershed (see Figure 9). Average rainfall is around 15 inches. These channels contain urban runoff from the incorporated cities of Oxnard and Port Hueneme and agricultural runoff from the unincorporated areas. Flooding usually occurs along the coastal areas. Most of the basin is covered by the City of Oxnard but there are some areas of unincorporated Ventura County. Flooding in the northern part of this basin is the result of high flows from the Santa Clara River and this warning criteria for this area is covered in the Lower Santa Clara River basin.



**Figure 9:** Oxnard Coastal Watersheds

**Jurisdiction: Ventura County**

<b>Watercourse</b>	<b>Hazard</b>	<b>Warning Criteria</b>	<b>VCAHPS/Gages</b>	<b>F/O</b>	<b>Structures</b>
Coastal	Coastal/Upland	Rain Intensity	Rain 017, 403	Obs	0
All other Creeks	Upland	Rain Intensity	Rain 221, 308	Obs	0
Total					0

**Jurisdiction: City of Oxnard**

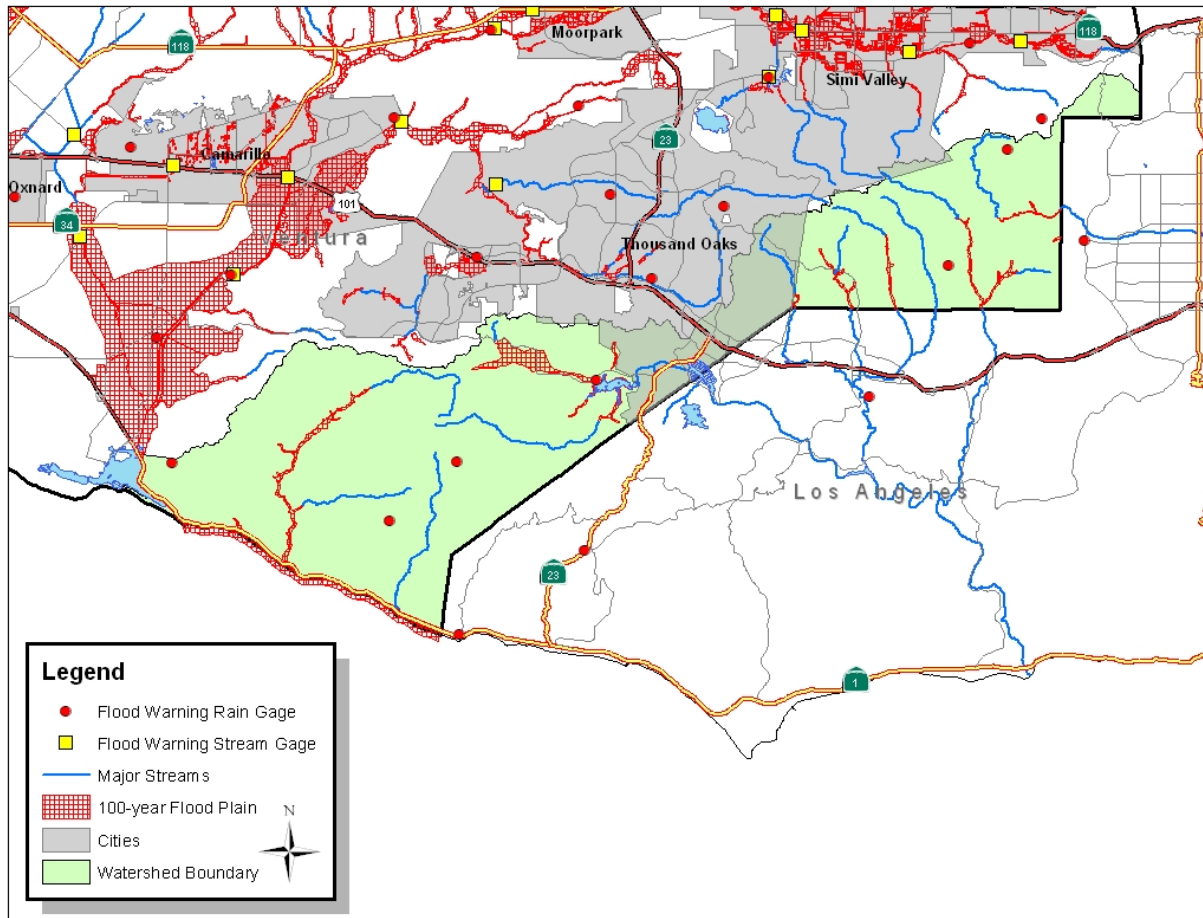
<b>Watercourse</b>	<b>Hazard</b>	<b>Warning Criteria</b>	<b>VCAHPS/Gages</b>	<b>F/O</b>	<b>Structures</b>
Coastal	Coastal/Upland	Rain Intensity	Rain 017, 403	Obs	N/A
Oxnard West	Urban	Rain Intensity	Rain 017, 032, 403	Obs	N/A
Oxnard Industiral	Urban	Rain Intensity	Rain 017, 403	Obs	N/A
Rice Road Drain	Urban	Rain Intensity	Rain 017, 032, 273	Obs	N/A
W Fifth Street Drain	Urban	Rain Intensity	Rain 032, 403	Obs	N/A
All other Creeks	Upland	Rain Intensity	Rain 221, 403	Obs	N/A
Total					N/A

**Jurisdiction: City of Port Hueneme**

<b>Watercourse</b>	<b>Hazard</b>	<b>Warning Criteria</b>	<b>VCAHPS/Gages</b>	<b>F/O</b>	<b>Structures</b>
Coastal	Coastal/Upland	Rain Intensity	Rain 017, 403	Obs	N/A
Oxnard West	Urban	Rain Intensity	Rain 017, 032, 403	Obs	N/A
All other Creeks	Upland	Rain Intensity	Rain 221, 308	Obs	N/A
Total					N/A

**Table 9:** Watercourse with Warning Criteria, Jurisdiction and Structures within floodplain for all jurisdictions in the Oxnard Coastal Basin

**Santa Monica Mountains Coastal:** This area, approximately 93 square miles, covers the coastal watersheds along the Santa Monica Mountains from the Calleguas Creek watershed east to the Los Angeles County Line (see Figure 10). This area contains watersheds that drain to Malibu Creek and the Los Angeles River along with watersheds that drain directly to the Pacific Ocean. Average rainfall ranges from 15 to 19 inches. Flooding in this area occurs in some of the valleys next to the creeks and along the coastal area next to the ocean. Most flooding occurs due to high intensity rainfall when the ground is saturated. Some coastal flooding can occur during high surf from very strong storm but usually this flooding is localized and isolated.



**Figure 10: Santa Monica Mountains Coastal Watersheds**

**Jurisdiction: Ventura County**

Watercourse	Hazard	Warning Criteria	VCAHPS/Gages	F/O	Structures
Coastal	Coastal/Upland	Rain Intensity	Rain 232, 280	Obs	61
La Jolla/Big Sycamore Canyons	Upland	Rain Intensity	Rain 242, 513	Obs	10
Valley Road Wash	Upland	Rain Intensity	Rain 121, 513	Obs	8
Potrero Creek	Upland/Urban	Rain Intensity	Rain 121, 513	Obs	62

<b>Watercourse</b>	<b>Hazard</b>	<b>Warning Criteria</b>	<b>VCAHPS/Gages</b>	<b>F/O</b>	<b>Structures</b>
Madea Creek	Upland/Urban	Rain Intensity	Rain 169, LA317	Obs	108
Bell Canyon	Upland/Urban	Rain Intensity	Rain 272, LA300	Obs	27
All other Creeks	Upland	Rain Intensity	Rain 221, 308	Obs	0
Total					276

**Jurisdiction: City of Thousand Oaks**

<b>Watercourse</b>	<b>Hazard</b>	<b>Warning Criteria</b>	<b>VCAHPS/Gages</b>	<b>F/O</b>	<b>Structures</b>
Potrero Creek	Upland/Urban	Rain Intensity	Rain 121, 169	Obs	N/A
All other Creeks	Upland	Rain Intensity	Rain 169	Obs	N/A
Total					N/A

**Table 10:** Watercourse with Warning Criteria, Jurisdiction and Structures within floodplain for all jurisdictions in the Lower Santa Clara River Basin

**Summary of Structures by Jurisdiction:**

The following table summarizes the total number of structures covered by the Ventura County Flood Warning System that are located in the Special Flood Hazard Area and the Coastal High Hazard Zone for each jurisdiction. Structures are any building, or improved structures such as garages, sheds, and agricultural barns that would qualify for a flood insurance policy. Structures were identified using aerial photography.

<b>Jurisdiction</b>	<b>Basin</b>	<b>Structures</b>
Ventura County (Unincorporated Areas)	Ventura River	1187
	Upper Santa Clara River	0
	Piru Creek	145
	Sespe Creek	46
	Lower Santa Clara River	657
	Calleguas Creek	992
	Rincon Coastal	234
	Ventura Coastal	2
	Oxnard Coastal	0
	Santa Monica Mountain Coastal	276
	<b>Total</b>	<b>3539</b>
City of Camarillo	Calleguas Creek	N/A
	<b>Total</b>	<b>N/A</b>
City of Fillmore	Sespe Creek	N/A
	Lower Santa Clara River	N/A
	<b>Total</b>	<b>N/A</b>
City of Moorpark	Calleguas Creek	N/A
	<b>Total</b>	<b>N/A</b>
City of Ojai	Ventura River	N/A
	<b>Total</b>	<b>N/A</b>

<b>Jurisdiction</b>	<b>Basin</b>	<b>Structures</b>
City of Oxnard	Lower Santa Clara River	N/A
	Oxnard Coastal	N/A
	Calleguas Creek	N/A
	<b>Total</b>	<b>N/A</b>
City of Port Hueneme	Oxnard Coastal	N/A
	<b>Total</b>	<b>N/A</b>
City of Santa Paula	Lower Santa Clara River	N/A
	<b>Total</b>	<b>N/A</b>
City of Simi Valley	Calleguas Creek	N/A
	<b>Total</b>	<b>N/A</b>
City of Thousand Oaks	Calleguas Creek	N/A
	Santa Monica Mountains Coastal	N/A
	<b>Total</b>	<b>N/A</b>
City of Ventura	Ventura River	N/A
	Lower Santa Clara River	N/A
	Ventura Coastal	N/A
	<b>Total</b>	<b>N/A</b>

**Table 10:** Summary of structures covered by the Ventura County Flood Warning System by jurisdiction.

## **612.a FORECASTING FLOOD PEAKS**

### **Hydrologic Models, Warning and Response Times**

Hydrologic models provide the best estimate of flood flows for Ventura County. Due to the rugged terrain in Ventura County, the streams and rivers respond very quickly. The local tributaries respond within 1-2 hours of peak rainfall. The Ventura River and Calleguas Creek responds within 3-4 hours of peak rainfall. Sespe Creek responds within 4-6 hours. The Santa Clara River can respond within 6-12 hours depending on which part of the watershed is hit by the storm. This limits the amount of warning time for observed data from these gages from 1 to 4 hours. To increase the amount of warning time, hydrologic models are used to expand the warning time as much as possible. The models use a combination of forecasted and observed rainfall, and the results can be compared with stream gages higher in the watershed and on specific tributaries to determine how well the models are simulating the actual observed conditions, Response Plans can be adjusted as necessary. The use of the hydrologic model can increase the warning time for the major rivers by 1 to 2 days. Small basins and debris flow areas are still limited to 1 to 2 hours of warning time since they are controlled by the amount of rain occurring in that specific area and the fast response times of the watershed.

Ventura County Watershed Protection District uses results from three different models to predict flow in Ventura County. The first model is provided by the National Weather Service River Forecast Center in Sacramento, CA. This model provides forecasts for five locations in Ventura County. These locations are Ventura River near Ventura, Sespe Creek near Fillmore, Santa Clara River near Piru (Upper Santa Clara tributary), Santa Clara River at Victoria (Lower Santa Clara), and Calleguas Creek at California State

University, Channel Islands (CSUCI). This model forecast provides estimation of flows for the main stem channels only. The results are downloaded from the forecast center and are integrated with Ventura County Advance Hydrologic Prediction System (VCAHPS) displays.

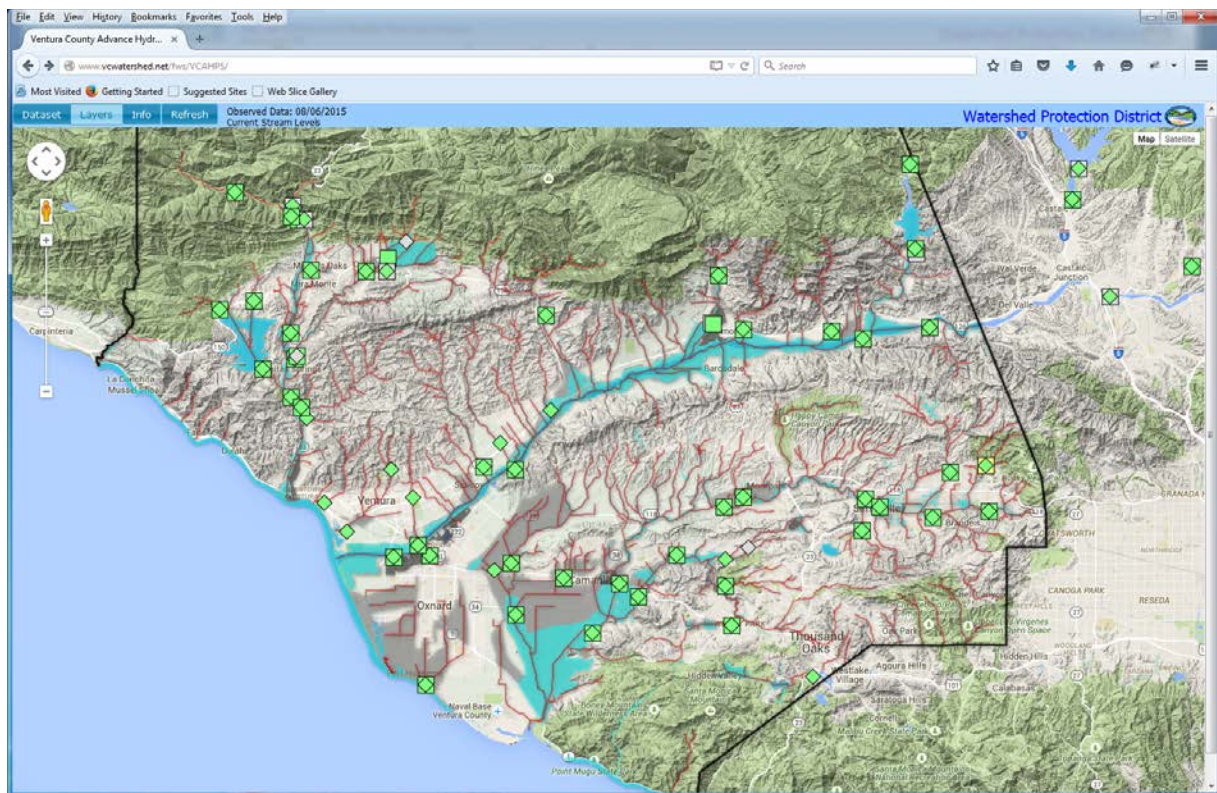
The second model used is the Hydrologic Simulation Program – Fortran (HSPF). This model consists of a set of three separate models for each of the major watersheds. These models were originally developed for long range watershed planning but were adapted to provide forecasted flows. The model is run for an entire water year and provides an estimation of soil saturation conditions. The model provides prediction forecasts at almost every stream gage contained within each watershed. Peaks are also available for several critical ungauged watersheds. This allows for flood warning where gages are unavailable but specific response plans are required. Model results are integrated with the VCAHPS system.

The third model is the Army Corps of Engineers HEC-1 model. This model is an event based model and provides forecasts for all watersheds in Ventura County including the three major watercourses. The model operator has the option to change the soil saturation criteria prior to model run. The results of this model are also integrated with the VCAHPS system.

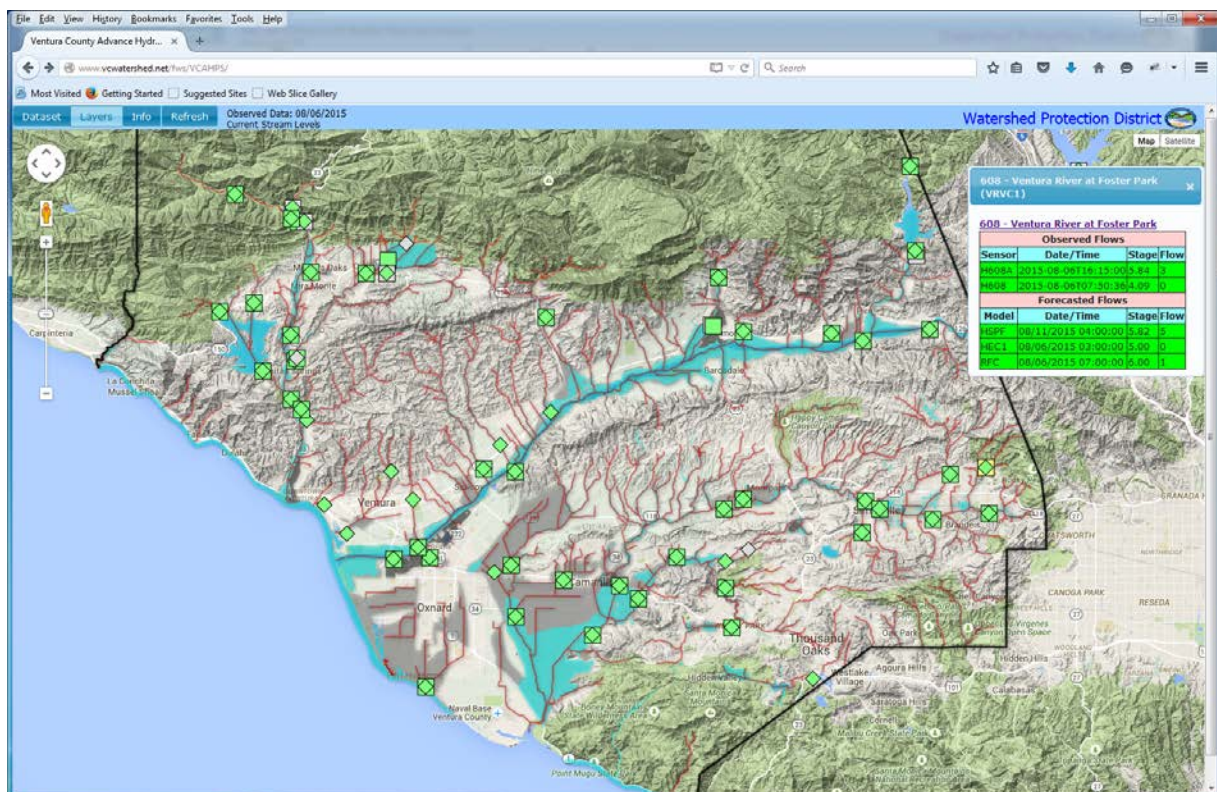
The VCAHPS is a similar system to the National Weather Service Advanced Hydrologic Prediction System (AHPS) system operated by the. The VCAHPS differs in that it provides forecast points for all stream gage locations not just the ones that the National Weather Service provides. The system also allows the user to display observed gage data and forecasts from all three models if they are available. The system also provides a very detailed list of potential impacts and the critical stage and/or flow needed for action/implementation. The impact locations, floodplain structures, and potential inundation areas are all shown in a web map interface. The list of impacts are contained in a database integrated with VCAHPS so the criteria can be adjusted if needed such as a major fire occurring in a watershed. The observed data are updated every 5 minutes. The forecasts are updated every 3 hours. The models have the capability of being run every hour if needed. Figures 11 through 16 show the VCAHPS map and graphical displays for the Ventura River at Foster Park gage. Table 13 in Appendix B lists all of the current VCAHPS points and indicates which forecast model is available for each point. All real-time observations and forecast are available on the VCWPD Flood Warning website:

<http://www.vcwatershed.net/fws/VCAHPS>.

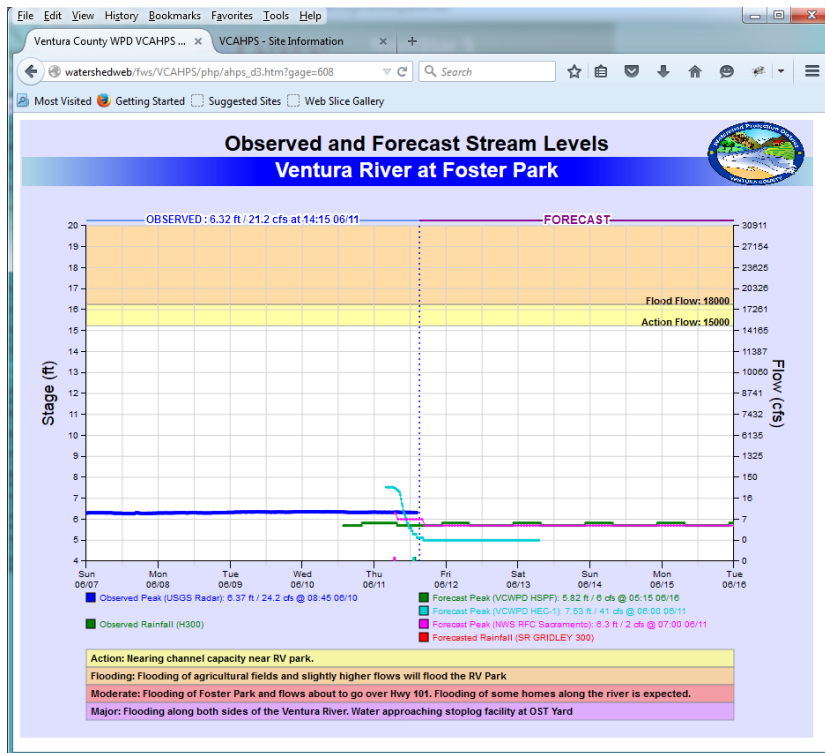




**Figure 11:** VCAHPS map interface showing observed and forecast points and the floodplain.



**Figure 12:** VCAHPS map display with summary of observed and forecasted peaks.



**Figure 13:** VCAHPS Display forecasted and observed flows

For urban and small streams that are ungauged, rainfall intensity is used to determine the potential for flooding during storms. Multiple rain gages are used for redundancy and alarms can be tailored to each area unique conditions.

The final component to the hydrologic models is the Quantitative Precipitation Forecast (QPF). VCWPD uses a 1-hour QPF provided by a forecast consultant so the models can forecast flows for the next 5 days. This flow forecast created from the QPF, increases the prediction times of flood events by giving emergency service, District personnel, and the public, 1 to 5 days advance warning. Although weather forecasts are not perfect, the forecast can indicate if conditions are nearing levels where action will be needed. Appendix B shows all VCAHPS locations and which site has observed data and which models are used for forecasted flows.

## **612.b EMERGENCY WARNING DISSEMINATION (EWD)**

### **Flood Warnings Disseminations and Evacuations**

Ventura County Watershed Protection District operates and maintains the infrastructure for the Flood Warning System Program. Actual implementation of emergency procedures for facilities not owned by VCWPD and for private property is handled by the Sheriff's Office of Emergency Services (VCOES) for unincorporated Ventura County. VCOES also acts as the focal point for all 10 cities in Ventura County for flooding within the cities and handles all communication between the Sheriff's Emergency Operations Center and each cities' individual Emergency Operations Centers. Flood Warnings are issued by the National Weather Service in Oxnard. VCWPD coordinates with the NWS during storms to make sure that NWS decisions are determined using the most accurate data possible. VCWPD also provides knowledge of the responses of individual tributaries and if flooding conditions are, or could occur, on channels that are currently not modeled by the NWS. Sheriff's OES coordinates any evacuations with local police and fire officials. VCWPD Storm Operations Center provides the intelligence and planning information so action plans and priorities can be set by emergency managers.

### **EWD1/EWD2 - Specific Warning Disseminations**

Ventura County has the complexity of having six (6) different types of flooding that can occur. These different types of flooding can occur individually or multiple types can occur within the same basin at the same time. For this reason all example messages are located in Standard Operating Procedures (SOPs) which are available in electronic format .

### **EWD4 – Mobile and Door-to-Door Warnings**

When needed, a door-to-door or mobile public address warning or evacuation notification can be readily provided. The Ventura County Sheriff's Tactical Response Team has been specifically trained to notify and inform residents of the need to evacuate or shelter-in-place. Additional personnel resources from other public safety agencies and from volunteer Disaster Service Workers within Ventura County can be utilized when needed. These warnings are given as follow-up to other notification methods described in this section. The table below lists the primary agencies responsible for each jurisdiction in Ventura County. Support agencies including surrounding law enforcement, fire, or National Guard troops can be utilized under the mutual aid assistance requests and coordinated through the Sheriff's Emergency Operations Center.

<b>Jurisdiction</b>	<b>Primary Police Agency</b>	<b>Primary Fire Agency</b>
Unincorporated Ventura County	Ventura County Sheriff	Ventura County Fire
City of Camarillo	Ventura County Sheriff	Ventura County Fire

<b>Jurisdiction</b>	<b>Primary Police Agency</b>	<b>Primary Fire Agency</b>
City of Fillmore	Ventura County Sheriff	Fillmore Fire, Ventura County Fire
City of Moorpark	Ventura County Sheriff	Ventura County Fire
City of Ojai	Ventura County Sheriff	Ventura County Fire
City of Oxnard	Oxnard Police Department	Oxnard Fire Department
City of Port Hueneme	Port Hueneme Police Department	Ventura County Fire
City of Santa Paula	Santa Paula Police Department	Santa Paula Fire/Ventura County Fire
City of Simi Valley	Simi Valley Police Department	Ventura County Fire
City of Thousand Oaks	Ventura County Sheriff	Ventura County Fire
City of Ventura	Ventura Police Department	Ventura Fire Department

**Table 11:** List of primary police and fire departments for each jurisdiction.

Door-to-door and mobile public address warnings can be used when a small number of people or localized area requires evacuation notification. Usually this is a follow up to other forms of warning notification such as VCAAlert (see below). The public address systems on emergency vehicles and aircraft may be used when personnel can be safely deployed and conditions and time permits.

#### **EWD5 – Emergency Alert System (EAS)**

Ventura County Sheriff's Emergency Operations Center has access to the Emergency Alert System (EAS) and participates in regular testing of the system with local radio and television broadcasters. The EAS provides brief messages to a primary entry point (KVEN/KHAY), who re-broadcast the message to all local radio, television, and cable providers. The most frequent user of the EAS is the National Weather Service Oxnard Forecast Office, who acts as a backup entry point should local equipment fail.

The EAS can be activated when conditions occur that would affect a large number of people in Ventura County. Example of EAS activation has been used by the National Weather Service for severe thunderstorms and wide spread urban flooding during heavy rainfall by the National Weather Service.

#### **EWD6 – Enhanced Telephone Notification (VCAAlert)**

Ventura County Sheriff's Office of Emergency Services (OES) acts (for the Operational Area) as the primary source of notifications. The County, all cities and many Special Districts have access to the enhanced tele-notification system known as VCAAlert. The VCAAlert system utilizes both purchased and volunteered (provided by subscribers) data to call and/or receive messages through fixed and mobile phones. The system can direct calls to a defined geographic area, an ad-hoc geographic area, or from a list. Special attention has been directed to ensuring the information is available to persons with access and functional needs.



VCAalert is the primary system used to get notifications to people with telephones or cellular phones within the impact areas and has been used in the past fire and flooding events as the warning areas can be customized to meet the emergency.

#### **EWD8 – Other Public Notifications**

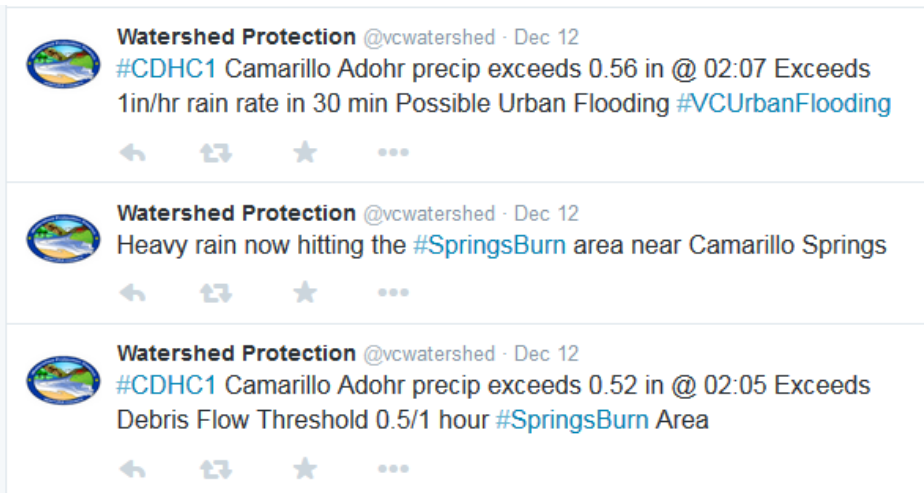
The Sheriff's OES has several staff that are authorized to generate and release warning messages using the Wireless Emergency Alert System (WEA). The WEA is a system that allows authorized personnel to generate alert messages to wireless customers (regardless of provider) to all wireless devices within the range of selected cell sites. The National Weather Service also can release WEA messages for significant weather events through a national system.

The Sheriff's OES uses a website (<http://vcemergency.com>), media releases, and other social media tools (NIXLE and Twitter) to promulgate emergency information.

Ventura County Watershed Protection District's Flood Warning System broadcasts texted alarms for heavy rainfall and when water levels reach action and flood levels. Most alarms are sent by e-mail, SMS Text and via Twitter (@VCWatershed). The Twitter messages are geo-referenced so followers can receive pin point location information on where the alarm is occurring. The messages are streamlined to provide a link to the detailed impact information and flood inundation maps. Figures 14 and 15 are examples of Tweets for a storm event that occurred in December 2014.



**Figure 14:** Alarm Tweets for minor flooding event in December 2014 City of Camarillo.



**Figure 15:** Alarm Tweets for debris flow event that occurred in City of Camarillo in December 2014.

## **EWD10 – Online Resources and Inundation**

The Ventura County Watershed Protection District maintains a website (<http://www.vcwatershed.net/fes/VCAHPS>) that provides detailed information on each stream gaging location, the response levels, impact locations, and flood inundation linked to response levels.

The Sheriff's OES and Emergency Operations Center command staff will determine the method or methods of delivery of the warning messages depending on the current situation and available personnel. The approach is to use the best method(s) to reach the largest number of community residents and businesses as possible directly who are affected by the emergency situation but to keep it localized to the affected area in order to reduce unneeded panic and to reduce potential danger due to congested roads and highways.



## **612.c FLOOD RESPONSE OPERATIONS (FRO)**

The Ventura County Watershed Protection District's (VCWPD) Flood Warning System and Hydrologists act as the central point for identifying and communicating flood-related hazards throughout Ventura County and the 10 incorporated cities. VCWPD staff monitor all storm events and can notify the Sheriff's OES and EOC of any flooding impacts as they occur. If requested, VCWPD will provide personnel to staff the Sheriff's Emergency Operations Center during a significant storm or other weather related event to communicate directly with command staff on the emerging status of any significant weather related events, flood impacts, expected time of arrival, and the impact to current response and relief efforts.

The Sheriff's Emergency Operations Center (EOC) prioritizes impacts and coordinates notifications to response agencies, and notifications to the public, via systems described in the Emergency Warning Dissemination section. The EOC can also coordinate and order resources for the flood response and recovery effort. The EOC is the focal point for coordination between the County of Ventura and the 10 incorporated cities and several special districts. The EOC will determine the best action for public safety. Should an evacuation be necessary, the Sheriff OES and EOC coordinates with the American Red Cross to locate, activate, and staff shelters in areas outside inundation zones but close to the affected flooded areas. The public will be notified of the shelter location and possible routes for evacuation. Information will also be given for shelters for small pets and larger animals like horses.

The National Weather Services also issues Advisory, Watch, and Warning Messages over the National Weather Radio, Emergency Alert System (EAS), and the Wireless Emergency Alert System (WEA). Coordination between VCWPD, Sheriff's OES and the NWS occur on all significant weather events to ensure that same emergency response messages and warnings are received by the public.

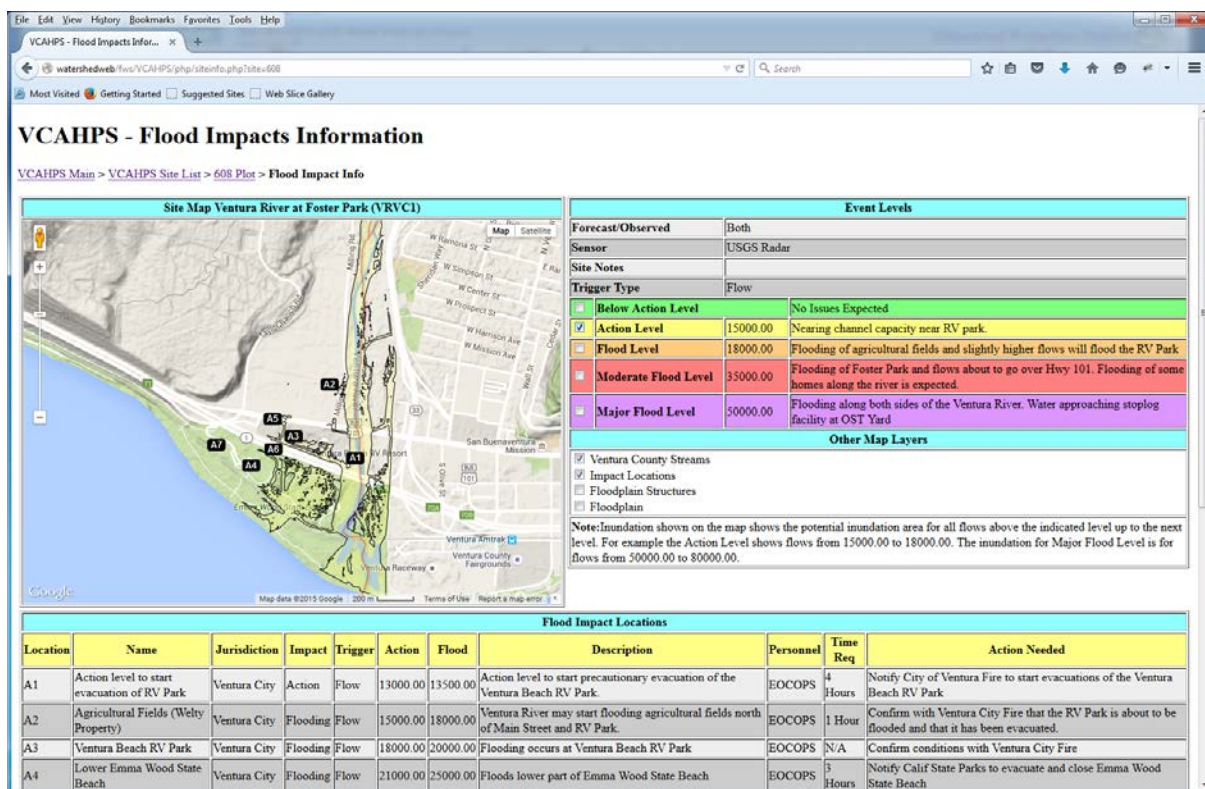
### **FRO1 – Scenarios**

Appendix C provides several flood related scenarios that have been used in the past for training and table-top emergency response exercises. These scenarios were developed with knowledge of historical flooding events along with the latest science on atmospheric rivers and Arkstorm conditions.

### **612.c Response Tasks and Flood Levels (FRO2, FRO3, FRO5)**

Ventura County Watershed Protection District maintains an electronic set of documents that are linked to the VCAHPS. Each location has descriptions of the impacts for each flood level. Furthermore, specific impact locations are identified on the map interface with the specific response level (i.e. Bankfull, Action, Flood, Moderate, and Major), impact description, actions and agencies needed, and the estimated amount of time needed to complete the action. The map interface also identifies the inundation area

for each flood impact level. All information regarding impact locations, levels, and inundation are made publically on the District's website at <http://www.vcwatershed.net/fws/VCAHPS>. The specific actions, personnel, and contact information are not made available publically but are on a password protected section of the website for use by County emergency personnel. The thresholds are kept in electronic documentation so that the criteria can be updated quickly in case hydrologic conditions change such as a fire impacting a major watershed. Examples of the electronic documentation and multiple inundation levels are shown in Figures 16-19 for the Lower Ventura River.



**Figure 16: Flood categories, flood impacts locations, and inundation area – Action Level**

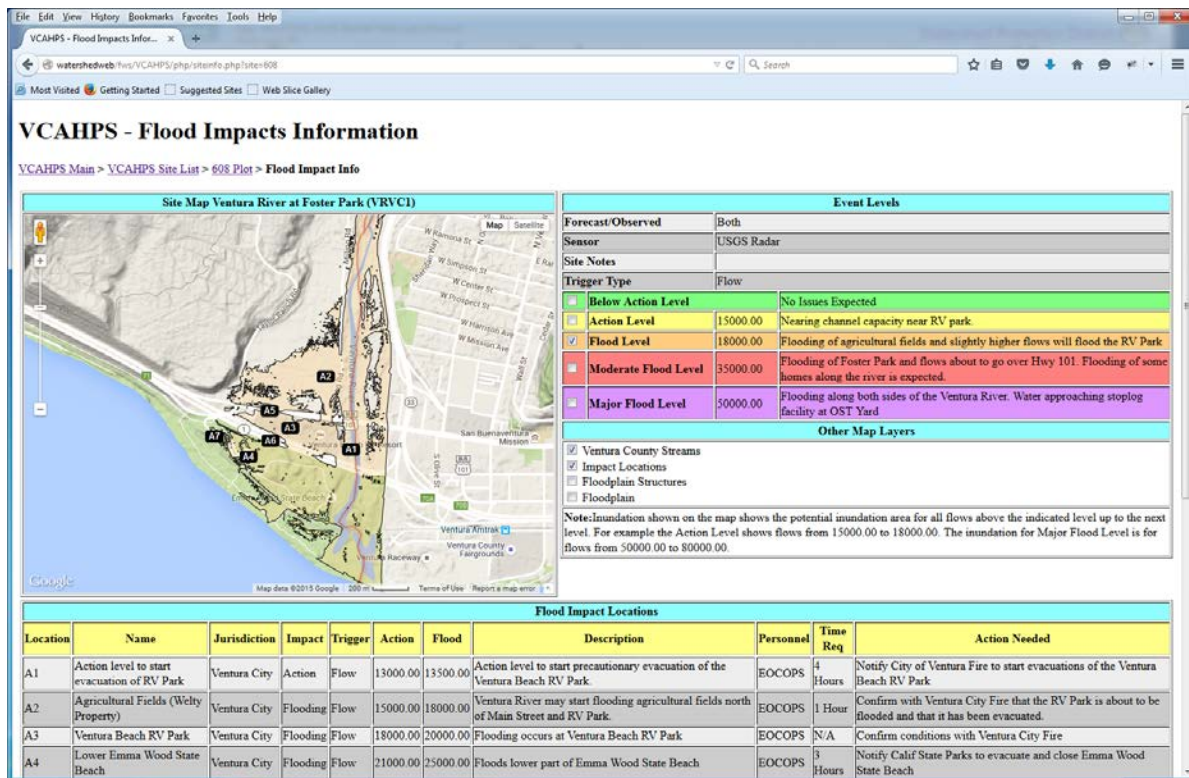


Figure 17: Flood categories, flood impacts locations, and inundation area – Flood Level

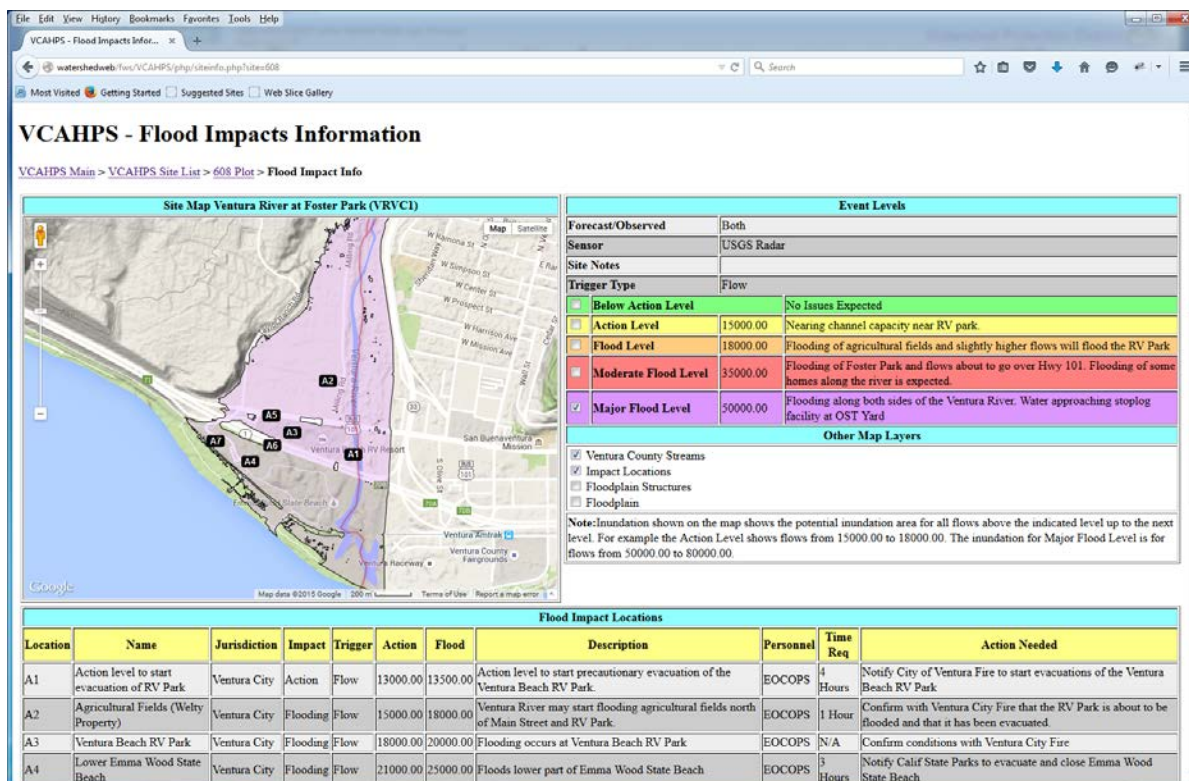


Figure 18: Flood categories, flood impacts locations, and inundation area – Major Level



Flood Impact Locations										
Location	Name	Jurisdiction	Impact	Trigger	Action	Flood	Description	Personnel	Time Req	Action Needed
A1	Action level to start evacuation of RV Park	Ventura City	Action	Flow	13000.00	13500.00	Action level to start precautionary evacuation of the Ventura Beach RV Park.	EOCOPS	4 Hours	Notify City of Ventura Fire to start evacuations of the Ventura Beach RV Park
A2	Agricultural Fields (Welly Property)	Ventura City	Flooding	Flow	15000.00	18000.00	Ventura River may start flooding agricultural fields north of Main Street and RV Park.	EOCOPS	1 Hour	Confirm with Ventura City Fire that the RV Park is about to be flooded and that it has been evacuated.
A3	Ventura Beach RV Park	Ventura City	Flooding	Flow	18000.00	20000.00	Flooding occurs at Ventura Beach RV Park	EOCOPS	N/A	Confirm conditions with Ventura City Fire
A4	Lower Emma Wood State Beach	Ventura City	Flooding	Flow	21000.00	25000.00	Floods lower part of Emma Wood State Beach	EOCOPS	3 Hours	Notify Calif State Parks to evacuate and close Emma Wood State Beach
A5	Main Street from 101 to Ventura River	Ventura City	Flooding	Flow	28000.00	30000.00	Water starts to flood Main Street west of the bridge. Closure of Main Street from Hwy 101 to Hwy 33.	EOCOPS	2 Hours	Notify City of Ventura to close Main Street between Hwy 33 and Hwy 101. Notify CHP/Cal Trans to close Main Street Exit on Hwy 101.
A6	Highway 101 between Main Street and Hwy 33	Ventura City	Flooding	Flow	35000.00	40000.00	Water surface elevation reaches the berm protecting Hwy 101. Flooding and closure of Hwy 101 from Hwy 33 to Main Street	EOCOPS	2 Hours	Notify CHP/Cal Trans to close Hwy 101 between Hwy 33 and Main Street as low level crossing area will be flooded.
A7	Upper Emma Wood State Beach	Ventura City	Flooding	Flow	38000.00	41000.00	Flows from Ventura River may go under Hwy 101 bridge (Main Street Offramp) and flood Emma Wood State Beach.	EOCOPS	2 Hours	Notify Calif State Parks that the western part of Emma Wood State Beach will be flooded and beach should be evacuated.
B1	Foster Park	Ventura County	Flooding	Flow	33000.00	35000.00	Water start to flood Foster Park.	EOCOPS	3 Hours	Notify Ventura County Parks to evacuate Foster Park.
B2	Ojai Valley Sanitation Plant	Ventura County	Flooding	Flow	70000.00	80000.00	High water may be impacting the Ojai Valley Sanitation Plant	EOCOPS	2 Hours	Notify Ojai Valley Sanitation Plant to take protective measures and active flood fighting
C1	Ventura River Stoplogs	Ventura City	Action	Flow	40000.00	45000.00	Stoplogs need to be inserted in the Ventura Levee at the OST Yard by VCWPD O+M personnel.	SOCHIC	6 Hours	Notify VCWPD Ops/Maintenance to insert stoplogs at the Ventura River Levee at OST Yard.
C2	Bike Path Bridge at OST Yard	Ventura County	Flooding	Flow	50000.00	55000.00	Backwater from Ventura River may be impacting bike path and OST Yard area. Stoplogs should be installed as precautionary.	EOCOPS	2 Hours	Verify with VCWPD Ops/Maint that the stoplogs have been inserted. Notify OSY Yard of possible flooding.
C3	Lower OST Yard	Ventura County	Flooding	Flow	60000.00	65000.00	Flooding should be occurring on OST Yard property due to backwater from Ventura River	EOCOPS	N/A	Monitor for possible debris from oil operations near Ventura River.
C4	Upper OST Yard	Ventura County	Flooding	Flow	70000.00	75000.00	Widespread flooding of properties north of Ventura Levee at the OST Yard.	EOCOPS	1 Hour	Multiple evacuations needed and closure of most roads north of City of Ventura.
D	Ojai Valley Sanitary District Pipeline at Santa Ana	Ventura County	Flooding	Flow	22000.00	25000.00	Erosion may cause damage to Ojai Valley Sanitary District pipeline crossing at Santa Ana Blvd or along the bike trail.	EOCOPS	1 Hour	Notify Ojai Valley Sanitation to monitor their pipeline in case of severe channel erosion

**Figure 19:** Full list of impact locations for the Lower Ventura River with description, agencies involved, actions, and estimated time required.

## 612.d CRITICAL FACILITIES PLANNING (CFP)

The 2015 Ventura County Multi-Hazard Mitigation Plan (MHMP) contains a list of critical facilities in Ventura County. This list includes all facilities with multiple County agencies, cities, special districts, school districts, and other agencies. This list is for all hazards and include bridges, stream channels, along with schools, fire stations, hospitals and other critical structures.

### CFP1 – Critical Facility List

A subset of the MHMP list that is compliant with CFP1 requirements is updated annually and lists all significant critical facilities that would be impacted during a flood. The list includes contact information and warning criteria for each facility. This list includes locations that may be outside the Special Flood Hazard Area and include facilities in unincorporated Ventura County along with facilities in the 10 incorporated cities. Not all jurisdictions have critical facilities. This list is a separate document and is not part of this Annex.

#### **612.e STORM READY COMMUNITY (SRC)**

The following communities have been designated as Storm Ready Communities in Ventura County.

- Ventura County (Unincorporated Areas)
- City of Oxnard
- City of Port Hueneme

The Storm Ready Communities are listed on the following web site:

<http://www.stormready.noaa.gov/com-maps/ca-com.htm>.

#### **612.f TSUNAMI READY COMMUNITY (TRC)**

The following communities have been designated as Tsunami Ready Communities in Ventura County.

- Ventura County (Unincorporated Areas)
- City of Oxnard
- City of Port Hueneme

Tsunami Ready Communities are listed on the following web site:

<http://www.stormready.noaa.gov/tsunamiready/maps/ca-ts.htm>.

The 2015 Ventura County Multi-Hazard Mitigation Plan (MHMP) includes a Tsunami Inundation Map and descriptions of the Tsunami hazard and criteria used to determine the area submerged by a tsunami. This is found on pages 4-30 to 4-31 and in Figure F-13 of the MHMP. The MHMP is available on the Ventura County CRS Website ([www.vcfloodinfo.com](http://www.vcfloodinfo.com)) under the 2015 Ventura County Multi-Hazard Mitigation tab.

The Ventura County Sheriff's OES also maintains the Ventura County Operational Area Tsunami Evacuation Plan which covers the unincorporated Ventura County, and the Cities of Oxnard, Port Hueneme, and Ventura. That Plan can be viewed at the Sheriff's Office of Emergency Services.

## **Appendix A: Flood Warning System Rain Gages**

<b>Site Id</b>	<b>Name</b>	<b>Ven</b>	<b>Upr SCR</b>	<b>Piru</b>	<b>Sesp</b>	<b>Lwr SCR</b>	<b>Calleg</b>	<b>Rinc</b>	<b>Ven Coast</b>	<b>Oxn Coast</b>	<b>SM Mtns</b>
004	Casitas Dam	X									
017	Port Hueneme									X	
030	Ojai Fire Sta (2)	X									
032	Oxnard Civic Center									X	
063	Pine Mountain Inn				X						
065	Ojai Summit Fire Sta	X				X					
066	Ventura City Hall	X						X	X		
085	Canada Larga	X									
106	Piru APCD (2)					X					
121	Lake Sherwood										X
126	Moorpark – Co Yard						X				
128	Thousand Oaks (2)						X				
134	Matilija Dam	X									
140	Oak View Fire Sta	X									
152	Piedra Blanca				X						
160	Lake Piru-Temescal			X							
163	Sulphur Mountain	X				X			X		
165	Stewart Canyon	X									
169	Thousand Oaks Civic						X				X
171	Fillmore Fish Hatch				X	X					
172	Piru Canyon			X							
173	Sta Paula – Ferndale					X					
175	Saticoy Yard					X	X				
177	Camarillo – Pac Sod						X				
180	Ortega Hill	X			X						
188	Newbury Park FS						X				
189	Somis – Deboni					X	X				
193	Santa Susanna						X				
194	Camarillo – Adohr						X				
196	Tapo Canyon						X				
197	Sespe – Topa Topa				X						
199	Fillmore Sanitation				X	X					
206	Somis – Fuller					X	X				
207	Matilija Canyon	X									
209	Lockwood Valley			X							
211	Alamo Mountain			X							
218	Meiners Oaks FS	X									
221	La Conchita/Sea Cliff							X			
222	Ventura Gov't Center					X			X		
224	Sespe – Westates				X	X					



Site Id	Name	Ven	Upr SCR	Piru	Sesp	Lwr SCR	Calleg	Rinc	Ven Coast	Oxn Coast	SM Mtns
225	Wheeler Canyon					X					
227	Lake Bard						X				
230	Sexton Canyon					X			X		
232	Deals Flat										X
234	Las Lajas Canyon						X				
235	Piru – Ventura/LA Co		X								
238	South Mountain					X	X				
239	El Rio Spreading Grd					X	X			X	
242	Tripas Canyon					X	X				
245	Santa Paula – Wilson					X					
246	Simi Sanitation						X				
250	Happy Camp Canyon					X	X				
254	Casitas Station	X									
259	Camarillo – PVWD						X				
264	Wheeler Gorge	X									
268	Last Chance				X	X					
272	Sage Ranch						X				X
273	Oxnard NWS						X			X	
278	Dough Flat (1)				X						
279	Borracho Saddle			X	X						
280	Circle X Ranch										X
300	Senior Gridley	X									
301	Old Man Mountain	X									
302	Canada Larga-Verde	X							X		
303	Nordhoff Ridge	X									
304	North Fork Matilija	X									
305	La Granada Mtn	X						X			
306	White Ledge Peak	X									
307	Upper Matilija	X									
308	Red Mountain	X						X			
400	Fillmore – Grand Ave				X	X					
401	Sycamore Canyon				X						
402	Tommys Creek				X						
403	Silverstrand									X	
404	Sisar North				X	X					
405	Choro Grande				X						
406	Fagan West					X					
408	Rose Valley				X						
409	Hopper Mountain			X	X	X					
410	Pyramid Lake			X							
412	El Rio –Mesa Sch (2)					X	X				
500	Camrosa Water Dist						X				
501	Rocky Peak						X				X
502	Santa Rosa Valley						X				

Site Id	Name	Ven	Upr SCR	Piru	Sesp	Lwr SCR	Calleg	Rinc	Ven Coast	Oxn Coast	SM Mtns
505	Calleguas-CSUCI						X				
506	Sycamore Cyn Dam						X				
507	South Mountain East						X				
508	Home Acres						X				
509	Spanish Hills						X				
510	Lang Ranch						X				X
511	Simi Vly-Simi HS (2)						X				
512	Camarillo-Upland						X				
513	Rancho Sierra Vista						X				X
LA300	Bell Canyon										X
LA301	Browns Canyon		X				X				
LA302	Aliso Canyon		X								
LA306	Mill Crk Summit (4)		X								
LA308	Bell Canyon DB (4)										X
LA317	Agoura FS (4)										X
LA357	Aliso Cyn Wagon (4)		X								
LA384	Acton Camp (4)		X								
LA385	Castaic Junction		X								
LA386	Sand Canyon FS (4)		X								
LA387	Acton Escondido (4)		X								
LA390	Bouquet Canyon		X								
LA393	Pine Cyn Patrol (4)		X								
LA394	Warm Spr Camp (4)		X								
LA395	San Fransquito (4)		x								
LA402	Mint Canyon (4)		X								
LA404	Gorman Sheriff (4)			X							
LA406	Newhall FS 73 (4)		X								
LA439	Little Gleason		X								
LA446	Del Valle Train Ctr (4)		X								
LA454	LaChuzza Patrol (4)										X
LA465	Castaic FS 149 (4)		X								
LA466	Castaic PH (4)		X								
LA467	Sandberg (4)		X	X							
LA468	Hungry Valley FS (4)			X							
LA474	Calabasas FS 125 (4)										X
LA481	Leona Valley FS (4)		X								
LA486	Agua Dulce FS (4)		X								
LA487	Acton Pump Sta (4)		X								
LA488	Acton FS 80 (4)		X								
SB075	Don Victor (3)				X						
SB549	Edison Trail (3)							X			
SB553	Carpinteria FS (3)							X			
Totals		23	24	10	18	24	35	6	5	5	13

**Table 1:** List of all precipitation gages used for flood warning modeling and alarms

**Notes:** List of all gages used for flood warning modeling and alarms

- (1) – United States Geological Survey Gages
- (2) – Ventura County Air Pollution Control District Rain Gages
- (3) – Santa Barbara County Flood Control Rain Gages
- (4) – Los Angeles County Department of Public Works Rain Gages

**Basins:**

Ven – Ventura River  
 Upr SCR – Upper Santa Clara River  
 Piru – Piru Creek  
 Sesp – Sespe Creek  
 Lwr SCR – Lower Santa Clara River  
 Calleg – Calleguas Creek  
 Rinc – Rincon Coastal  
 Ven Coast – Ventura Coastal  
 Oxn Coast – Oxnard Coastal  
 SM Mtns – Santa Monica Mountains Coastal

<b>Watershed/Basin</b>	<b>Area (sq mi)</b>	<b>Number of Rain Gages</b>	<b>Area / Number of Gages (sq mi)</b>	<b>Number of Stream Gages</b>	<b>Stream Gage at Outlet of Basin</b>
Ventura River	225.5	23	9.80	13	Yes
Santa Clara River	1625.6	63*	25.80	21	Yes
Sespe Creek Basin	268.7	18	14.89	5	Yes
Piru Creek Basin	437.7	10	43.77	5	Yes
Upper Santa Clara Basin	668.7	24	27.86	2	Yes
Lower Santa Clara Basin	246.7	25	9.87	9	Yes
Calleguas	334.9	35	9.57	18	Yes
Rincon Coastal	33.3	6	5.55	0	No
Ventura Coastal	22.7	5	4.54	0	No
Oxnard Coastal	40.0	5	8.00	1	No
Santa Monica Mountains Coastal	92.7	13	7.13	0	No

**Table 2:** Basin area and number of gages per basin.

**Note:** \*Total number of rain gages for the Santa Clara is lower than the sum of each tributary because several rain gages are located where they can be used for multiple basins.

The Ventura River and Calleguas Creek watersheds have an area per rain gage ratio less than 10 square miles per gage. The Santa Clara River does not have an area per rain gage ratio less than 10 square due to federal laws limiting access in wilderness areas located in Sespe and Piru Creek tributaries. Both of these watersheds are not urbanized and have multiple stream gages for monitoring flows to offset the lack of rain gages. The Upper Santa Clara River is mostly in Los Angeles County and a stream gage monitors the flow coming into Ventura County. The remaining basin, Lower Santa Clara River, has a gage ratio less than 10 gages per square mile.

## **Appendix B: Ventura County Advance Prediction System – Stream Gages**

<b>VCAHPS ID</b>	<b>Forecast Location</b>	<b>Watershed</b>	<b>Observed Flow</b>	<b>NWS RFC Model</b>	<b>HSPF Model</b>	<b>HEC-1 Model</b>
603	Matilija Cr abv Matilija Dam (1)	Ventura River	X		X	X
690	Matilija Dam	Ventura River	X		X	X
604	Matilija Creek below Dam	Ventura River	X			
605	North Fork Matilija Creek	Ventura River	X		X	X
609	Ventura River near Ojala ++	Ventura River	Calc		X	X
633	Happy Valley Drain	Ventura River	X		X	X
651	Ventura River at Santa Ana	Ventura River	X		X	X
MO-OJA	Fox Canyon Drain	Ventura River	X		X	X
669	Thacher Creek	Ventura River	X		X	X
605	San Antonio Creek at Hwy 33	Ventura River	X		X	X
605A	San Antonio Creek at Old Creek	Ventura River	X		X	X
600	Coyote Creek above Lake Casitas	Ventura River	X		X	X
606	Santa Ana Cr above Lake Casitas	Ventura River	X		X	X
691	Casitas Dam	Ventura River	X		X	X
608	Ventura R at Foster Park (1) **	Ventura River	X	X	X	X
ME-VR2	Ventura R at Ojai Sanitation (2) **	Ventura River	X		X	X
630	Canada Larga at Ventura Ave	Ventura River			X	X
981	Bouquet Canyon (4)	Upr Santa Clara	X		X	
982	Mint Canyon at Sierra Hwy (4)	Upr Santa Clara	X		X	
983	Santa Clara River at RR (4)	Upr Santa Clara	X		X	
984	Elizabeth Canyon Creek (3)	Upr Santa Clara	X		X	
985	Castaic Canyon Creek (3)	Upr Santa Clara	X		X	
986	Elderberry Canyon Creek (3)	Upr Santa Clara	X		X	
987	Fish Creek (3)	Upr Santa Clara	X		X	
990	Castaic Dam (3)	Upr Santa Clara	X		X	
991	Castaic Dam Outflow/Lagoon (3)	Upr Santa Clara	X		X	
707	Santa Clara River near Piru (1)	Upr Santa Clara	X	X	X	X
716	Piru Creek above Pyramid Lake	Piru Creek	X		X	
788	Canada de Los Alamos (3)	Piru CReek			X	
789	Pyramid Dam (3)	Piru Creek	X		X	
790	Pyramid Dam Outflow (3)	Piru Creek	X			
791	Piru Cr abv Frenchmans Flat (1)	Piru Creek	X			
705	Piru Creek above Lake Piru (1)	Piru Creek	X		X	X
792	Santa Felicia Dam (Lake Piru) (1)	Piru CReek	X		X	X
714	Santa Felicia Dam Outflow (1)	Piru Creek	X			
725	Santa Clara River nr Torrey Rd++	Lwr Santa Clara	Calc		X	X
701	Hopper Creek at Hwy 126	Lwr Santa Clara	X		X	X
713	Pole Creek at Sespe Ave	Lwr Santa Clara	X		X	X
711	Sespe Creek at Sespe Gorge (1)	Sespe Creek	X		X	X

VCAHPS ID	Forecast Location	Watershed	Observed Flow	NWS RFC Model	HSPF Model	HEC-1 Model
737	Sespe Creek above Bear Creek (1)	Sespe Creek	X		X	X
710	Sespe Creek near Fillmore (1) **	Sespe Creek	X	X	X	X
721	Sespe East Tributary	Lwr Santa Clara	X			
722	Sespe West Tributary	Lwr Santa Clara	X			
709	Santa Paula Cr at Steckel Park (1)	Lwr Santa Clara	X		X	X
738	Todd Barranca at Telegraph	Lwr Santa Clara			X	X
724	Santa Clara River at Freeman Div	Lwr Santa Clara	X		X	X
731	Ellsworth Barranca at Hwy 126	Lwr Santa Clara	X		X	X
MO-VEN	Moon Ditch (2)	Lwr Santa Clara	X			X
MO-OXN	El Rio Drain (2)	Lwr Santa Clara	X		X	X
723	Santa Clara River at Victoria**	Lwr Santa Clara	X	X	X	X
842	Arroyo Simi below Stow Street	Calleguas Creek	X		X	X
890	Las Lajas Dam	Calleguas Creek	X		X	X
802	Arroyo Simi at Royal Ave	Calleguas Creek	X		X	X
804	Arroyo Tapo at Walnut	Calleguas Creek	X		X	X
MO-SIM	Bus Canyon Drain (2)	Calleguas Creek	X		X	X
802	Arroyo Simi at Madera	Calleguas Creek	X		X	X
891	Sycamore Canyon Dam	Calleguas Creek	X		X	X
MO-MPK	Gabbert Drain (2)	Calleguas Creek	X			X
841	Arroyo Las Posas abv Hitch Blvd	Calleguas Creek	X		X	X
806	Calleguas Creek at Hwy 101	Calleguas Creek	X		X	X
MO-THO	North Fork Conejo Creek (2)	Calleguas Creek	X		X	X
830	South Branch Arroyo Conejo	Calleguas Creek	X		X	X
838	Arroyo Santa Rosa at Blanchard	Calleguas Creek			X	X
800	Conejo Creek above Hwy 101	Calleguas Creek	X		X	X
800A	Conejo Creek at Ridge View	Calleguas Creek	X		X	
805	Calleguas Creek at CSUCI (1) **	Calleguas Creek	X	X	X	X
780	Beardsley Slough	Calleguas Creek	X		X	X
778	Nyland Drain	Calleguas Creek				X
MO-CAM	Camarillo Hills Drain (2)	Calleguas Creek	X		X	X
776	Revolon Slough at Pleasant Vly	Calleguas Creek	X		X	X

**Table 13**

**Note:** \*\* Indicates gage is near outlet of major watershed or basin.

++ These sites calculate the flow from upstream tributaries to determine main channel flow.

- (1) – United States Geological Survey Gages
- (2) – Ventura County Watershed Water Quality Gages
- (3) – California Department of Water Resources Gages
- (4) – Los Angeles County Department of Public Works Gages



## **Appendix C: Flood Scenarios**

This Appendix describes several storm and flood scenarios that have been used for past County of Ventura emergency response training exercises. The responses to the scenario follows all requirements of the National Incident Management System (NIMS).

### **A. Unexpected Emergency from Small Storm**

#### **Initial Staffing Levels:**

Emergency Operations Center:	Duty Officer Only
WPD Staff:	On-Call
Agencies:	OES, Ventura County Watershed Protection District, local police and fire

#### **Scenario:**

Weather forecast calls for a small storm with generally light rain with some localized moderate rain. Hydrologic models are showing that all flows are expected to remain well below problem thresholds. Considering the small nature of the storm and no forecasted problems, Ventura County Watershed Protection District (VCWPD) Staff will monitor the storm remotely and provide updates to EOC staff as needed.

Toward the end of the storm, an isolated storm cell drops significant rain in a localized area. Debris has washed into a VCWPD channel and is causing water to backup and flood an upstream residential area. The Flood Warning System has detected heavy rain and has triggered a text/Twitter alarm message. The National Weather Service has issued an Urban and Small Stream Flood Advisory for the area. Report of flooding was called in by a local resident through 911. A local police officer arrives on scene and establishes the Incident Command Post (ICP) and becomes the Incident Commander (IC).

#### **Response:**

A local Dispatch Center requests for VCWPD to respond to flooding occurring along one of the District's jurisdictional channels. At the same time, VCWPD Flood Warning Hydrologist notifies the Sheriff's OES that a minor flood event is occurring and indicates that the residential area impacted is small and no other flooding is expected. OES and VCWPD coordinate with the NWS on the Flood Advisory issued. The Sheriff's OES determines if any evacuations and/or warning messages need to be issued. A VCWPD Operations and Maintenance Supervisor is dispatched to the incident. Upon arriving on scene, the VCWPD O & M Supervisor establishes an ICP in unified command with the local police and fire agencies. It is determined that heavy equipment is needed to clear the debris and to prevent the risk of additional flooding. Other additional resources including Fire Department personnel are requested for sandbagging and active flood fighting efforts. Weather monitoring does not show any additional rainfall and water levels are maintaining so only VCAAlert calls are issued for the few structures that are immediately threatened. Finally, the blockage has been cleared and all police, fire and VCWPD resources are released.

## **B. Major Storm Where Channels are Expected to Exceed Action/Flood Thresholds**

### Initial Staffing Levels:

Emergency Operations Center:	Duty Officer Only
WPD Staff:	On-Call
Agencies:	OES, Ventura County Watershed Protection District, Cal-Trans, California Highway Patrol (CHP), Sheriff, Ventura County Fire, local fire and police, City of Ventura, City of Camarillo, Ventura County Transportation Commission (VCTC), Navy Base Ventura County, National Weather Service (NWS)

### Scenario:

Weather forecast calls for a significant winter storm with substantial subtropical moisture. Current hydrologic models are showing that flows should exceed Action levels for several locations. The storm is forecasted to hit all of Ventura County within the next 24 to 36 hours.

The storm begins to drop light and moderate rainfall in Ventura County. Forecast models indicate that levels of the Ventura River will exceed Flood level for the Ventura River. Models are also showing that levels will be above Action level for Sespe Creek. Levels for other channels are close to backfull but below Action levels. Models now indicate that Calleguas Creek may exceed Action level for areas near Point Mugu.

The main front arrives with widespread moderate to heavy rain. The Flood Warning System starts sending out multiple alarms for heavy rain along with observed stream flow for Ventura River exceeding Action level. Action level was also reached on Calleguas Creek, Conejo Creek, and Sespe Creek.

As the storm moves through Ventura County, additional alarms are triggered from the Flood Warning System. Flood level has been reached for the Ventura River, Conejo Creek, and Calleguas Creek. Localized flooding and mudslides are being reported and the NWS has issued a Flood Advisory. There are also reports occurring at the same time of several clogged culverts in the VCWPD's channels. As the storm continues, it becomes apparent that additional flooding is expected and additional resources will be needed.

### Response:

Ventura County Watershed Protection District issues several weather briefings to emergency response personnel and OES staff. Since forecast models are indicating that levels will exceed for several locations, the list of impacts are reviewed. At this point in the storm two areas will be impacted. The forecast shows that the Ventura River will exceed the level for evacuation of the Ventura Beach RV Park, and Sespe Creek will exceed the Action level for inserting stoplogs into the Sespe Creek Levee at the Santa Paula Branch Line (railroad). A call by VCWPD is made to the City of Ventura (contact for RV Park) that an evacuation may be needed.

VCWPD staff update the weather briefings providing the latest forecast and expected peak water levels. Since the forecast now shows that water levels will exceed Action level on Sespe Creek, a call is made to VCWPD O&M informing them that the stoplogs

need to be inserted at Sespe Creek levee. A second call is made to notify the Sheriff's OES to contact the Ventura County Transportation Commission (VCTC) and inform them that the Santa Paula Branch Line (railroad) will be closed so the stoplogs will be inserted into the Sespe Creek Levee. VCTC personnel will inform all train operators to shut down any trains that use the Santa Paula Branch Line near Fillmore. A VCWPD O&M Superintendent sends a crew to insert the stoplogs in the levee. Finally, a call is made to the Navy Base Ventura County, Point Mugu that Calleguas Creek will exceed the Action level for possible flooding near the Tidal Gate.

As the level of the Ventura River rises and the Action alarm is triggered, VCWPD staff calls the City of Ventura Police Department to notify them that the water level has reached the Action level to and evacuate the Ventura Beach RV Park. VCWPD staff also notify the City on the estimated time that the River will start flooding the RV Park. A call is made to Sheriff's OES to notifying them of the notification to the City of Ventura regarding evacuation of the RV Park. OES indicates that multiple reports of flooding and other storm related issues have been reported and that they will be activating the EOC. The Sheriff's OES request a Hydrologist from WPD to report the Emergency Operations Center. The current Hydrologist monitoring the storm reports to the EOC.

As the storm continues, the VCWPD Hydrologist continues to monitor the storm and reports to EOC command staff any additional issues. First, the alarm that is triggered is for flooding at the Ventura Beach RV Park. EOC staff confirms with the City of Ventura that RV has been evacuated. The City of Ventura notifies the EOC that flooding is occurring at the RV Park and the Park has been evacuated. The next alarm occurs on Conejo Creek at Ridgeview Street when the water level begins to flood Adohr and Ridgeview Streets. EOC staff calls the City of Camarillo to close both streets and to notify the Camarillo Waste Water Treatment Plant to let them know that the plant will be surrounded by flood water and access may become limited. The next alarm occurs on the Ventura River where the water level should begin to flood Main Street and is forecasted to flood Highway 101. EOC staff notifies the City of Ventura to close Main Street. EOC staff also notifies the CHP and Cal-Trans to prepare to close Highway 101 and give the estimated time that flooding should occur. Finally, alarms are triggered for Calleguas Creek to indicate that flooding will occur at Highway 1 and near the Las Posas Gate for Point Mugu. EOC staff call the Navy Base Ventura County that they need to install the flood wall at the Las Posas Gate. EOC staff also notify the CHP and Cal-Trans of the expected time Highway 1 at Calleguas Creek will start to flood so they can close access to the highway.

The clogged culverts are handled through the 911 dispatch center or the afterhours VCWPD hotline. Each VCWPD Operations and Maintenance Supervisor assumes IC and establishes an ICP and resolves the issues. The Public Works Duty Officer works with the Watershed Protection Director to coordinate efforts for Public Works resources.

The storm moves into Los Angeles County and the Flood Warning System is showing that water levels are beginning to lower. EOC staff turn from a supporting response phase to supporting the recovery and documentation phase.