CHAPTER 1 – INTRODUCTION

CHAPTER CONTENT

About Chapter 1

This introduction chapter acquaints the reader with the purpose and organization of the State of California Hazard Mitigation Plan, also known as the State Hazard Mitigation Plan (SHMP).

The chapter also presents the legal context for the SHMP, discusses key terms used throughout the document, and explains the State of California's process for SHMP adoption and assurances regarding the plan.

1.1 PURPOSE OF THE PLAN

The SHMP is the state's hazard mitigation guidance document and provides an updated and comprehensive description of California's historical and current hazard analysis, mitigation strategies, goals, and objectives. More importantly, the SHMP reflects the state's commitment to reduce or eliminate potential risks and impacts of natural and human-caused disasters by making California's families, homes, and communities better prepared and more disaster-resilient.

Hazard mitigation planning is a dynamic process built on realistic assessments of hazards and effective strategies for investing in priority mitigation projects and actions. This process involves multiple stakeholders and allows for the blending of overall mitigation goals, objectives, and actions of all levels of government.

The State of California is required to review and revise its SHMP and resubmit for Federal Emergency Management Agency (FEMA) approval at least once every five years to ensure continued funding eligibility for certain Stafford Act grant programs. (See *Section 1.4.1* for a description of the Stafford Act.) Such FEMA funding programs include the Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation (PDM), Flood Mitigation Assistance (FMA), Fire Management Assistance Grant (FMAG), and Public Assistance (PA).

For example, FEMA approval of the 2013 SHMP has enabled California to receive over $31 million in HMGP funding and approximately $287,009,346 in PA grant funding between January 2013 and December 2016. Without a FEMA-approved SHMP, California would not have received these funds.

In addition, the approval of the SHMP allows the state to be eligible for the reduced cost share (90/10) for grants awarded under the FMA program, and up to 100 percent for severe repetitive loss properties.

This document is a comprehensive update of the 2013 SHMP. It performs the following functions:

- Describes goals, objectives, strategies, and priorities for future mitigation activities
- Documents statewide hazard mitigation systems implemented in California to reduce risk
- Highlights new hazard mitigation initiatives since the 2013 SHMP
- Describes and illustrates mitigation progress and success stories
- Facilitates integration of local, state, tribal, and private sector hazard mitigation activities into a comprehensive statewide effort

1.1.1 VISION AND MISSION

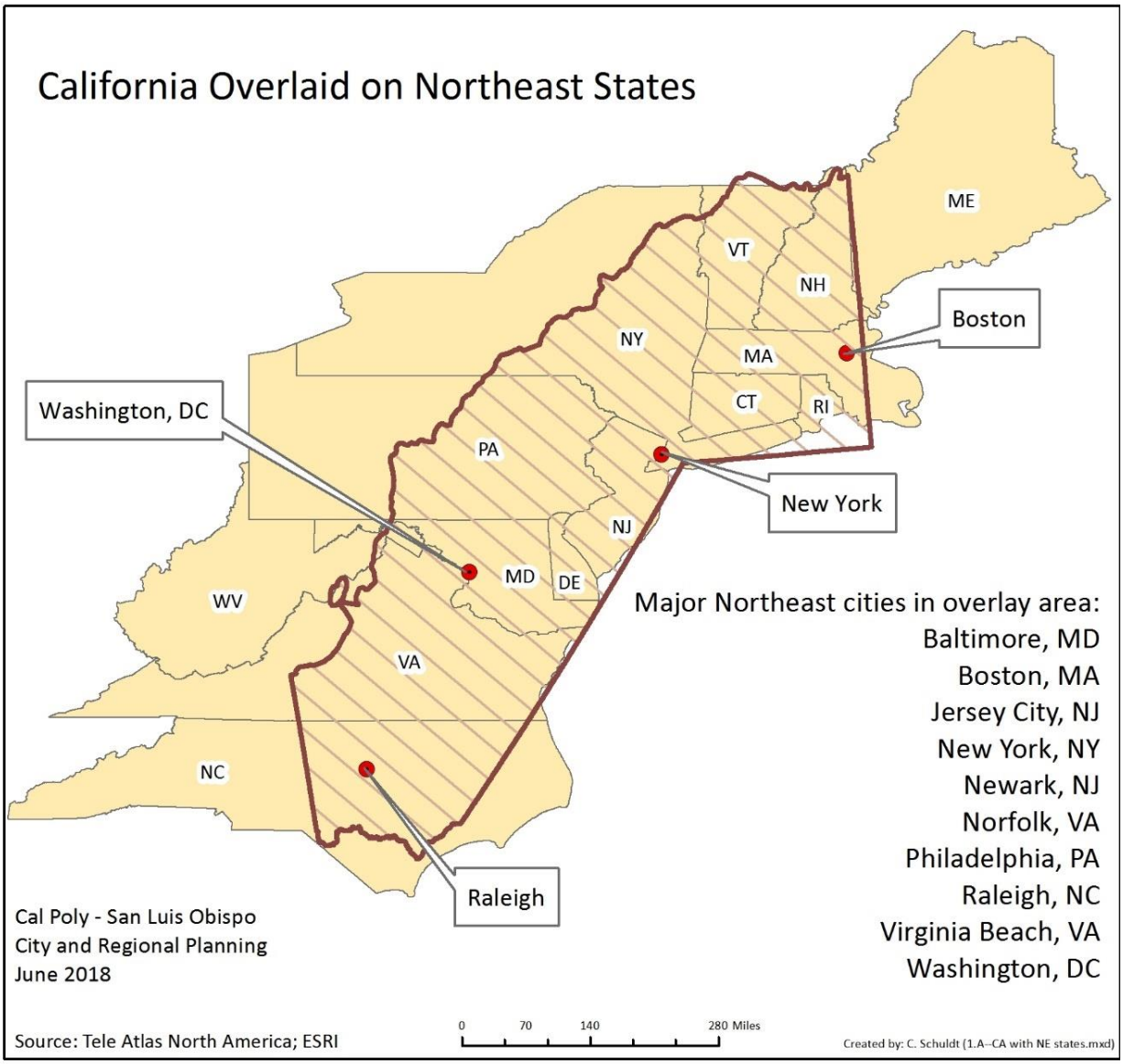
The 2018 SHMP vision is a safe and resilient California through hazard mitigation.

The 2018 SHMP mission is to integrate current laws and programs into a comprehensive hazard mitigation system that will guide the state in significantly reducing potential casualties, damage, and physical, social, economic, and environmental disruption from natural and human-caused disasters.

1.1.2 CALIFORNIA – WHAT'S AT STAKE?

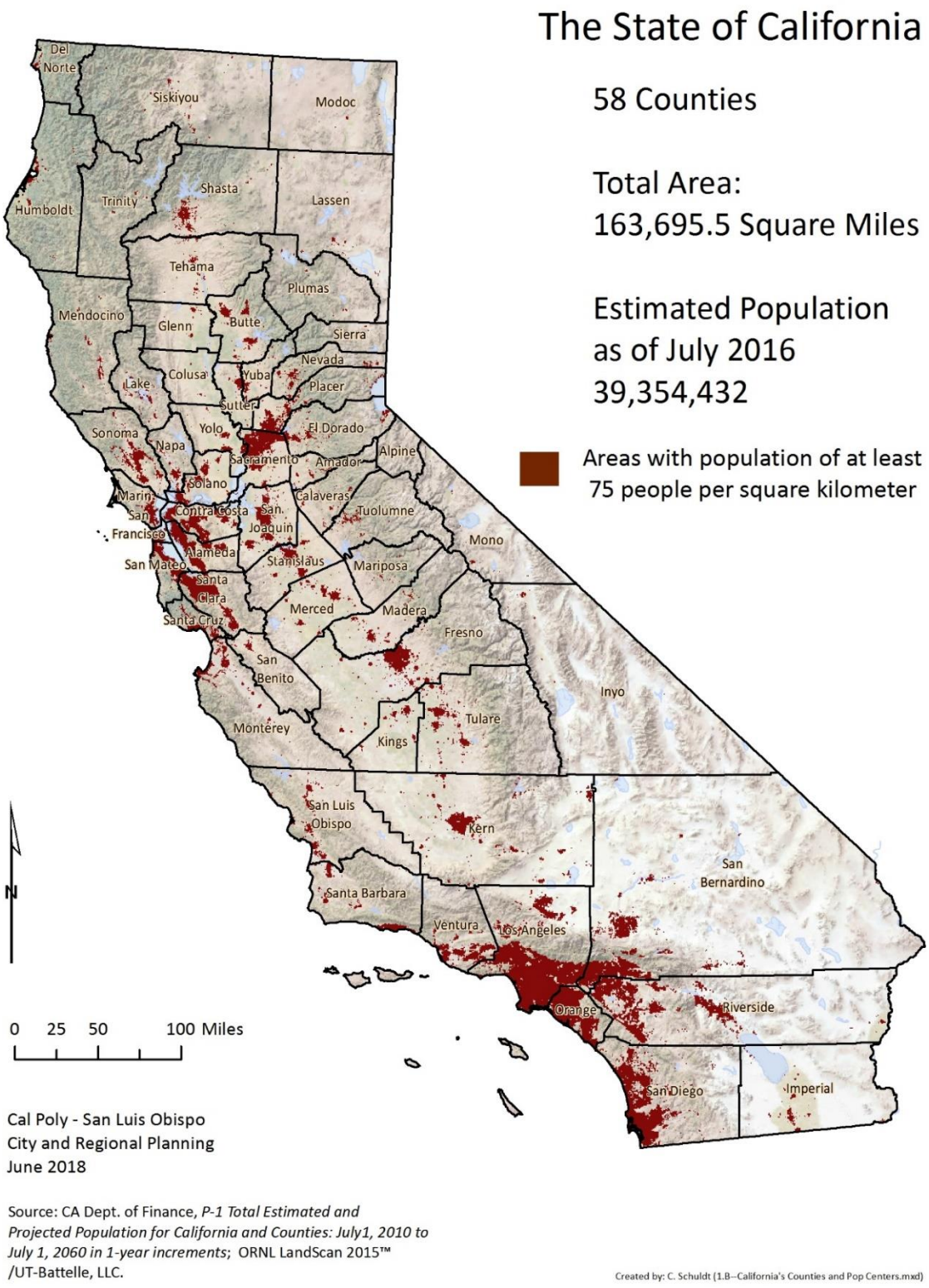
With approximately 39 million people, California is the most populous state in the nation. If it were a separate country, it would have the world's fifth largest economy. It has the nation's largest industrial belt, stretching much of the way from Sacramento to San Diego and including global headquarters for computer, movie-television, and digital-entertainment industries. California is also the nation's largest agricultural producer.

Map 1.A: California's Size Compared to Eastern States



Map 1.A illustrates California's size by superimposing its boundaries on 12 eastern states with examples of major cities within the overlay area.

Map 1.B: California's Counties and Population Centers



Map 1.B identifies key features of California, including areas with at least 75 people per square kilometer.

Most California residents will experience at least one disaster within their lifetimes. No community is immune from disaster. Though wildfires and floods are the most common disasters, earthquakes hold the greatest potential for large-scale destruction. A major disaster would pose significant challenges for restoring people's lives, restarting economic engines, repairing infrastructure, and creating sustainable redevelopment.

Since 1950, California has experienced over 500 state-proclaimed emergencies, many of which were also given a federal disaster declaration. For a description of California's disaster history, including statistics and maps, see *Chapter 4: Profiling California's Setting*. Among other things, it provides a profile of California's assets at risk and outlines issues of climate change affecting natural hazards.

1.1.3 WHAT IS HAZARD MITIGATION?

The 2017 State of California Emergency Plan defines hazard mitigation as "any sustained action taken to reduce or eliminate long-term risk to people and property from natural or human-caused hazards and their effects."[1] FEMA defines hazard mitigation as "any action taken to reduce or eliminate the long-term risk to human life and property from natural hazards." For the purposes of the SHMP, hazards include natural, technological/accidental, and adversarial/human-caused events and conditions.

Hazard mitigation is distinguished from other disaster management functions by measures that make development and the natural environment safer and more disaster-resilient. Effective mitigation begins with identifying the threats and hazards a community faces and determining the associated vulnerabilities and consequences. Understanding risks makes it possible to develop strategies and plans to manage them. The purpose of mitigation planning is to identify policies and actions that can be implemented over the long-term to reduce risk and future losses. Mitigation plans form the foundation of a community's long-term strategy to reduce disaster losses and break the cycle of initial disaster damage, reconstruction, and repeated disaster damage.

Hazard mitigation differs from emergency preparedness, which focuses on activities designed to make a person, place, organization, or community more capable to take appropriate action in a disaster with emergency response, equipment, food, shelter, and medicine. Hazard mitigation and emergency preparedness are complementary. While time or financial resources may preclude certain desirable mitigation actions, emergency preparedness can make it possible to respond and recover quickly, despite losses that may be unavoidable.

1.1.4 FEMA REVIEW RESPONSIBILITIES

The FEMA State Mitigation Plan Review Guide, effective March 2016, outlines FEMA's review responsibilities. The Review Guide can be downloaded from FEMA's website: https://www.fema.gov/media-library/assets/documents/101659.

[1] http://www.caloes.ca.gov/PlanningPreparednessSite/Documents/California_State_Emergency_Plan_2017.pdf

1.2 PLAN OVERVIEW: HOW TO USE THE 2018 SHMP

The SHMP is designed to be a reference for a variety of users having specific interests in some aspect of its detailed contents. For those interested in understanding the document as a whole, but not the detailed subject matter covered, this section provides an overview.

Depending on the interests or needs of the users, using the SHMP can be approached in different ways. This section provides an overview of the organization of the document. However, given to length and volume of the 2018 SHMP, *all readers are encouraged to review the Table of Contents at the beginning of the document to gain an understanding of the specific subsections and content presented within each chapter.*

While there is value in reading the SHMP from start to finish, many users will likely use the SHMP as a resource to find specific information related to California's mitigation efforts whether for overall context, for review of state actions, or for a better understanding of various aspects of vulnerability.

1.2.1 QUICK ACCESS TO THE SHMP BY TOPIC GROUPING

To use the SHMP as a resource, where the reader may choose to jump directly to specific information, it is helpful to know that the SHMP chapters are generally grouped into the following topic areas:

TOPIC AREA 1 – Introduction and Context

Chapter 1 sets the context of the SHMP by briefly describing the purpose of the plan and hazard mitigation in California. An introductory discussion of laws and policies influencing hazard mitigation actions and definitions of hazard mitigation terms are presented in this chapter.

TOPIC AREA 2 – Planning Process and California's Mitigation Framework

Chapter 2 describes the approach to updating the SHMP, the schedule, and the stakeholders involved. *Chapter 3* goes into specific detail about the State of California's mitigation goals and objectives, as well as its overall hazard mitigation strategies and actions.

TOPIC AREA 3 – California's Assets, Vulnerability, and Local Capabilities

Chapter 4 provides an extensive overview of California in the context of hazards. It includes a discussion of California's assets to provide an understanding of the complexity of the state and the vulnerabilities that may be exposed during a hazard event. Chapter 4 also includes an expanded overview of climate change and the state's overall adaptation response, creating a basis for the hazard specific discussions of climate influences added to each hazard risk assessment in Chapters 6 through 9.

Chapter 5 brings together various aspects of local hazard mitigation planning and its linkage to state mitigation planning. This chapter also presents information on Local Hazard Mitigation Plan (LHMP) technical assistance as a resource for local jurisdictions.

TOPIC AREA 4 – Hazard Risk Assessments

The hazard-specific risk assessments in Chapters 6 through 9 offer specific information about a specific hazard's history of occurrence within the state, state and local vulnerabilities to a specific hazard, and progress toward mitigating the effects of a specific hazard.

As noted in more detail in *Section 1.2.2*, *2018 SHMP Chapters*, the hazards are grouped by hazard type within these chapters. *Section 1.2.3, Approach for Hazards Identification and Risk Assessment*, explains the hazard risk assessment approach *and* template followed for almost all of the hazards presented in the SHMP.

TOPIC AREA 5 – State Mitigation Capabilities and Grants Management Program

Chapter 10 provides a specific discussion of the state's capabilities to effectively manage mitigation grant programs for implementation of hazard mitigation projects.

TOPIC AREA 6 – Key Resources and Reference Material

The annexes and appendices offer additional material, including detailed summaries of related laws and policies, and an examination of the vulnerability of lifelines infrastructure to hazards.

1.2.2 2018 SHMP CHAPTERS

Compared to the 2013 SHMP, the structure of the 2018 SHMP has been modified as part of document reorganization and streamlining efforts. Each chapter includes a significant amount of new material reflecting modifications, updates, and progress made since 2013. Chapter highlights include the following:

Chapter 1 – Introduction

This chapter acquaints the reader with the overall content and organization of the 2018 SHMP and establishes common terminology used in the SHMP.

Chapter 2 –The Planning Process

Chapter 2 identifies the SHMP preparation and update approach and generally explains how state agencies, private organizations, and the public were involved in the update. This chapter documents the integration of the SHMP with other planning efforts, including climate adaptation programs and describes the ongoing strategy for implementing, monitoring, evaluating, and updating the SHMP.

Chapter 3 – California's Mitigation Framework: Goals, Objectives, Strategies, and Priorities

Chapter 3 presents state mitigation goals and objectives for decreasing life loss and injuries, minimizing damage and disruption, and protecting the environment. It summarizes the institutional context for the SHMP, outlines the basic mitigation strategic action components, and describes progress since 2013. It also identifies federal hazard mitigation funding priorities.

Chapter 4 – Profiling California's Setting

Chapter 4 provides a profile of California's size, population, and assets requiring protection from disaster losses; describes California's disaster history; and provides an overview of the ways in which climate change may affect natural hazards.

Chapter 5 – California Local Hazards Mitigation Planning

Chapter 5 describes the Local Hazard Mitigation Planning Program in California including the California Governor's Office of Emergency Services' (Cal OES) Local Hazard Mitigation Plan (LHMP) technical assistance and training program, local mitigation priorities, and status of local plans.

Chapter 6 – Earthquakes and Geologic Hazards: Risks and Mitigation

Chapter 6 provides an assessment of earthquake and geologic hazards, risks, and population vulnerability in California's 58 counties; describes specific hazards (earthquakes, landslides and other earth movements, and volcanoes); profiles and assesses potential losses to buildings and critical infrastructure; and describes mitigation progress since 2013.

Chapter 7 – Flood Hazards: Risks and Mitigation

Chapter 7 provides an assessment of flood hazards, risks, and population vulnerability in California's 58 counties; describes specific flood hazards (riverine flooding, coastal flooding, erosion, sea-level rise, tsunami and seiche, levee

failure, and dam failure); profiles and assesses potential losses to buildings and critical infrastructure; and describes mitigation progress since 2013.

Chapter 8 – Fire Hazards: Risks and Mitigation

Chapter 8 provides an assessment of fire hazards, risks, and population vulnerability in California's 58 counties; describes specific hazards (wildfire and urban structural fires); profiles and assesses potential losses to buildings and critical infrastructure; and describes mitigation progress since 2013.

Chapter 9 – Other Hazards: Risks and Mitigation

Chapter 9 describes other types of secondary hazards (as discussed in *Section 1.2.3*), which are grouped into three categories, 1) hazards that have the potential to be exacerbated or influenced by climate or weather changes, 2) hazards that are technological in nature, and 3) hazards that stem from purposeful disturbance activities. This chapter provides a brief assessment of these hazards, and describes mitigation progress since 2013.

It should be noted that the hazards grouped in Section 9.1 (Other Climate and Weather-Influenced Hazards) can also occur independent of climate change conditions.

Chapter 10 – Grants Management Capabilities and Enhanced Planning Efforts

Chapter 10 describes integration of the SHMP with other planning initiatives, grants program management, and project implementation capabilities, effectiveness of mitigation actions, and use of available mitigation funding.

Supporting Information in the Annexes and Appendices

The SHMP also includes annexes on specialized topics: *Annex 1: Guide to California Hazard Mitigation Laws*, *Policies, and Institutions*; *Annex 2, Public Sector Funding Sources*; and *Annex 3: Lifelines Infrastructure and Hazard Mitigation Planning*; and appendices providing details supplementing chapter text.

1.2.3 APPROACH FOR HAZARDS IDENTIFICATION AND RISK ASSESSMENT

Hazards Groupings

The 2013 SHMP presented hazards in a hierarchical arrangement that included "primary, secondary, and other hazards," with the "Other Hazards" chapter including a section on "Climate-Related Hazards." In the 2018 SHMP, the arrangement of hazard risk assessments was streamlined by the State Hazard Mitigation Team to more effectively show grouping by hazard type. The 2018 hazard groupings present hazards of similar function together in a chapter or section, but, earthquakes, floods, and fires are still considered primary hazards and are addressed in the first three risk assessment chapters *(Chapters 6, 7, and 8)*. These three are designated as primary hazards because:

- As discussed in *Chapters 6, 7, and 8*, earthquake, flood, and fire hazards have historically caused the greatest human, property, and/or monetary losses, as well as economic, social, and environmental disruptions within the state.
- Past major disaster events have led to the adoption of statewide plans for mitigation of these hazards, including the California Earthquake Loss Reduction Plan, State Flood Hazard Mitigation Plan, and California Fire Plan.
- Together, these three hazards have the greatest potential to cause significant losses and disruptions in the future.

For example, earthquake, while still considered a primary hazard, is now grouped with other geologic hazards including landslides and volcanoes. Flooding is still considered a primary hazard, but the new flood hazards chapter now also includes sections on other types of flood hazards, including coastal flooding, tsunami, levee failure, and dam safety. The third primary hazard, fire, includes both wildfire and structural fires. *Chapter 9: Other Hazards: Risks and Mitigation* addresses all other secondary hazards not included in the primary hazards chapters.

A grouping of secondary hazards influenced by climate and weather, and not addressed in the primary hazard chapters, is also included in *Chapter 9*. *(Note: Some primary hazards discussed in Chapters 6, 7, and 8, such as flooding and wildfire, are influenced by climate change. Hazard-specific discussions of climate change are included for each hazard affected by climate change, both primary and secondary.)*

As noted previously in the 2013 SHMP, it is recognized that the classification of primary hazards and other hazards described here is provisional. It may change with time because the extent, intensity, and timing of meteorological changes associated with climate change are not yet fully predictable.

For purposes of compliance with the Disaster Mitigation Act, as further specified by Rule 44 CFR Section 201.4(c)(2), the 2018 SHMP addresses in substantial detail the hazards of earthquakes, floods, and wildfires. Other hazards are addressed in less detail because, compared to primary hazards, they tend to have relatively fewer impacts, as demonstrated by past disasters and/or by the lack of research and documentation of these other hazards.

Standard Risk Assessment Text Template Categories

Throughout *Chapters 6 through 9*, an effort is made to use standard FEMA hazard and risk assessment criteria. For this reason, each hazard is addressed, to the extent possible given existing data sources, using the following descriptive categories:

1 – Identifying the hazard

What are its main characteristics? What is the nature of the hazard (extent and strength of the hazard) and where is it found (location within the state, i.e., geographic area affected)?

2 – Profiling the hazard

What is the hazard probability? What are the previous hazard occurrences within the state? How likely is it to occur? What are the effects (probability of future events, i.e., chances of recurrence)? How will climate and weather affect hazard occurrence?

3 – Assessing state vulnerability and potential loss to the hazard

What kinds of populations and facilities are at risk? What estimated losses or costs could occur?

4 – Assessing local jurisdiction vulnerability and potential loss to the hazard

At the local level, what are the vulnerabilities and potential losses from that hazard within those localities? Which localities are most directly vulnerable to a particular hazard? Will future changes in development affect vulnerability?

5 – Identifying current hazard mitigation efforts

What are state agencies, local jurisdictions or other stakeholders doing to mitigate hazards?

6 – Additional hazard mitigation opportunities

For some hazards, where applicable, a discussion of other potential opportunities for additional hazard mitigation is included at the end of the risk assessment. Such discussions may include strategies to address increased vulnerability resulting from development.

Featuring Mitigation Progress

Throughout the SHMP, the reader will find boxed features called “Mitigation Process Summaries” and “Best Practices Highlights.” This format is intended to call attention to specific hazard mitigation projects that are a valuable example of progress at either the state or local level.

Mitigation Progress Summaries

Progress as of 2018: The 2010 SHMP introduced summaries of mitigation progress during the preceding three-year period. This feature was continued in the 2013 SHMP to capture substantial hazard mitigation activities. It is continued throughout the 2018 SHMP to highlight new mitigation progress since the 2013 SHMP was approved. Mitigation progress summaries are provided in gold-highlighted text boxes throughout *Chapters 1 through 10*. Material from previous progress summaries has been incorporated into general section text or, in some cases, removed.

Best Practices Highlights

Mitigation Examples: The 2013 SHMP introduced highlights of mitigation initiatives taken at the local, regional, and state levels that represent significant new best practices. The Best Practices Highlights are continued in the 2018 SHMP. An example best practice included in the 2018 SHMP is San Francisco's Mission Creek collaborative adaptation planning efforts, included in *Section 7.2*. The Best Practices Highlights are intended to provide fresh ideas for organizations working on hazard mitigation projects throughout the state. These highlights are provided in light red text boxes in *Chapters 3 through 10*.

For a list of progress summaries and best practices highlights, see the indexes included following the Table of Contents.

The SHMP also includes some information in blue boxes. These boxes are intended to separate or feature the information in the box from standard text.

1.2.4 WHAT'S NEW IN THE 2018 SHMP?

Given the size and complexity of the SHMP, materials explaining the configuration of the plan have been updated and reorganized in this introduction chapter to explain how information is presented throughout the document and how the hazard risk assessments or organized.

The 2018 SHMP provides a variety of new features, including the following:

- A reorganization of some 2013 SHMP content and the addition of some new content in this introduction chapter to provide contextual information on the SHMP, along with a "How to Use the 2018 SHMP" section to better describe the structure of the SHMP and make the plan easier to use.

- A revised and expanded section on the risk factor of climate change, as well as new or expanded hazard-specific discussions on impacts of climate change within applicable hazard risk assessments. California is pursuing climate change adaptation through a wide range of guidance and legislation, such as Safeguarding California Plan: 2018 Update, the California Adaptation Planning Guide, Executive Orders S-13-08 and B-30-15, and Senate Bills 246, 379, 1000, 2800, and others.

- Integration of climate change considerations throughout the document, as climate change has the potential to affect the severity, frequency, and location of hazards events. Climate change is described broadly in *Section 4.3* and discussed more specifically in each of the hazards potentially affected, where consideration of climate change is necessary for assessing risk and devising mitigation measures. *Section 4.3* also briefly summarizes the state's climate change mitigation efforts and more broadly outlines current state adaptation initiatives.

- A reorganization of materials relating to local mitigation capabilities and planning information and LHMP technical assistance into a single chapter.

- Expansion of the drought hazard risk assessment discussion to address subsidence, and the addition of a new risk assessment for tree mortality hazards.

Summary of What's New in the 2018 SHMP, by Chapter

What's New in Chapters 1 and 2

- *Previous Chapter 1* has been split into two chapters. A portion of the material is now part of the new *Chapter 1: Introduction* and the remainder is now in *Chapter 2: The Planning Process*.
- A new section has been added in *Chapter 1* to provide a better explanation of how the SHMP is organized and how to use it.
- The SHMP mission and vision included in Chapter 2 of the 2013 SHMP have been moved to the *Chapter 1: Introduction* and duplicated in *Chapter 3: California's Mitigation Framework* of the 2018 SHMP.
- The legal context section included in 2013 SHMP Chapter 3 has been moved to *Chapter 1: Introduction* of the 2018 SHMP.
- Essential terminology included in 2013 SHMP Chapter 4 has been updated, expanded, and moved to *Chapter 1: Introduction* of the 2018 SHMP.
- The SHMP Assurances, previously included in Appendix Y of the 2013 SHMP, have been updated and moved to Chapter 1.
- Discussion of Cal OES' role in the LHMP process from 2013 SHMP *Chapter 1* was reorganized and consolidated with other local hazard mitigation planning information in the new Chapter 5.
- Information on Cal OES' LHMP training and technical assistance program has been updated.
- The new *Chapter 2: The Planning Process* includes an updated description of the 2014-2018 planning process highlighting preparation of the 2018 SHMP update, and integration and implementation efforts.
- Expanding on the section entitled "Integration with other Planning Efforts," a new section entitled "Integration with Climate Adaptation Efforts" has been added to *Chapter 2: The Planning Process*.
- An updated discussion of the National Preparedness System has been relocated from 2013 SHMP Chapter 4, Section 4.7 to *Chapter 2* in the section entitled "*Integration and Coordination with Other Planning Efforts*."
- 2013 SHMP *Section 7.7*, entitled "*Monitoring, Evaluating, and Updating the SHMP*," has been moved to *Chapter 2* and renamed "SHMP Review, Evaluation, and Implementation" to better align with the concept of plan maintenance as a part of the overall planning process.

What's New in Chapter 3

- *Previous Chapters 2 and 3* have been combined and renamed *Chapter 3: California's Mitigation Framework: Goals, Objectives, Strategies, and Priorities*.
- Minor re-wording to 2013 SHMP Goal 4 has been made. (Goals 1, 2, and 3 remain unchanged from 2013.)
- Some of the 2013 objectives have been significantly reworded or merged, and new objectives have been added.
- New introductory discussion of the goals and objectives has been added to clarify that the objectives are intended to be viewed as interrelated rather than linear and separate.
- The strategies have been updated and a new strategy specifically addressing climate change has been added.
- New information on hazard legislation and associated planning efforts linked to SHMP strategies has been added.

What's New in Chapter 4

- *Previous Chapter 4* has been renamed *Chapter 4: Profiling California's Setting*.
- The discussion of assets at risk has been updated and includes a revised and expanded discussion on growth patterns and trends.
- The discussion of California's disaster history has been updated.
- The discussion on climate change has been fully revised and expanded.
- The "Statewide GIS Hazard Analysis" section that was Section 5.1 in the 2013 SHMP has been revised and moved within a new section in Chapter 4 entitled "Environmental Justice, Equity, and Hazard Mitigation in California."

- The Social Vulnerability model, originally developed in 2010 and used to create the social vulnerability maps in Section 5.1 in the 2013 SHMP has been updated and used to prepare new social vulnerability maps.

What's New in Chapter 5

- *This chapter is new for the 2018 SHMP*. It compiles local planning materials previously included in multiple chapters of the 2013 SHMP, and adds new local hazard mitigation resource material. It is titled *Chapter 5: California Local Hazard Mitigation Planning*.
- Compilation of LHMP-related materials in a single chapter is intended to simplify access to this material for local jurisdictions and other stakeholders looking for local hazard mitigation information and its linkage to state hazard mitigation planning.

What's New in Chapters 6 through 9

- The hazard risk assessments *previously included in Chapters 5 and 6* have been regrouped by hazard type in *Chapter 6: Earthquakes and Geologic Hazards, Chapter 7: Flood Hazards,* and *Chapter 9 Other Hazards* (which includes a subsection on other climate-influenced hazards).
- Updates to *Chapters 6 through 9* include the following:
  - Earthquake hazard risk assessment has been streamlined and revised, including updates on the Great California ShakeOut, mitigation activities for building sub-inventories, California Earthquake Authority (CEA) residential hazard, vulnerability, risk and mitigation assessment update, mitigation activities for utilities and transportation, Seismic Hazards Mapping Projects, and the new California earthquake early warning system (ShakeAlert).
  - The landslide hazard risk assessment has been updated and includes updated progress summaries.
  - The volcano hazard risk assessment has been significantly revised and expanded.
  - The flood hazard risk assessment has been significantly revised, including updates on flood laws and, flood management plan updates, including information on the Central Valley Flood Management Plan, the State Plan of Flood Control, the Flood Protect Corridor Program, California's Flood Future report, Delta/water updates, including information on the California State Water Project, California WaterFix, and California EcoRestore (replacing the Bay Delta Conservation Plan).
  - The levee failure hazard risk assessment and progress summary regarding the Delta Levees Program have been updated.
  - The tsunami hazard risk assessment has been significantly updated and includes updated progress summaries.
  - The wildfire hazard risk assessment has been streamlined and includes updated historical fire event tables and fire code requirements
  - Information in various climate-related hazards sections has been updated, including expanded information and progress summary updates regarding coastal flooding, erosion, and sea-level rise.
  - The drought hazard risk assessment has been significantly updated and a discussion of subsidence risks related to groundwater pumping has been added.
  - A new hazard risk assessment has been added for tree mortality.
  - The terrorism and cyber threats hazard risk assessments have been significantly updated and expanded.

What's New in Chapter 10

- *Previous Chapter 7* has been renumbered and renamed *Chapter 10: Grants Management Capabilities and Enhanced Planning Efforts.*
- A new summary of the Hazard Mitigation Assistance Grant program has been added.
- The project implementation capability section has been revised to capture the operations of the Cal OES Hazard Mitigation Assistance (HMA) grant programs. New detailed descriptions about the current HMGP, PDM, and FMA Notice of Interest, sub-application, and grant administration processes are included.

- The discussion of the State Mitigation Assessment Review Team (SMART) system has been updated with information regarding SMART assessment efforts from 2013 to 2016, including details about outcomes of the 2014 Napa Earthquake field assessment.

Other New Items in the 2018 SHMP

- Previous Annex 1 has been significantly streamlined and incorporated into the new local planning chapter (*Chapter 5*).
- Previous *Annex 2: Guide to California Hazard Mitigation Laws, Policies, and Institutions* has been updated and is now numbered as *Annex 1*.
- *Annex 3: Lifelines Infrastructure and Hazard Mitigation Planning* has been updated.
- Previous *Annex 4: Public Sector Funding Sources* has been updated and is now numbered as *Annex 2*.
- Appendices have been streamlined, edited, and renumbered.
- Previous Appendices C through I have been replaced with an appendix listing hazard mitigation legislation mentioned in the 2018 SHMP and link to the California Legislation Information website where legislation text can be searched and downloaded.
- The 2013 SHMP Appendix W has been merged into the 2013 SHMP Appendix T.

1.3 ESSENTIAL TERMINOLOGY

This section defines common mitigation-related terms used throughout the 2018 SHMP and provides a context for understanding hazard mitigation.

One of the difficulties in mitigation planning is confusion over the meaning of terms. Findings from previous LHMP reviews found that definitions of key terms varied substantially from plan to plan. In addition, certain terms take on different meaning in different planning contexts. In this SHMP, the focus is on using terms consistently and explaining differences when they occur, remembering that mitigation at its core is a loss-prevention activity characterized by changes in the built environment.

For SHMP purposes, the following working definitions are described briefly and, in some cases, accompanied by alternative definitions that lend additional meaning from state and federal law and natural hazards publications.

1.3.1 HAZARD, RISK, VULNERABILITY, AND DISASTER

Four key terms related to potential disaster threats and losses are hazard, risk, vulnerability, and disaster. Though often used interchangeably, each term has its own distinct meaning and should be used with that distinction in mind to avoid confusion.

Hazard

The term "hazard" refers to an event or physical condition that has the potential to cause fatalities, injuries, property damage, infrastructure damage, agricultural losses, damage to the environment, interruption of business, or other types of harm or loss.

Risk

"Risk," for the purpose of hazards mitigation planning, is the potential for damage or loss created by the interaction of hazards with assets such as buildings, infrastructure, or natural and cultural resources.[2]

Risk can be calculated in two different ways, both of which are used in mitigation planning. For natural hazards, risk tends to be calculated based on evaluation of the probability (likelihood) of a hazard event occurring, vulnerability, and the event's potential consequences. This method uses data from the past to establish the probability and, in the case of climate change, includes future projections of probability.

For cyber or terrorism events, the past may not be a good indicator of the future. Instead scenarios, based on expert information and levels of uncertainty, are used to estimate an event and the possible consequences.

Vulnerability

The term "vulnerability" can have varying meanings. For buildings and other structures, it means susceptibility to damage given the inherent characteristics of a particular structure. Its broader meaning is the level of exposure of human life and property to damage from natural and human-made hazards.

Recently, the term "social vulnerability" has emerged in reference to social factors that influence or shape the susceptibility of various groups to harm and govern their ability to respond. Cutter, Boruff, and Shirley assert that social vulnerability is also the product of place inequalities—those characteristics of communities and the built environment such as the level of urbanization, growth rates, and economic vitality, that make the people who live or work there vulnerable to disasters.[3] Tierney expands on this definition to describe the combination of a particular disaster agent, the physical setting, and population vulnerability (resulting from proximity, resources, demography,

[2] FEMA State Hazard Mitigation Plan Review Guide (2015).
[3] S. Cutter, B. Boruff, and W. L. Shirley. "Social Vulnerability to Environmental Hazards," Social Science Quarterly 84 (1) 2003:242-261.

knowledge, and resource availability). Tierney also notes that human populations are also made vulnerable by steps their governments and institutions take (or fail to take) to protect them before and after disasters strike.[4]

Disaster

The term "disaster" means a detrimental impact of a hazard upon the population and the economic, social, and built environment of an affected area.

A variety of other definitions of the term "disaster" can be found in the natural hazards literature and the law, including the following:

> …an event concentrated in time and space, in which a society or one of its subdivisions undergoes physical harm and social disruption, such that all or some essential functions of the society or subdivision are impaired…[5]

> …the occurrence of a sudden or major misfortune which disrupts the basic fabric and normal functioning of a society (or community)…[6]

For a presidential declaration of disaster, the Stafford Act provides the following definition of the term "major disaster":

> …any natural catastrophe (including any hurricane, tornado, storm, high water, wind-driven water, tidal wave, tsunami, earthquake, volcanic eruption, landslide, mudslide, snowstorm, or drought), or, regardless of cause, any fire, flood, or explosion, in any part of the United States, which in the determination of the President causes damage of sufficient severity and magnitude to warrant major disaster assistance under this Act to supplement the efforts and available resources of states, local governments, and disaster relief organizations in alleviating the damage, loss, hardship, or suffering caused thereby...

The term "catastrophe" in the Stafford Act definition implies an event of a magnitude exceeding available local and state response and recovery resources. In more recent history, the term "catastrophic" has been redefined by events such as the 9/11 World Trade Center disaster and Hurricane Katrina to mean disasters large enough to stretch national resources.

The State of California uses a definition of disaster that is similar to FEMA's, with the California Disaster Assistance Act defining the term as follows: "'Disaster' means a fire, flood, storm, tsunami, earthquake, terrorism, epidemic, or other similar public calamity that the Governor determines presents a threat to public safety."[7]

Natural vs. Human-Caused Disasters

The term "natural disaster" refers to destructive events involving natural forces such as droughts, earthquakes, floods, hurricanes, landslides, mudslides, storms, tornados, tsunamis, high or wind-driven waters, wildfires, volcanic eruptions, and climate change.

In contrast, "human-caused" disasters include acts of war and terrorism as well as disasters with a technological component such as dams and levee failures, nuclear accidents and radiological releases, major truck and rail transportation accidents, oil and other hazardous materials spills, and airplane crashes.

[4] K. Tierney. "Foreshadowing Katrina: Recent Sociological Contributions to Vulnerability Science." Contemporary Sociology: A Journal of Reviews 35 (3), 2006:207-212.
[5] Charles Fritz. "Disaster," in Contemporary Social Problems, R.K. Merton and R.A. Nisbet, eds. New York: Harcourt Press, 1961: pp. 651-694.
[6] A.W. Coburn, R. J. S. Spence, and A. Pomonis. Vulnerability and Risk Assessment. 2nd edition. Cambridge Architectural Research Limited, United Nations Disaster Management Training Programme. 1994.
[7] California Disaster Assistance Act. Amended by Stats. 2002, Ch. 461, Sec. 4. Effective January 1, 2003. ARTICLE 1. General Provisions and Definitions.

It is important to realize, that distinctions among natural, human-caused, and technological disasters are often artificial when taking into account the human decisions underlying settlement patterns that conflict with natural hazards.

1.3.2 HAZARD MITIGATION, PREPAREDNESS, RESPONSE, AND RECOVERY

The terms "hazard mitigation," "preparedness," "response," and "recovery" are commonly referred to as the four basic functions of emergency management. They are referred to as "phases" because ideally they should occur in the order given. In the worst instances, response and recovery may be the only functions happening sequentially in the absence of mitigation and preparedness. Conversely, in the best instances, mitigation and preparedness are continuously occurring.

Hazard Mitigation

For purposes of this plan, the term "hazard mitigation" means sustained action taken to reduce or eliminate the long-term risk to human life and property. Note that this emphasis on long-term risk distinguishes hazard mitigation from actions geared primarily to emergency preparedness and short-term recovery.[8] Hazard mitigation is said to be the "cornerstone of emergency management."[9]

Hazard mitigation is predicated on the principles that losses are preventable through better community design and that each event can teach us how to reduce losses in the next disaster. Hazard mitigation reduces long-term risk from hazards through predetermined measures accompanying physical development, such as strengthening structures to withstand earthquakes, prohibiting or limiting development in flood-prone areas, clearing defensible space around residences in wildland-urban interface (WUI) areas, or locating new development away from areas of geological instability.

Mitigation is different from emergency preparedness, which concentrates on activities that make a person, place, or organization ready to respond to a disaster with emergency equipment, food, emergency shelter, and medicine.

Preparedness

The term "preparedness" means making preparations before a disaster for what to do immediately after a disaster.

Examples of preparedness include developing pre-disaster plans and information regarding whom to contact and where to go after a disaster, and what food, equipment, and other emergency supplies to have ready and stored to enable quick action. It can also mean preparing for recovery, educating the public on personal and household preparedness, and practicing disaster drills.

Preparedness differs from hazard mitigation by its focus on immediate post-disaster action. Mitigation and preparedness go hand in hand. In situations where time or financial resources preclude long-term hazard mitigation in the natural and social environment, it becomes very important to undertake plans and actions to prepare for emergencies, making it easier to respond to and recover. This interdependency is fundamental to the SHMP.

Response

The term "response" means actions taken to respond to the disaster, such as rescuing survivors, providing for mass evacuation, feeding and sheltering victims, and restoring communications.

[8] The Federal National Mitigation Framework definition is narrower: mitigation being the capabilities necessary to reduce loss of life and property by lessening the impact of disasters.

[9] W. Craig Fugate, FEMA Administrator, in the Foreword to: Hazard Mitigation: Integrating Best Practices into Planning (2010). American Planning Association Advisory Service Report 560. Chicago, IL.

Recovery

The term "recovery" means restoring people's lives and creating new opportunities for the future. It includes such actions as restoration of essential transportation, utilities, and other public services; repair of damaged facilities; provision of both temporary and replacement housing; restoration and improvement of the economy; and long-term reconstruction that improves the community.

1.3.3 SUSTAINABILITY AND RESILIENCE

Two additional terms – sustainability and resilience – have come into the lexicon in the past several years. Emerging from a broader literature base, these terms are more difficult to define.

Sustainability

The term "sustainability" refers to an over-arching concept within which disaster management takes place. A well-known definition of sustainability comes from the World Commission on Environment and Development, which stated that sustainable development was that which meets the needs of the present without compromising the ability of future generations to meet their own needs.[10] This vision was articulated at a finer level by the National Commission on the Environment, which suggested that sustainability is a strategy for improving the quality of life while preserving the environmental potential for the future, of living off interest rather than consuming natural capital.[11]

For purposes of this SHMP, the term "sustainability" adds to these previous definitions the idea of preservation of resources – physical, social, economic, environmental, historical, and cultural – for the benefit of future generations. One of the paths to sustainability is through investment in strong disaster mitigation.

Resilience

The term "resilience" is defined as the ability of a system to absorb shock and maintain its structure and functions with a minimum of loss. Further, a resilient system is one that can resume pre-event functionality in a relatively short time. Thus, a community is resilient when it maintains continuity and recovers quickly despite experiencing disaster events.

This basic concept of resilience is expanded to address two additional factors: 1) connection and dependencies among multiple geographic levels–cities, counties, regions, tribal nations, and the state; and 2) the capacity of a city, county, tribal nation, or state to change and adapt during recovery to meet challenges posed by changed conditions.

For purposes of this SHMP, the term "resilience" refers to the capacity of a community, region, or state to 1) survive a major disaster, 2) retain its essential structure and functions, and 3) adapt to current and future challenges.

Resilience can be developed not only through mitigation, but also through coordinated development and implementation of the other disaster management functions, including preparedness, response, and recovery.[12]

National Presidential Policy Directives (PDD) 8 and 21 speak to resilience. In PPD 8, resilience refers to the ability to adapt to changing conditions and withstand and recovery from disruptions due to emergencies. PPD 21 defines resilience as the ability to prepare and adapt to changing conditions and recover rapidly from disruptions.

[10] World Commission on Environment and Development. 1987.
[11] National Commission on the Environment. 1993.
[12] Topping et al. "Building Local Capacity for Long-term Disaster Resilience." Journal of Disaster Research. May 2010.

1.3.4 CLIMATE CHANGE MITIGATION AND CLIMATE CHANGE ADAPTATION

For the topic of climate change, the terms "mitigation" and "adaptation" have specific definitions.

Climate Change Mitigation

Climate change mitigation refers to actions that seek to limit future climate change by reducing emissions of heat-trapping gases.[13] Rising atmospheric concentrations of greenhouse gas (GHG) emissions have resulted in an increase in average global temperature.[14] The increase in temperature results in a wide range of potential impacts that include exacerbation of hazards by altering the frequency, severity, and location.[15]

In this way, climate change mitigation can be viewed as a type of hazard mitigation, as it seeks to reduce the long-term impact of climate change. It is important to keep in mind that climate change mitigation seeks to reduce GHGs emissions, which makes it distinct from traditionally defined hazard mitigation.

Climate Change Adaptation

Because GHG emissions remain in the atmosphere for a period of decades to hundreds of years, climate change is projected to continue to affect communities regardless of the implementation of climate change mitigation measures. Climate change adaptation describes measures that address the projected impacts on all aspects of community function that may result from climate change. This can include impacts related to hazard events (flood, wildfire, drought, severe storms), as well as slow changes that affect agricultural, forestry, and fisheries productivity; ecosystem structure and function; and public health.[16]

Hazard mitigation is one component of climate change adaptation. Climate change adaptation, similar to hazard mitigation, is focused on long-term threats to human life, property, economic continuity, ecological integrity, and community function. While climate change adaptation efforts prepare communities for longer-term risks, adaptation can also help to address near-term risks.

The difference is that, unlike other types of hazards, climate change is progressive; the past is not an adequate predictor of future risk. The assessment of vulnerability to climate change must build from scientific projections of future change. Cal-Adapt, an interactive website designed to enable exploration of projected climate-related risks at a local level, is available to communities to support local vulnerability assessments and support development of measures.

[13] Melillo, Jerry M., Terese (T.C.) Richmond, and Gary W. Yohe, Eds. Climate Change Impacts in the United States: The Third National Climate Assessment. U.S. Global Change Research Program. 2014. 841 pp. doi:10.7930/J0Z31WJ2.

[14] IPCC: Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)].2014. IPCC, Geneva, Switzerland, 151 pp.

[15] California Natural Resources Agency. Safeguarding California: Reducing Climate Risk. 2009. Sacramento: author, 344 pp.

[16] California Emergency Management Agency & California Natural Resources Agency. California Adaptation Planning Guide. 2012. Sacramento: author.

1.4 INSTITUTIONAL AND LEGAL CONTEXT

To understand state and local hazard mitigation, it is useful to examine primary laws and policies at each level of the federal and state systems. Development of disaster management systems in the U.S. has been piecemeal rather than systematic and comprehensive. Mitigation planning is conducted within a complex, fragmented, and overlapping context of federal, state, and local laws, institutions, and policies. These are intermingled with a variety of private sector risk reduction and mitigation practices.

For the most part, disaster management laws have been designed to deal very specifically with particular issues as they arise. They have been used mostly to address largely localized emergency events because very few catastrophic events, such as Hurricane Katrina, have occurred within the 60-year period during which most of the laws were adopted. Administrative actions taken to enforce these laws are ultimately evaluated by the courts to deal with questions regarding how reasonable, equitable, or just an enforcement action might be within the framework of the U.S. Constitution.

The following is a summary of federal, state, and local disaster mitigation and emergency management laws. For more complete descriptions of these laws, see *Annex 1: Guide to California Hazard Mitigation Laws, Policies, and Institutions*.

1.4.1 FEDERAL LAWS, INSTITUTIONS, AND POLICIES

Among the principal federal statutes guiding disaster management at the state and local levels are the National Flood Insurance Act of 1968, the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act) of 1988, and the Disaster Mitigation Act of 2000. These laws comprise the primary foundation of federally guided hazard mitigation throughout the United States, influencing state and local actions in complex ways. Together, they reveal a trend toward comprehensive mitigation planning and implementation at the federal, state, and local levels.

This section is intended to provide brief overviews of key laws, institutions, and policies, rather than comprehensive discussion. For more information on laws and guidelines governing federal disaster management programs, see *Annex 1: Guide to California Hazard Mitigation Laws, Policies, and Institutions*.

Flood Insurance Act of 1968

Public Law 90-448 of 1968, known as the National Flood Insurance Act, established the National Flood Insurance Program (NFIP), which provides for federal government backing of flood insurance sold by private companies. The National Flood Insurance Act was modified in 1994 to provide for flood hazard mitigation planning and project grants. The Biggert-Waters Act passed in 2012 was intended to reform the NFIP. To address increased flood insurance premiums resulting from the Biggert-Waters Act, the Homeowners Flood Insurance Affordability Act passed in 2014 with the intent of reducing the financial burden for policyholders.

Stafford Act

Public Law 93-288 of 1988, entitled the Robert T. Stafford Disaster Relief and Emergency Assistance Act (more commonly known as the Stafford Act), is the basic disaster relief law of the country. It provides for a nationwide system of emergency management assistance starting at the local level and progressing to the state level and then to the federal level for deployment of needed resources.

The Stafford Act was amended under the Pet Evacuation and Transportation Standards Act (PETS) in 2006 and by the Sandy Recovery Improvement Act in 2013.

Disaster Mitigation Act of 2000

The most important federal hazard mitigation law is the Disaster Mitigation Act of 2000 (DMA 2000). It amended the Stafford Act and the Public Works Act to require preparation of hazard mitigation plans by local governments as a precondition for receipt of Hazard Mitigation Grant Program project funds. It also established a Pre-Disaster

Mitigation (PDM) grant program to encourage states and localities to invest in mitigation actions in advance of disasters to avoid disaster. The general purpose of DMA 2000 was to reduce preventable, repetitive disaster losses by encouraging states and local jurisdictions to plan more wisely through mitigation of natural hazards, vulnerability, and risk to reduce the impacts of such disasters.

Sandy Recovery Improvement Act of 2013

According to FEMA, the Sandy Recovery Improvement Act (SRIA) signed into law by President Obama is the most significant legislative change to FEMA's authorities since the enactment of the Stafford Act. The law authorizes several significant changes to the way FEMA may deliver federal disaster assistance to survivors. Among other changes, SRIA amended the Stafford Act to provide federally recognized Indian tribal governments the option to make their own request for a Presidential emergency or major disaster declaration independently of a state or to seek assistance under a declaration for a state.

More information about SRIA can be found on FEMA's website: https://www.fema.gov/sandy-recovery-improvement-act-2013.

Administrative Directives

In return for federal emergency resources and post-disaster financial assistance, state and local governments are expected to follow specific federal regulations and guidelines associated with federal mitigation, preparedness, response, and recovery programs.

1.4.2 CALIFORNIA LAWS, INSTITUTIONS, AND POLICIES

For the State of California, there are three ways in which hazard mitigation activities are established and managed. These are: 1) by acts of the legislature, 2) by voter initiative, and 3) by executive order, whereby the governor instructs state agencies to participate in mitigation actions.

The State of California has adopted a variety of laws, policies, and programs dealing with disaster management within the basic framework set out by the federal and state constitutions, together with federal laws and state codes. Examples are found in the California Government Code, Health and Safety Code, and Public Resources Code. This complex mass of rules, policy, and programs represents a powerful resource for reducing losses of lives and property to disasters in the face of the substantial hazards, vulnerabilities, and risks identified in *Chapters 6 through 9*.

Among the more important laws, regulations, and administrative orders governing disaster management are the California Emergency Services Act, California Disaster Assistance Act, and Title 19 of the California Code of Regulations. These laws are administered by more than 50 state agencies, departments, and divisions responsible for their implementation.

These responsibilities and related laws are described in more detail in *Annex 1, Guide to California Hazard Mitigation Laws, Policies, and Institutions*. For more information on the relationship of hazard mitigation to state emergency management programs and Cal OES' role, see Annex 1.

California Emergency Services Act and State Emergency Plan

The California Emergency Services Act provides the legal authority for emergency management and the foundation for coordination of state and local emergencies. In accordance with the California Emergency Services Act, the State Emergency Plan (SEP) describes the California Emergency Organization that coordinates and facilitates state and local agency access to public and private resources during emergencies. (See "Standardized Emergency Management System (SEMS)" below.)

An updated SEP was released in October 2017. For more information on the SEP, see *Chapter 2: The Planning Process, Section 2.3.6* or visit the Cal OES website: http://www.caloes.ca.gov/cal-oes-divisions/planning-preparedness/state-of-california-emergency-plan-emergency-support-functions.

Standardized Emergency Management System (SEMS)

The Standardized Emergency Management System (SEMS) is the National Incident Management System (NIMS)-compliant system required by California Government Code Section 8607(a) for managing responses to multi-agency emergencies in California. The State Emergency Plan specifies the policies, concepts, and protocols for implementation of SEMS. Law requires the use of SEMS during multi-agency emergency response by state agencies. Local governments must also use SEMS to be eligible for reimbursement of certain response-related personnel costs. SEMS helps unify all elements of California's emergency management organization into a single integrated system.

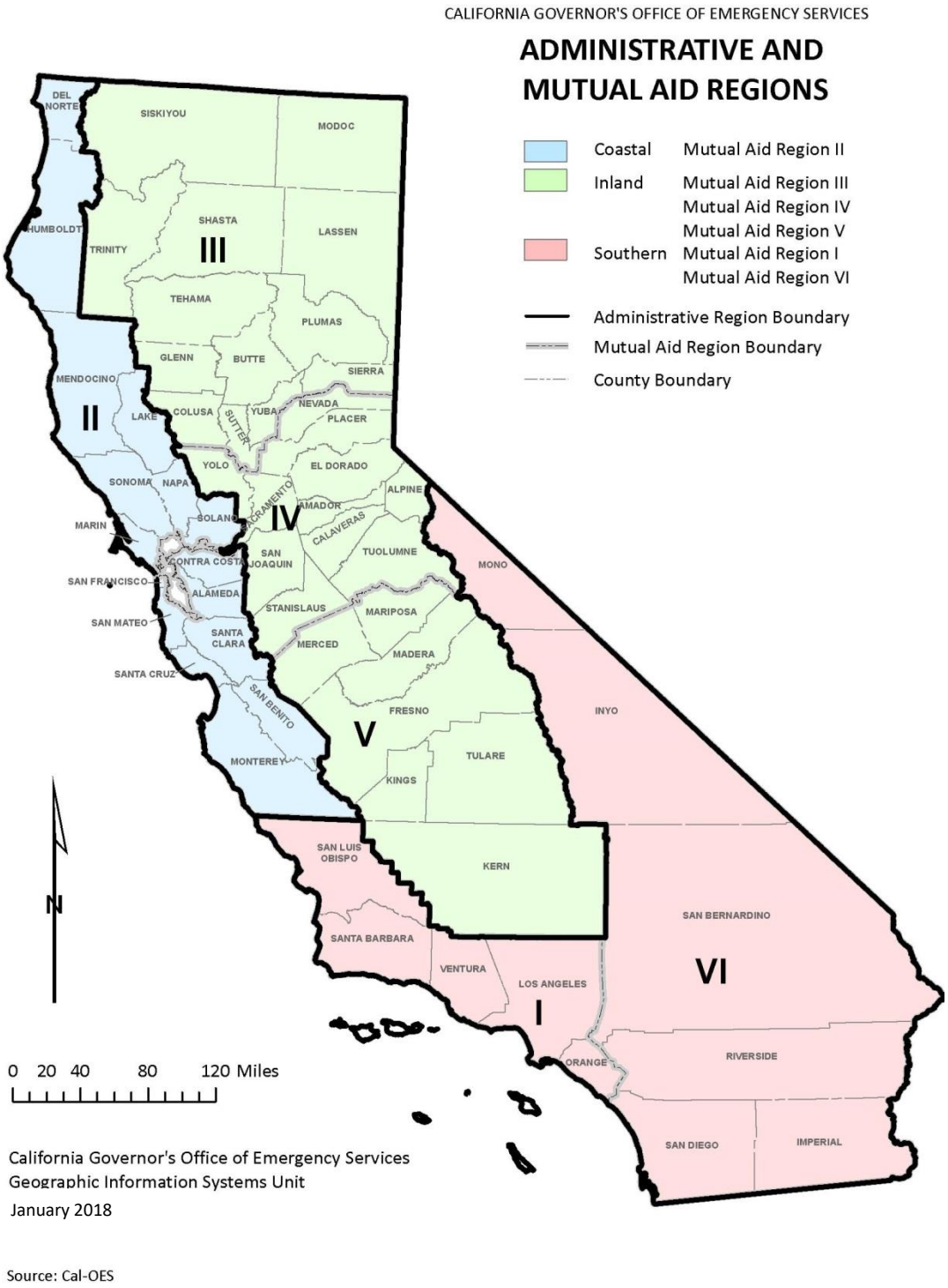
Cal OES Administrative Regions

Cal OES is an Office of the Governor. Its mission is to protect lives and property by effectively preparing for, preventing, responding to, and recovering from all threats, crimes, hazards, and emergencies. Cal OES responds to and coordinates emergency activities to save lives and reduce property loss during disasters and facilitates disaster recovery efforts. As shown in Map 1.C, there are three Cal OES administrative regions (Inland, Coastal, and Southern), six mutual aid regions for fire and general mutual aid coordination, and 58 county operational areas.

Governor's Executive Orders

An executive order functions as a long-standing tool that allows the governor to assemble state resources in a focused manner and direct hazard mitigation efforts.

Map 1.C: Cal OES Administrative Regions



Source: Cal-OES

1.4.3 LOCAL GOVERNMENT LAWS, INSTITUTIONS, AND POLICIES

Adding to federal and state government laws, institutions, and policies are those of local governments in California. As of 2017, there are over 5,000 local jurisdictions in California, including:

- 58 counties
- 482 incorporated cities[17]
- 4,711 special districts (including over 900 school districts)[18]

In addition, there are 109 federally recognized Indian Tribes in California. Sovereign nations by law, tribal governments undertake many functions similar to what a local government provides its citizens, with laws, institutions, and policies separate from state and federal governments.

Under the Disaster Mitigation Act of 2000, local governments and tribal organizations are eligible for federal hazard mitigation planning and project grants. The Sandy Recovery Improvement Act, passed in 2013, authorized tribes to apply directly to FEMA for assistance. Local governments apply for and receive federal mitigation grants through Cal OES. Tribal governments may apply for and receive federal mitigation grants directly from FEMA or through Cal OES in the same manner as a local government. Although tribal hazard mitigation plans are reviewed and approved directly by FEMA, California law requires ongoing consultation between the state and tribal governments on projects affecting reservations and other areas of cultural significance.

Under the California constitution and state codes, many state functions are delegated to local governments. Through this system of delegation, cities and counties are responsible for emergency services as well as hazard mitigation through local general plans, zoning, and building codes. Additionally, a wide array of special districts and school districts are responsible for infrastructure mitigation as well as emergency services. Cities and counties typically adopt ordinances establishing their local emergency organization.

Local hazard mitigation is implemented by cities, counties, and special districts. Each agency is responsible for mitigating hazards within its jurisdiction, as well as for assuring health and safety conditions related to development constructed by the private sector and local government.

For more information on local disaster management programs, see *Chapter 5: California Local Hazard Mitigation Planning*.

1.4.4 PRIVATE SECTOR EMERGENCY MANAGEMENT AND HAZARD MITIGATION

Private sector groups and civic organizations also contribute to California's hazard mitigation effort. This support takes a variety of forms, from small groups of neighbors lowering fire risk in their local communities to large industrial enterprises continually upgrading training and equipment and integrating efforts with Cal OES. This demonstrates vertical integration of effort at different scales and use of public-private partnerships. This section provides a glimpse into these organizations and how they support the State's mitigation goals. For more information on private sector disaster mitigation and emergency management programs, see *Annex 1: Guide to California Hazard Mitigation Laws, Policies, and Institutions*.

Private businesses, utilities, hospitals, and other private entities spend billions in infrastructure improvements to increase the resilience of their facilities and systems, in order to facilitate rapid resolution of their operations after disasters.

Executive Order S-04-06, issued on April 18, 2006, addressed emergency preparedness activities including the need for state and local agencies to prepare Continuity of Operations/Continuity of Government (COOP/COG) plans intended to support continuity of government and provision of essential services to the public during and after a

[17] California League of Cities, http://www.cacities.org/Resources/Learn-About-Cities.
[18] State Controllers' Office, https://www.sco.ca.gov/ard_locarep_districts.html.

catastrophic event, as well as California Service Corps responsibility to coordinate volunteer activities related to disaster response and recovery.

Utility Sector

Cooperative emergency management and hazard mitigation efforts with utility companies span more than seven decades. In 1952, the Governor of California chartered the California Utilities Emergency Association (CUEA) as part of the state's Civil Defense Plan. CUEA later received State Tax Exempt status. CUEA is the only utility association with a Memorandum of Understanding (MOU) with Cal OES.

Being co-located at Cal OES headquarters allows CUEA immediate access to regional, state, and federal information. CUEA, via the Executive Director, actively participates in Senior Leadership and Executive level planning sessions and working groups. In 2017, there were 97 CUEA members, including all primary utilities, state agencies, and some cities and special districts.[19]

The CUEA serves as a point-of-contact for critical infrastructure utilities and Cal OES and other governmental agencies before, during, and after an event to:

- Facilitate communications and cooperation between member utilities and public agencies, and with non-member utilities (where resources and priorities allow)
- Provide emergency response support wherever practical for electric, petroleum pipeline, telecommunications, gas, water, and wastewater utilities
- Support utility emergency planning, mitigation, training, exercises, and education[20]

Business Sector

Realizing the need for stronger public-private collaboration, Executive Order S-04-06 gave Cal OES greater authority to partner with private industry. This led to Cal OES signing MOUs with private sector and non-profit organizations creating the Business and Utility Operations Center (BUOC) comprised of the Utility Operations Center (UOC) and Business Operations Center (BOC). The BOC is composed of 15 of California's largest businesses in the finance, home retail goods, and agricultural sectors. The UOC consists of a single member: the California Utilities Emergency Association.

During emergencies, the BUOC is activated to enhance members' capabilities to respond to and recover from emergencies. Beyond involvement in emergency management, utilities are involved in ongoing investments replacing obsolete equipment and facilities. Many of these investments represent improvements in the resilience to natural and human-caused hazards within the utilities' plants and facilities.

Volunteer Sector

Community-based volunteer organizations represent the most extensive source of response resources in an emergency. California Volunteers is the state office that manages programs and initiatives aimed at increasing the number of Californians engaged in service and volunteering.

Following a disaster, volunteer agencies continue to provide services for their constituents as well as for the governmental agencies that might need their unique services. California Volunteers is led by the state's Chief Service Officer and is comprised of four departments: AmeriCorps, Community Partnerships, Disaster Volunteering and Preparedness, and Finance & Administration. For more information, visit: https://californiavolunteers.ca.gov/#.

Executive Order S-04-06 designates California Volunteers as the lead agency for the coordination of volunteers in disaster response and recovery. California Volunteers is designated as the state lead for Volunteers and Donations Management as part of the State Emergency Plan (California Emergency Support Function CA-ESF-17). In this role as the lead coordinator of emergency activities related to volunteer and donations management, California

[19] https://www.cueainc.com/resources/annual-reports/
[20] https://www.cueainc.com/about-us/membership/

Volunteers assigns primary and support roles to those state agencies and departments with the authorities, capabilities, and resources necessary to meet emergency needs.

As part of this role, California Volunteers also engages CA-ESF-17 partner agencies and works with Cal OES related to Voluntary Organizations Active in Disaster (VOAD) personnel to assist in response activities. The VOAD coalition of non-profit organizations supports the emergency management efforts of local, state, and federal agencies and governments by coordinating the planning efforts of a variety of voluntary organizations. VOAD is different from other response groups in that it not only functions during response efforts but also continues to work on disaster recovery activities. For more information about VOAD, visit: www.calvoad.org.

Community Emergency Response Team (CERT) is a program to train and organize localized citizen disaster response groups. Communities or neighborhoods start CERT programs with the intent of 1) facilitating better community preparedness for life threatening hazards, and 2) providing response within the community should there be a disaster. The CERT concept was developed and implemented by the Los Angeles City Fire Department (LAFD) in 1985.[21]

CERT programs serve in more than 2,600 communities nationwide. California CERTs can be located using the directory search at: https://www.ready.gov/community-emergency-response-team.

Red Cross

The American Red Cross (ARC) provides disaster relief to individuals and families, and provides emergency mass care in coordination with government agencies and private organizations. It receives its authority from a congressional charter that cannot be changed by state or local emergency plans and procedures. In providing its services, the ARC will not duplicate the programs of other public or private welfare agencies, nor will it assume financial responsibility for its actions.

Domestic Animals

The California Animal Response Emergency System (CARES) for preparedness, response, and recovery of animals during a disaster is led by the CARES Steering Committee. The committee is comprised of both government and non-government organizations that function as a network to provide services for animals during emergencies. The CARES Steering Committee members and charter can be found at https://cal-cares.com/steering-committee-2/. For an overview of the CARES program visit: https://cal-cares.com/.

Fire Safety

California has an extensive system of civil participation in fire safety. In addition to the state fire agency, California Department of Forestry and Fire Protection (CAL FIRE), relevant organizations include a regional coalition, a statewide non-profit, and locally based non-profits. At the regional scale, the California Fire Alliance (CFA) collaborates with stakeholders to identify wildfire threats to community values, develop, and support strategies to engage communities, and work with them to create fire adapted communities and resilient landscapes.

CFA is composed of 10 member agencies ranging from CAL FIRE to the 35-member Rural County Representatives of California (RCRC) that champions policies on behalf of California's rural counties. The CFA, through its members, will assist communities in the development of fire loss mitigation planning, education, and projects that will reduce the threat of wildfire losses on public and private lands.[22]

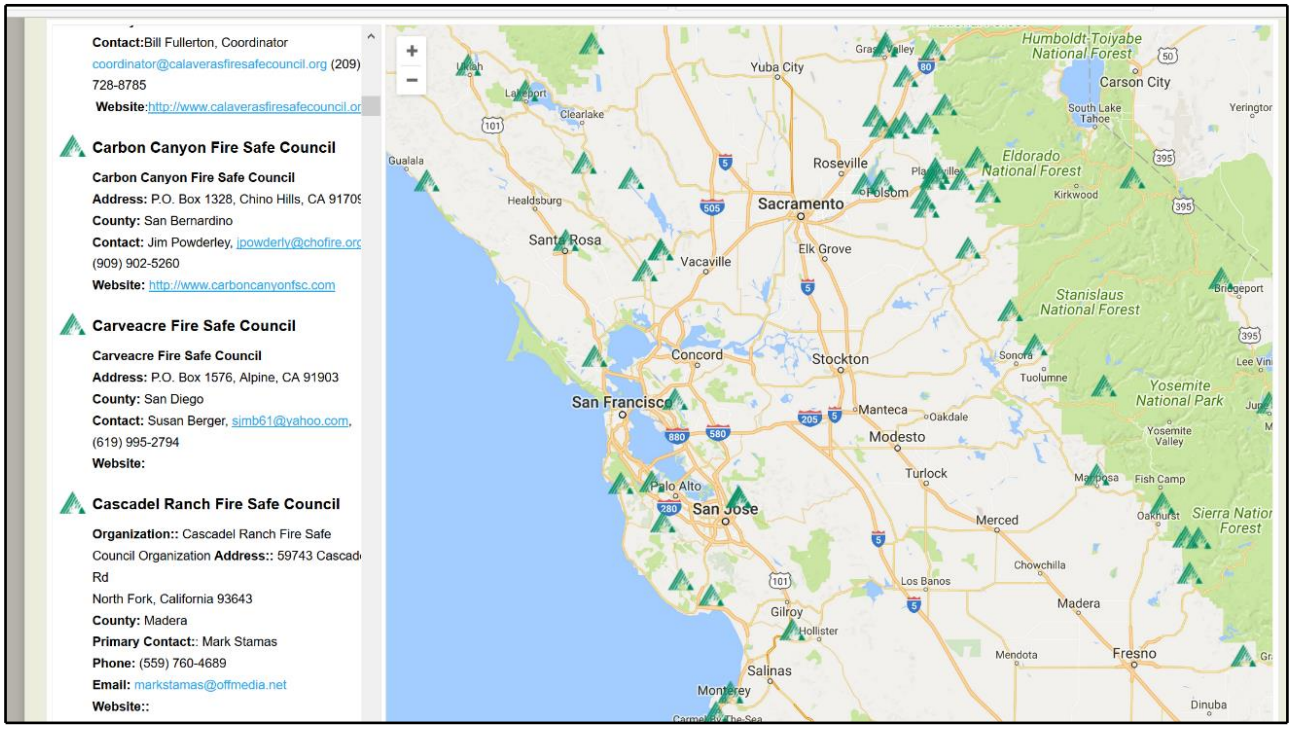
At the sub-regional level is the California Fire Safe Council (CFSC), a 501(c)(3) California non-profit corporation whose mission is to mobilize Californians to protect their homes, communities, and environment from wildfires. The initial focus was to develop and maintain an online, "one-stop-shop" grant clearinghouse where four primary federal

[21] http://www.californiavolunteers.org/index.php/CERT/.
[22] http://www.preventwildfireca.org/Organization-History/.

agencies—the U.S. Forest Service (Department of Agriculture), Bureau of Land Management, National Park Service, and U.S. Fish and Wildlife Service (Department of the Interior)—could provide large master grants.

The CFSC then selects, manages, and monitors sub-grants to local community groups such as local Fire Safe Councils and homeowners' associations, local governments, fire departments, and other entities focused on wildfire prevention activities such as defensible space, community fire planning, and education. Since that first grant cycle in 2004, the CFSC has provided approximately 842 grants totaling over $81,768,754 to organizations and agencies located throughout California. The CFSC provides technical assistance to local groups with similar missions, assisting them with education on wildfire issues and with organizational issues related to capacity building and sustainability.

Map 1.D: California Fire Safe Council Interactive Local FSC Location Map



There are many local Fire Safe Councils throughout California, each focused on neighborhood level fire mitigation, and there are 92 recognized fire-wise communities in California. The CFSC website provides an interactive map tool for locating local Fire Safe Councils around the state. Map 1.D is an example map from the CFSC interactive local Fire Safe Council location map tool. California fire safe councils are discussed further in *Chapter 8: Fire Hazards: Risks and Mitigation, Section 8.1.5*. For more information about CFSC, visit: http://www.cafiresafecouncil.org/.

1.5 SHMP ADOPTION BY THE STATE

Although leading the coordination and maintenance of the SHMP is the responsibility of Cal OES, the content of the SHMP is the culmination of information provided by numerous stakeholders from local, tribal, state, and federal government agencies, public and private business organizations, and individual citizens. Adoption of the 2018 SHMP is implemented by the Cal OES Director on behalf of the state government as a supporting document to the State Emergency Plan.

The 2018 SHMP provides a thorough description of the state's commitment to significantly reducing or eliminating impacts of natural and human-caused disasters through preparation and implementation of comprehensive hazard mitigation strategies, plans, and actions. This commitment is reflected in the SHMP goals and objectives discussed in *Chapter 3: California's Mitigation Framework: Goals, Objectives, Strategies, and Priorities*, which were reviewed and updated by the State Hazard Mitigation Team (SHMT) Goals and Objectives Strategic Working Group for the 2018 SHMP update. The adopted SHMP communicates the state's priorities and facilitates communication and collaboration among jurisdictions and stakeholders.

Upon conditional approval of the finalized 2018 SHMP by FEMA, the Cal OES Director, acting as the Governor's designated official, formally adopts the SHMP, as required by 44 CFR Section 201.4(c)(6). The Director's letter of adoption is immediately forwarded to FEMA to finalize the approval process. A copy of the adoption letter is included in Figure 1.A, documenting successful completion of this process as part of the 2018 update.

Figure 1.A: 2018 SHMP Statement of Plan Adoption Letter

EDMUND G. BROWN JR.
GOVERNOR

MARK S. GHILARDUCCI
DIRECTOR

Cal OES
GOVERNOR'S OFFICE
OF EMERGENCY SERVICES

September 28, 2018

STATEMENT OF PLAN ADOPTION

As Director of the California Governor's Office of Emergency Services and the Governor's Authorized Representative, I am pleased to formally adopt the 2018 California State Hazard Mitigation Plan (SHMP) for the State of California.

The state is required to review and revise its SHMP for Federal Emergency Management Agency (FEMA) approval pursuant to 44 Code of Federal Regulations §201.4 and §201.5 to ensure the continued eligibility of Stafford Act funding. This includes FEMA's hazard mitigation assistance programs as well as the Fire Management Assistance Grant Program and Public Assistance grants (Categories C-G). Additionally, the state remains eligible for the increased federal cost share for grants awarded under the Flood Mitigation Assistance programs.

In the five years since the 2013 SHMP was approved and adopted, California has experienced some of the largest and most destructive disasters in the state's recorded history. Disasters are becoming more frequent and resulting in greater impacts, and this trend is expected to increase. With the state's continued population growth combined with prevailing climate projections, California must continue to enhance and invest in mitigation activities and take actions to reduce risks and support resilient communities.

The 2018 SHMP update continues to build upon California's commitment to reduce or eliminate the impacts of disasters caused by natural and human-caused hazards. The SHMP also builds on prior versions for the most comprehensive inclusion yet of the state's climate mitigation and adaptation strategies.

In adopting the 2018 SHMP, the state agrees to comply with all applicable state and federal statutes and regulations as stipulated in the assurances enclosed in the 2018 SHMP, and will update the SHMP at least once every five years. Through implementation, monitoring, and meaningful integration across government and private sectors, the SHMP continues to ensure a safer and more resilient California.

Sincerely,

MARK S. GHILARDUCCI
Director

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1.6 2018 SHMP ASSURANCES

In accordance with 44 CFR Section 201.4(c)(7), the State of California assures that it will manage and administer FEMA funding and comply with all applicable federal statutes and regulations in effect with respect to the periods for which the state receives grant funding. These efforts will comply with the following:

- 2 CFR Part 200 (Office of Management and Budget [OMB] Guidance: Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards)
- 2 CFR Part 3002 (Department of Homeland Security [DHS] adoption of the OMB Guidance listed in 2 CFR Part 200, giving regulatory effect to the OMB guidance and supplementing the guidance as needed for DHS)

The State of California also assures that it will amend the California State Hazard Mitigation Plan as required by 44 CFR 13.11(d) to reflect: 1) new or revised federal statutes or regulations, and/or 2) a material change in any state law, organization, policy, or State agency operation. If an amendment is completed, the State of California will obtain approval for the amendment and its effective date (but need submit for approval only the amended portions of the plan).

The SHMP assurances were reviewed and updated for the 2018 SHMP.

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