CHAPTER 3 - STATE MITIGATION STRATEGIES AND ACTIONS

CHAPTER CONTENT

3.1 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 the federal, state, and local disaster mitigation and emergency management laws. For more complete descriptions, see Annex 2, Guide to California Hazard Mitigation Laws, Policies and Institutions.

3.1.1 FEDERAL LAWS, INSTITUTIONS AND POLICIES

Among the principal federal statutes guiding disaster management at the state and local levels are the 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.

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. Supported by a national mapping system showing boundaries for 100- and 500-year floodplains, the NFIP encourages local governments to direct development away from floodplain areas or elevate construction to mitigate flood risks through local regulation. Through the Community Rating Service (CRS), the NFIP provides for financial incentives in the form of lower insurance rates for local communities encouraging mitigation of flood hazards in a manner parallel to rate incentives related to private fire insurance and enforced by the mortgage industry. 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 is intended to reform the NFIP, see Section 5.3.5.4 for information.

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 authorizes three post-disaster recovery programs implemented by the Federal Emergency Management Agency (FEMA):

- The Individual and Household Assistance (IA) program, which provides limited post-disaster grants to assist displaced homeowners with mortgage payments and minor repairs
- The Public Assistance (PA) program, which provides grants to local governments and nonprofit groups for post-disaster repair of infrastructure and facilities
- The Hazard Mitigation Grant Program (HMGP), which provides post-disaster grants to state and local governments to mitigate future damage

Under the Pet Evacuation and Transportation Standards Act (PETS) of 2006, the Stafford Act was amended by Congress to require states seeking FEMA assistance to accommodate pets and service animals in their plans for evacuating residents facing disasters.

Under the Sandy Recovery Improvement Act of 2013, the Stafford Act was amended by Congress to include advances to states of up to 25 percent of the amount of estimated cost of post-disaster HMGP funds, together with other streamlining measures, and to direct FEMA to create a comprehensive national strategy for reducing the cost of future disasters.

Other federal laws authorize post-disaster funding to support restoration of communities. These include:

- The Housing and Community Development Act, providing block grants for housing and development
- The Federal-Aid Highways Act, providing grants for restoration of highways
- The Public Works Act, providing grants for economic development
- The Small Business Administration Act, providing grants and loans for post-disaster recovery

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. The basic reason for its passage was the growing volume and severity of preventable losses from natural disasters, aggravated by the widespread problem of poorly planned, vulnerable local development. Major disasters such as the 1993 mid-western floods, 1994 Northridge Earthquake, and increasing wildland-urban interface fires convinced Congress that more should be done locally to reduce disaster losses.

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. This expectation forms the basis for the institutional arrangements and operations created at the state and local levels under federal administrative direction. Principal among these federal systems are:

- The National Incident Management System (NIMS), which provides uniform rules for incident command
- National Prevention Framework
- National Mitigation Framework
- The National Response Framework (NRF), which provides response and recovery guidelines
- The National Disaster Recovery Framework (NDRF) adopted by FEMA in late 2011
- Presidential Policy Directive - 8, which addresses threats to security and other hazards
- A series of Comprehensive Preparedness Guides published by FEMA

For more information on laws and guidelines governing federal disaster management programs, see Chapter 4, Section 4.7 and Annex 2, Guide to California Hazard Mitigation Laws, Policies and Institutions.

3.1.2 CALIFORNIA LAWS, INSTITUTIONS AND POLICIES

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 4 through 6.

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 fully described in Annex 2, Guide to California Hazard Mitigation Laws, Policies and Institutions.

California Emergency Services Act

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

- Methods for carrying out emergency operations
- The process for rendering mutual aid
- Emergency services of governmental agencies
- How resources are mobilized
- Emergency public information
- Continuity of government

State Emergency Plan Linkage with SHMP

The SHMP is an important supporting document to the State Emergency Plan (SEP). The SEP defines and describes the fundamental systems, strategies, policies, assumptions, responsibilities, and operational priorities that California uses to guide and support emergency management efforts. The SEP and the SHMP are closely linked; Section 8 of the SEP identifies mitigation as one of the four emergency management functions and references the role of the SHMP in describing and mitigating hazards, risks, and vulnerabilities, thereby reducing disaster losses. The SEP provides several examples of hazards, risks, and vulnerabilities giving rise to emergencies in California. However, it formally acknowledges the SHMP as the overriding comprehensive hazard analysis document that it relies upon for detailed hazard, risk, and vulnerability analysis, and other hazard mitigation related information and programs. Essential elements of the SEP include:

- A description of what emergency services are provided by governmental agencies and how resources are mobilized
- An outline of the methods for carrying out emergency operations and the process for rendering mutual aid
- An overview of the system for providing public information
- Emphasis on the need for continuity planning to ensure uninterrupted government operations

SEP Functional Annexes and Appendices

The SEP implements Emergency Function working groups, which develop functional annexes that follow an established format to describe discipline-specific goals, objectives, operational concepts, capabilities, organizational structures, and related policies and procedures. The functional annexes are developed separately from the basic plan and make reference to existing agency and department plans and procedures. Subsequent plans and procedures that are developed in support of the SEP, such as mutual aid plans, the SHMP and other hazard-specific plans, catastrophic plans, and related procedures, are incorporated by reference and maintained separate from the SEP. For more information on SEP emergency functions see Annex 2, Section 2.7.1.

SEP Revisions

The SEP is periodically revised. Draft versions of revisions of the SEP are posted on the Cal OES website for review and comment by other governmental entities and the public. The most recent update was in June 2009.

For more information regarding the SEP visit:
http://www.calema.ca.gov/PlanningandPreparedness/Pages/State-Emergency-Plan.aspx

Standardized Emergency Management System (SEMS)

The Standardized Emergency Management System (SEMS) is the 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 the implementation of SEMS. The use of SEMS is required by law 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.

There are five SEMS organization levels: state, regional, operational area, local, and field. Together with the private sector, these comprise the California Emergency Organization. This organization represents all resources available within the state that may be applied in disaster response and recovery phases. SEMS operates from established Emergency Operations Centers (EOCs) at all five levels, as well as in many businesses and industries. SEMS incorporates the use of the Incident Command System (ICS), the Master Mutual Aid Agreement, existing mutual aid systems, the operational area concept, and multi-agency or inter-agency coordination.

SEMS helps unify all elements of California's emergency management organization into a single integrated system. Its use is required under federal law for state response agencies and local government agencies seeking eligibility for state emergency management funds. The prime objectives are to maintain continuity of government and provide local jurisdictions with resources to meet disaster needs.

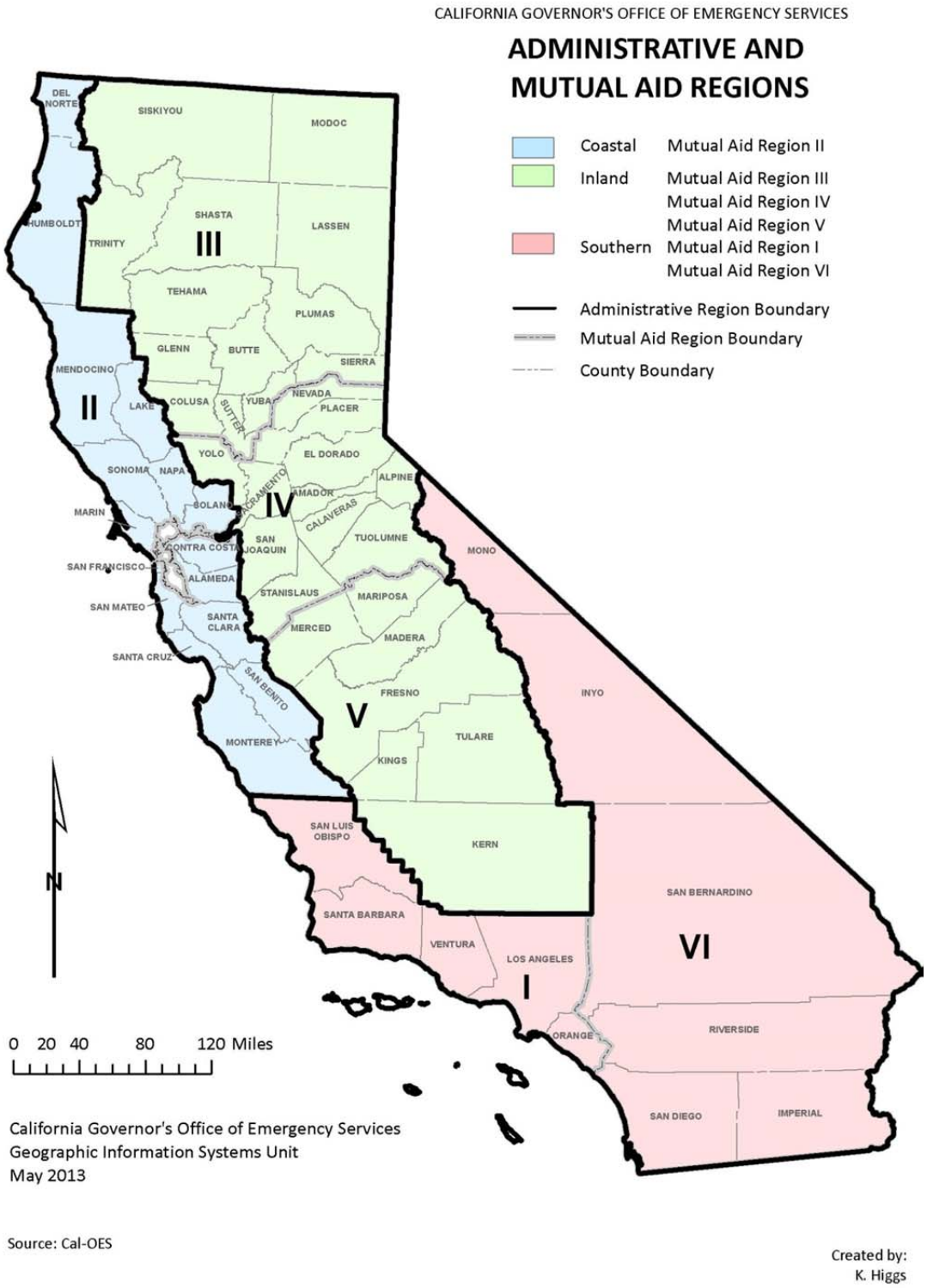
Cal OES Administrative Regions

Cal OES is an Office of the Governor. Cal OES' 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. Cal OES provides leadership, assistance, training, and support to state and local agencies and coordinates with federal agencies to plan and prepare for the most effective use of resources in emergencies. All state employees are designated Disaster Service Workers (DSW).

There are three Cal OES administrative regions (Inland, Coastal, and Southern) in California. Within these are six mutual aid regions for fire and general mutual aid coordination. Law enforcement and coroners have seven mutual aid regions. The Cal OES administrative regions manage and coordinate information and resources among operational areas within mutual aid regions and between operational areas and state agencies for support during emergency, mitigation, preparedness, response, and recovery activities.

For more information on the relationship of hazard mitigation to state emergency management programs, see Chapter 7 and Annex 2, Guide to California Hazard Mitigation Laws, Policies and Institutions.

MAP 3.A: Cal OES Administrative Regions



Map 3.A identifies the three Cal OES administrative regions, six mutual aid regions for fire and general mutual aid coordination and 58 county operational areas.

Vital Role of SHMP in Emergency Management

As pointed out in other chapters, the SHMP plays a fundamental role in comprehensive, integrated emergency management in California. Among other things, it identifies and analyzes the consequences of the risks associated with human-caused and natural hazards, together with vulnerabilities of people and property and mitigation programs devised to lessen the impact of these risks. Timely and effective hazard mitigation has multiple benefits, including the following:

- Minimizing deaths, injuries, and other negative disaster impacts on the public
- Reducing disaster losses to property, facilities, and, infrastructure
- Minimizing negative impacts on the environment and economic condition of the state
- Lessening the work of emergency responders
- Assuring greater continuity of government operations, including continued delivery of services
- Creating conditions by which recovery can happen more quickly and be less costly
- Heightening public confidence in the jurisdiction's governance

The 2013 SHMP identifies these benefits as an integral part of its various chapters, providing detailed evidence of the value of reducing specific hazards, risks, and vulnerabilities to achieve such benefits. These benefits are reflected in the SHMP goals in Chapter 2, strategies and action in Chapter 3, risk assessment overview in Chapter 4, evaluation of primary and other hazards and their mitigation in Chapters 5 and 6, and the description of the California's comprehensive mitigation program management in Chapter 7.

3.1.3 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 2013, there are over 6,000 local jurisdictions in California, consisting of:

- 58 counties
- 482 incorporated cities
- 4,400 special districts
- 1,053 school districts

In addition, there are 109 Native-American tribal organizations in California. Though considered separate nations under the law, these largely undertake local government functions.

Under the Disaster Mitigation Act of 2000, local governments and tribal organizations are eligible for federal hazard mitigation planning and project grants. Local governments apply for and receive federal grants through Cal OES. Although California law requires ongoing consultation between the state and tribes on projects affecting tribal areas, FEMA works directly with tribal governments on review of hazard mitigation plans.

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 their 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 Section 3.3 (Local Government Capability Assessment); Annex 1, Guide to Community Planning and Hazard Mitigation; and Annex 2, Guide to California Hazard Mitigation Laws, Policies and Institutions.

3.1.4 PRIVATE SECTOR EMERGENCY MANAGEMENT AND MITIGATION

Activities of a wide variety of private organizations are also important within the complex framework of laws, institutions, and policies dealing with hazard mitigation. These private organizations represent utility companies, business, and industry.

The California Utilities Emergency Association (CUEA) cooperates with Cal OES to coordinate public and private utility emergency-related issues in California. The CUEA is supported largely by public and private utility members with service territories in California. Utilities members in the CUEA include gas, electric, telecommunications (including wireless), water, waste water, and petroleum pipeline companies.

During emergencies, the Business and Utilities Operations Center (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 their plants and facilities.

Many business and industry organizations are recognizing that preparedness and mitigation can make a difference between a company surviving a disaster or going out of business. Risk managers and chief executive officers assess threats posed by disasters and implement mitigation and preparedness measures where risks are high.

Community-based volunteer organizations represent the most extensive source of response resources in an emergency. They can provide caring and knowledgeable assistance in support of emergency response and recovery operations. Executive Order S-04-06 designates California Volunteers as the lead agency for the coordination of volunteers in disaster response and recovery. 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.

The American Red Cross (ARC) provides disaster relief to individuals and families and emergency mass care in coordination with government and private agencies. 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.

Community Emergency Response Team (CERT) is a program to train and organize localized citizen disaster response groups. CERT programs are started by communities or neighborhoods with the intent of 1) facilitating better community preparedness for life threatening hazards and 2) providing response within their community should there be a disaster. CERT programs serve in more than 2,200 communities nationwide, over 300 of which are in California communities. Following is a link to a directory of California CERTs: http://www.citizencorps.gov/cc/CertIndex.do?reportsForState&cert=&state=CA

California also has an extensive system of Fire Safe Councils, which are 501(c)3 nonprofit organizations involving thousands of citizens as well as corporate partners. Activities include community outreach and education, hazardous fuel assessment, community wildfire protection planning, and community chipping projects.

The California Animal Response Emergency System (CARES) for preparedness, response and recovery of animal-related needs during a disaster is led by the CARES Steering Committee. The committee is comprised of both government and non-government organizations which function as a network to provide services for animals during emergencies. The CARES Steering Committee charter and more about the CARES program can be found at: http://cal-cares.com/about/steering-committee/.

For more information on private sector disaster mitigation and emergency management programs, see Annex 2, Guide to California Hazard Mitigation Laws, Policies and Institutions.

3.2 STATE CAPABILITY ASSESSMENT

The State of California has a history of successfully implementing hazard mitigation through a process of legislation, program development, and project implementation. This history demonstrates the state's enhanced capability to implement state-level hazard mitigation programs that are effective and, in many ways, state of the art. Examples include:

- CAL FIRE's Fire Planning Framework, which has become a national template for fire planning
- Caltrans' Bridge Seismic Retrofit program, which has been highly successful (with more than $14 billion spent or committed to retrofitting bridges throughout the state)
- The Department of Water Resources Flood Protection Corridor Program (FPCP), which provided $70 million for primarily non-structural flood management projects that include wildlife habitat enhancement and/or agricultural land preservation
- Chapter 31F – Marine Oil Terminals (California Code of Regulations, Title 24, Part 2, California Building Code) written and enforced by the State Lands Commission and designed to prevent oil spills at marine oil terminals by establishing engineering standards – structural, electrical, and mechanical – for these facilities.

Additionally, the California Earthquake Authority, an instrumentality of the state, will soon offer financial incentives through a statewide residential earthquake retrofitting program. See Progress Summary 5.H in Section 5.2.4.1 for more details on this program.

3.2.1 LEGAL FOUNDATIONS OF STATE CAPABILITY

The preceding section provides a general summary of the laws, policies, and institutions underlying the state's capability in implementing hazard mitigation. Together they establish the underlying framework for the state's policies related to hazard mitigation and disaster management and form the core of the state's capabilities. To more fully understand the legal foundations of the state's capability, it is useful to examine federal and State of California laws and programs described in further detail in Annex 2, Guide to California Hazard Mitigation Laws, Policies and Institutions. Some are also described in greater detail in this chapter in Section 3.3.1 (Legal Foundations of Local Government Capability) and Section 3.3.2 (Role of California Planning and Building Codes), and in Chapters 4 through 6.

3.2.2 LEVELS OF STATE CAPABILITY

The state's efforts at implementing hazard management can be viewed as being effective at three levels: state legislation, state-level implementation, and local level implementation of state priorities.

State Legislation

State legislation related to hazard mitigation has been, for the most part, hazard-specific. Most legislation is the result of disaster events in which specific vulnerabilities were highlighted.

Examples of these laws include the Dam Safety Act, Field Act, Alquist-Priolo Earthquake Fault Zone Mapping Act, Unreinforced Masonry Building Law, Essential Services Building Seismic Safety Act, Seismic Hazards Mapping Act, and statutes forming the California Earthquake Authority. Many of these have resulted from recommendations by special commissions formed following a disaster. The legislative aspect of California's approach to hazard mitigation is responsive, focused, and effective.

Additional information on over 30 laws forming a foundation for emergency management and hazard mitigation in California may be found in Annex Section 2.10 and Annex Table 2.C in Annex 2. A variety of additional laws and programs responding to mitigation needs for specific hazards (earthquake, wildfires, and floods) are documented in Appendices T through W.

State Level Implementation

Implementing state-level legislation has been an effective part of the state's approach to hazard mitigation. The state has expended tens of billions of dollars on seismic, fire, and flood hazard mitigation. Some of these efforts include the State Water Project, Bridge Retrofit Program, earthquake mitigation pilot projects, residential seismic retrofit program, and several fire hazard management programs.

The state has certain direct oversight authority over specific forms of hazard mitigation involving land use. For example, the California Coastal Commission (CCC) administers the California Coastal Act, which provides for long-term protection of California's 1,100 miles of coastline. Along with the Bay Conservation and Development Commission (BCDC) and the State Coastal Conservancy, the CCC administers the California Coastal Management Program.

Unique in the U.S., the California Coastal Act, administered by the California Coastal Commission and local jurisdictions or entities with certified Local Coastal Programs, Port Master Plans, Long-Range Development Plans or Public Works Plans, provides for the protection and enhancement of California's coast and ocean for present and future generations. It does so through careful planning and regulation of environmentally-sustainable development, rigorous use of science, strong public participation, education, and effective intergovernmental coordination.

Section 30253 of the California Coastal Act requires that new development minimize risks to life and property in areas of high geologic, flood, and wildfire hazard. Development must assure stability and structural integrity, and not create or contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area or in a way requiring construction of protective devices that substantially alters natural landforms along bluffs or cliffs.

Additionally, Section 2697 of the Seismic Hazard Mapping Act requires that cities and counties condition approval of subdivision plans and the issuance of building permits on approved seismic hazard investigations and plans to mitigate identified hazards. This requirement induces sustainable mitigation in that it affects all future construction within designated zones. Section 2699 requires cities and counties to take into account seismic hazards zones when preparing the safety element (and other elements which must be consistent with the safety element according to state law) of their general plans, and when adopting and revising land use planning and permitting ordinances.

Local-Level Implementation of State Priorities

State efforts to implement hazard mitigation at both the state and local level are complicated. State laws that strengthen building codes and standards and their enforcement have been effective in that California arguably appears to have experienced substantially less damage than had such regulations not been adopted. This especially seems to be the case for earthquakes. Local governments may adopt amendments enhancing minimum requirements of the California Building Code.

California law also stipulates mandatory local hazard mitigation requirements, such as adoption of general plan safety elements and adherence to the requirements of the Earthquake Fault Zone Mapping Act and Seismic Hazards Mapping Act. On the other hand, encouraging local governments to voluntarily initiate hazard mitigation efforts is difficult.

California periodically suffers severe budget challenges and has recently experienced an extreme budget crisis from which it is only beginning to recover. Funding is often scarce for activities not driven by immediate need. On the other hand, a major area of opportunity exists to realize benefits of locally initiated and implemented hazard mitigation strategies and actions. This is why one of the state's hazard mitigation priorities is reflected in Goal 4 (promote hazard mitigation), Objective 1: "Encourage all cities, counties, special districts, councils of governments, and tribal organizations to develop, adopt, and implement a Local Hazard Mitigation Plan integrated with local general plan safety elements, local coastal plans, facilities master plans, and other local plan initiatives."

3.3 LOCAL GOVERNMENT CAPABILITY ASSESSMENT

The Disaster Mitigation Act of 2000, through 44 CFR Parts 201 and 206, requires that the state mitigation strategy include a general description and analysis of the effectiveness of local mitigation policies, programs, and capabilities. While California cities and counties are separate autonomous subdivisions of state government, state law, policies, and programs have a substantial influence on local land use and hazard mitigation activities. The California Government Code (Sections 65000 et seq.) contains many of the laws regulating land use planning including general plans, specific plans, subdivisions, and zoning. The state is seldom directly involved in local land use decisions. These have been delegated to the city councils and county boards of supervisors. Local decision-makers adopt their own land use policies based on the state laws and approve individual development projects based on these policies.

3.3.1 LEGAL FOUNDATIONS OF LOCAL GOVERNMENT CAPABILITY

State law is the foundation for local government in California. Local governments include cities, counties, and special districts. Their powers are determined both by the State Constitution and by state legislation. All units of local government have powers to undertake hazard mitigation planning and projects.

Cities and Counties

Cities and counties are distinct and independent political entities with separately elected governing boards.

State law requires each city and county to adopt "a comprehensive, long-term general plan for [its] physical development."

Through general plans, local jurisdictions document official decisions and future strategies regarding the location of housing, business, industry, roads, parks, and other land uses; protection of the public from environmental hazards; and conservation of natural resources. Each city and county formally adopts its own general plan and develops implementing regulations, including zoning ordinances, subdivision ordinances, and building codes.

Cities and counties are obligated by law to confer with adjoining jurisdictions when considering adoption or amendment of a general plan and regulatory ordinances. However, there is no requirement that adjoining cities or counties have identical, or even similar, plans and ordinances.

Special Districts

Special districts are local government units with separate taxing authority and their own elected governing boards, formed to address specific issues such as fire protection, geologic hazard abatement, and flood

control. In California there are more than 4,000 special districts comprising a variety of geographic areas and functions.

According to the California Special Districts Association (http://www.csda.net/home), "Special districts are a form of local government created by a local community to meet a specific need. Inadequate tax bases and competing demands for existing taxes make it hard for cities and counties to provide all the services their citizens' desire. When residents or landowners want new services or higher levels of existing services, they can form a district to pay for and administer them."

Cities and counties can jointly form special districts and joint powers authorities to address specific issues. Examples include the Sacramento Area Flood Control Agency (SAFCA), a regional flood control district with taxing authority (www.safca.org); and the Association of Bay Area Governments (ABAG) (www.abag.ca.gov), a joint powers authority functioning as a regional planning advisory body.

Land Conservancies

Supplementing local governments are other quasi-public organizations undertaking hazard mitigation and environmental protection functions. Land conservancies can become landholders with the goal of preserving the natural environment, which may also have hazard mitigation benefits. Land with flood or geologic hazard issues may be kept out of development through the purchase of the land for open space or the land's development rights. For example, federally sponsored resource conservation districts perform such functions. The Nature Conservancy is a land conservancy that has worked on more than 100 projects and preserves in California since its founding in 1958, although many of its projects are now managed by other organizations (http://nature.org/wherewework/northamerica/states/california/preserves/).

3.3.2 ROLE OF CALIFORNIA PLANNING AND BUILDING CODES

As discussed above, and at greater length in Annex 2, Guide to California Hazard Mitigation Laws, Policies and Institutions, general plans and local building, fire, and other codes must be adopted by all California cities and counties. Special districts do not adopt such plans or codes but are generally obligated to follow those of the city or unincorporated area in which they are located.

General Plan Requirements

Every city and county in the state must adopt a general plan for the physical development of the county or city and any land outside its boundaries that bears relation to its planning. The general plan offers many opportunities for local agencies to identify, plan for, and mitigate local hazardous conditions such as flood, fire, and geologic events. The legislative body of each city (city council) and county (board of supervisors) adopts zoning, subdivision, and other ordinances to regulate land use and implement general plan policies.

The general plan must cover a local jurisdiction's entire planning area and address the broad range of issues associated with the city's or county's development. The law also requires that general plans include seven elements: land use, circulation, housing, open space, conservation, scenic highways, and safety. The safety element (and other elements which must be consistent with the safety element according to state law) identifies hazard mitigation policies to guide local decisions related to zoning, subdivisions, and entitlement permits. All elements of a general plan, whether mandatory or optional, must be consistent with one another. Each element's data, analyses, goals, policies, and implementation programs must be consistent with and complement one another. Since general plan law requires all elements to be consistent with each other, requirements of the safety element must align with guidance provided in each of the other elements. One example of this alignment is the required consistency between hazards shown in safety element maps and allowed zoning shown in land use element maps. Zoning defined in land use element maps must take into account hazards defined in safety element maps.

The state legislature has declared that decisions involving the future growth of the state, most of which are made and will continue to be made at the local level, should be guided by an effective planning process, including the local general plan. It has also declared that the state's land is an exhaustible resource, not just a commodity, and is essential to the economy, environment, and general well-being of the people of California.

A local government's general plan acts as a "constitution" for future development, bridging the gap between a community's values, vision, and goals, and physical development actions, such as the subdivision of land and public works projects. Information found in the general plan underlies most local land use decisions.

The California Planning and Zoning Law and the Subdivision Map Act require all cities and counties to adopt specific plans and other regulations to implement the general plan. Counties and general law cities are also required to have zoning and specific plans that are consistent (not in conflict) with the general plan. Moreover, the Subdivision Map Act also requires land subdivision to be consistent with the general plan.

Many jurisdictions have written hazard mitigation provisions into local zoning, subdivision, and environmental assessment ordinances and codes for reference in routine project review. Examples of commonly applied zoning and subdivision regulatory approaches to new developments in naturally hazardous areas include:

- Transfer of allowable density from hazardous parts of a site to safer areas
- Restriction of residential densities, reducing the numbers of structures at risk
- Enforcement of building setbacks from flood, landslide, and fault zones
- Adoption of slope-density formulas to limit the number of dwellings on hillsides
- Modification of parcel boundaries and street locations to avoid hazardous areas
- Requirement of multiple access points for emergency access and evacuation
- Provision of adequate street widths for two-directional movement in an emergency
- Assurance of sufficient water pressure for adequate fire flows

California legislation reinforces these practices through the 2003 General Plan Guidelines (currently being updated) prepared by the California Governor's Office of Planning and Research (OPR). The General Plan Guidelines encourage best practices and also emphasize consideration of each local general plan within its regional context. For example, OPR encourages local governments to coordinate planning issues that transcend artificial city or county boundaries. Wildfire, flooding, and air pollution are examples of hazards that can cross jurisdictional boundaries.

The role of OPR is not to regulate local government planning, but to provide cities and counties with planning assistance and resources. OPR prepares numerous publications on a variety of planning topics and provides advice and assistance to local planners by phone and email. Additionally, OPR maintains a database on the status of city and county general plans and posts the information (www.calpin.ca.gov).

For more information regarding the detailed provisions of general plan and related laws, see Annex 2, Guide to California Hazard Mitigation Planning Laws, Policies and Institutions.

Building and Fire Codes

Building and fire codes adopted under the state's laws have created a solid foundation for mitigating impacts of floods, fire, earthquakes, and other natural hazards in new development.

Applicable Regulatory Agencies

Building and fire codes are usually enforced by city and county staff, including building inspectors, fire department personnel, and sometimes law enforcement officers. Cities and counties review detailed plans for new construction for conformance with state building, fire, mechanical, and plumbing codes. Local code enforcement agencies arbitrate disputes concerning portions of facilities involved in repairs or upgrades and are tasked with making final decisions on such matters. According to California Health and Safety Code Section 16006, the "enforcement agency" means the agency of a city, city and county, or county responsible for building safety within its jurisdiction. The Division of the State Architect (DSA), within the Department of General Services, is the review agency for the design and construction of public K-12 school facilities in California and state-owned and state-leased essential services facilities.

Under the National Earthquake Hazards Reduction Program, the California Geological Survey and the U.S. Geological Survey jointly prepare periodic updates of the seismic zone maps for inclusion in the earthquake provisions for model building codes. These agencies operate strong-motion programs that record and analyze the response of engineered structures during earthquakes that form a basis for improved building codes.

Other state agencies with code development and/or regulatory authority include the Office of Statewide Health Planning and Development for hospitals, the Department of Housing and Community Development for mobile homes, the Department of Water Resources for construction in areas protected by the facilities of the Central Valley Flood Protection Plan, the State Lands Commission for engineering standards for marine oil terminals, and the Building Standards Commission.

Applicable State Building Codes

For new buildings, state and local governments enforce the California Building Standards Code (CBSC) which includes earthquake safety provisions from the 2012 International Building Code. Local government building departments also use the 2010 California Building Code which will be superseded by the 2013 California Building Code that will take effect in 2014.

Previously, on August 16, 2010, the California Building Standards Commission adopted the Prescriptive Provisions for Seismic Strengthening of Cripple Walls and Sill Plate Anchorage of Light Wood-Frame Residential Buildings into the 2010 and 2013 California Existing Building Code. This action has helped guide seismic retrofitting of existing homes in a systematic manner.

Applicable State Fire Codes

Updated fire codes developed to increase fire resistance in buildings and homes across California took effect in January 2011. The codes, which are enforced by CAL FIRE's Office of the State Fire Marshal (OSFM) and fire and building departments throughout the state, bring California in line with the 2012 International Building, Fire, and Residential Code. The new codes were adopted by the California Building Standards Commission and will increase fire safety and awareness in communities throughout California. A portion of the newly adopted codes focus on regulations for homes built in the wildland-urban interface in order to make them more ember resistant, increasing structure survivability. Additional amendments relate to tire storage, dry cleaning, and automatic extinguishing systems.

A key component in the 2013 fire code adoption is the addition of residential fire sprinklers in all new one- and two-family and townhome construction projects. For many years, installation of fire sprinkler systems has only been required in office buildings and multi-family dwellings, like apartments. These sprinkler systems are proven to save lives and extinguish fires. More than 100 jurisdictions in California already have a local residential fire sprinkler ordinance.

For more information about fire and building codes, visit the CAL FIRE – OSFM website: http://osfm.fire.ca.gov

Local fire safety requirements are governed by state laws established through the legislature and administered through the State Fire Marshal and the California Department of Forestry and Fire Protection, depending upon location. Fire safety enforcement is an important part of local hazard mitigation.

3.3.3 STATE ACTIONS SUPPORTING LOCAL CAPABILITY

Through its Local Hazard Mitigation Plan (LHMP) program, Cal OES assists local governments in identifying those measures most effective for hazard mitigation. The LHMP program has held workshops and assists local communities in developing their hazard mitigation plans.

The state also has adopted statewide regulations requiring hazard mitigation at the local level. Examples include the International Building Code, which requires local governments to adhere to certain building standards in local development; the Alquist-Priolo Earthquake Fault Zoning Act; the Seismic Hazards Mapping Act; defensible space provisions of the Public Resources Code and the Model Floodplain Management Ordinances. (http://www.water.ca.gov/floodmgmt/lrafmo/fmb/fas/nfip/guidelines.cfm)

State agencies also work with local governments to enhance local hazard mitigation efforts. CAL FIRE works closely with local governments in the development of mitigation policies that affect State Responsibility Areas for fire protection. The Department of Water Resources (DWR) works with FEMA and local governments in administration of the NFIP. Cal OES works closely with local governments in developing emergency plans. Prior to 2006, the California Seismic Safety Commission monitored progress of unreinforced masonry earthquake hazard mitigation in jurisdictions in high seismic areas of California. Also, the Natural Hazard Disclosure Act promotes mitigation by requiring hazard disclosures in local real estate transfers.

3.3.4 FOSTERING LOCAL GOVERNMENT CAPABILITY

In the current budgetary environment, most local governments are faced with serious financial constraints, yet it is clear that communities that make a commitment to community safety are able to propose, develop, and implement hazard mitigation strategies.

Many California communities have participated in the federal Hazard Mitigation Grant Program and the Flood Mitigation Assistance Program. These communities understand the value of hazard mitigation. It is expected that as the state's Local Hazard Mitigation Plan program matures, more communities will participate. This will increase the capability of local communities to plan, develop, and implement effective hazard mitigation strategies.

The Local Hazard Mitigation Plan program creates an opportunity for further analysis. Review of Local Hazard Mitigation Plans (LHMPs) in the future will be integral to a more complete analysis of the effectiveness of local hazard mitigation strategies. Where communities have developed LHMPs, effectiveness can more readily be assessed through monitoring of progress in subsequent updates.

As mentioned in Chapter 2, a comparative assessment of FEMA-approved LHMPs in California was initially developed in the 2007 SHMP. Preliminary recommendations for improving plan quality together with a detailed assessment of LHMPs reviewed were published in December 2008 in a report to Cal OES entitled "Local Hazard Mitigation Planning in California: A Report on the Implementation of LHMPs under DMA 2000". Findings from subsequent reviews were presented in Annex 4 of the 2010 SHMP – California Local Hazard Mitigation Plan Status Report, and were updated for the 2013 SHMP, confirming continuation of similar trends and characteristics (see Annex 5 of the 2013 SHMP).

Cal OES meanwhile has made progress toward improvement of local government hazard mitigation planning capability through a new LHMP Training Program initiated in 2010. Additionally, to enhance local mitigation planning capability Cal OES, together with other entities, in late 2011 launched MyPlan, an online GIS hazards Internet Mapping Service (IMS). A benefit of MyPlan is the provision of convenient single-source access to GIS hazards maps otherwise only available through multiple separate sources. Using these maps, communities can prepare or update their LHMPs, general plan safety elements (and all elements of a general plan, whether mandatory or optional, must be consistent with one another), or Local Coastal Programs (LCPs).

Cal OES has made progress toward improvement of local government hazard mitigation planning for animals through a statewide survey conducted in 2013. The survey assessed local government's level of animal emergency preparedness through series of inquiries into the government's written plans, existing MOUS/MOAs, mutual aid agreements, supply caches, training and exercises, and gaps. Cal OES also fostered the creation of a website for local animal emergency planners to utilize when forming plans: www.cal-cares.com

An assessment of the most recent FEMA-approved LHMPs for the 2013 SHMP is summarized in Chapter 2 and presented in greater detail in Annex 4, California Local Hazard Mitigation Plan Status Report.

3.4 TYPES OF STATE MITIGATION STRATEGIES

Strategies for mitigating hazards can be viewed from two perspectives. One is to view mitigation strategies as either direct or indirect. The other is to view them as either mandatory or voluntary.

3.4.1 DIRECT VS. INDIRECT STRATEGIES

Direct strategies are those directly protecting life, property, and the environment, such as physical measures to improve survivability of structures. Examples include:

- Designing structures during initial development or through a retrofit process to resist destructive forces, as in bolting walls to foundations to better withstand earthquakes
- Elevating houses to reduce impacts of flooding
- Using asphalt and clay tile roofing to reduce ignition from windblown embers

Indirect mitigation strategies are those that do not make physical changes but facilitate direct mitigation actions by others. They include education, public information, community outreach, and safety campaigns that motivate self-help action.

An example of combined direct and indirect strategies is the Seismic Hazard Mapping Act which triggers a process that identifies hazards at the development site and induces mitigation either by improved structural and foundation design, site remediation, or project relocation.

3.4.2 MANDATORY VS. DISCRETIONARY STRATEGIES

A more straightforward perspective is represented by viewing mitigation strategies as either mandatory or discretionary.

Examples of Mandatory Strategies

Mandatory strategies include statutes and ordinances stimulating uniform mitigation action. Examples of mandatory strategies include:

- *State mandates*

- *Local regulations and ordinances*
- *Restrictions on property use*: These limit or avoid development on hazardous land. Examples include restrictions on building across active faults, on landslide areas, or in floodways
- *Construction of protective measures:* These are usually tax-supported and keep destructive forces away from communities or structures. Examples include levees, drainage channels, and firebreaks

The essential outcome of mandatory mitigation is general compliance with zoning ordinances or building codes for new development or alterations to existing buildings. Property owners, builders, investors, and other stakeholders cannot choose whether or not to comply.

Mandatory strategies bear two types of cost: the direct cost of implementation and the cost of enforcement. To justify a mandatory strategy, the cost of implementation should be less than the cost of potential losses avoided. The additional cost of public enforcement is necessary to ensure uniform compliance and requires staffing and budgets. Because codes, regulations, ordinances, and their reflected standards are upgraded over time, older facilities in compliance with regulations at the time of construction may no longer be considered reliably safe.

Examples of Discretionary Strategies

Discretionary strategies are mitigation actions taken voluntarily by individuals, businesses, and local governments with the intent of reducing future disaster losses to homes and facilities. Examples of discretionary mitigation actions might include retrofitting existing business facilities or investing in improved building designs for new facilities. Strategies encouraging individuals, businesses, and local governments to take discretionary mitigation actions might include:

- Publications of advisory plans and technical manuals. An example might be the "How To" Guides published by FEMA to assist local governments in LHMP preparation.
- Education and awareness programs. These are intended to persuade people to voluntarily change their behavior to reduce chances of loss and can either have targeted or general audiences.
- Research and development. These are efforts supported by either public or private funding that improve knowledge of hazards, vulnerabilities, and mitigation.

Frequency of disaster loss intervals can be a motivating factor for discretionary mitigation. Property and business owners are more likely to invest in mitigation for frequently recurring disasters such as intermittent flooding than mitigation for more damaging but infrequently occurring disasters such as earthquakes. Earthquakes provide a less imminent reminder of the value of mitigation, leading stakeholders to postpone mitigation investments in hopes that such disasters will not happen in their lifetime or ownership tenure.

Evaluating Mandatory and Discretionary Strategies

Evaluation of mandatory and discretionary strategies is needed to determine their relative effectiveness over time. Evidence to date suggests that outcomes of discretionary mitigation strategies are less certain. Cost can be a deterrent when revenue sources are insufficient or when the potential loss reduction benefit is not recognized by stakeholders making mitigation decisions.

For example, in 2006 the California Seismic Safety Commission reviewed local unreinforced masonry (URM) retrofit programs and found that mandatory programs are more effective than discretionary programs (see Table 3.A).

Need for Combined Approach

Ultimately, a combination of mandatory and discretionary mitigation strategies is needed to bring about substantial changes in physical environments to reduce future disaster losses. This theme is demonstrated throughout the rest of this SHMP in relation to the legal, policy, and institutional framework identified in Annex 2, funding sources identified in Annex 4, and the Enhanced State Mitigation Plan criteria emphasized in Chapter 7.

Table 3.A: Unreinforced Masonry Retrofit Program Findings

Program Type	Summary
Mandatory Strengthening	These programs require owners to strengthen or otherwise reduce risks in their buildings within times prescribed by each local government. Time schedules vary and generally depend on the number of building occupants. Programs are based on the City of Los Angeles' Division 88 ordinance (LA, 1981), which is also the historical basis for the International Existing Building Code Appendix Chapter 1 (ICC, 2012) and the Seismic Safety Commission's Recommended Model Ordinance (CSSC, 1995). Triggers for the model ordinance were developed in 1991 in cooperation with the California Building Officials. This is the most effective program type.
Voluntary Strengthening	These programs establish seismic retrofit standards and require owners to evaluate the seismic risks in their buildings. Owners then write publicly available letters to their local governments indicating when they intend to retrofit (CSSC, 1990). This type of program is somewhat more effective than "Notification Only" (see next program type).
Notification Only	Under these programs, local governments write letters to owners stating that their building type has been known to perform poorly in earthquakes. This is typically the least effective type of program. Most jurisdictions have adopted more comprehensive measures than this.
Other	Other programs are variations of the above with unique requirements and effectiveness. Some cities, for example, require owners to post placards on unreinforced masonry buildings that warn occupants and passersby of earthquake risks. In general, placarding has not proven to be an effective motivation for owners to retrofit.

Source: CSSC Report, Status of the Unreinforced Masonry Building Law, 2006

3.5 STRATEGIES ENHANCING STATE-LOCAL MITIGATION CAPABILITIES

The 2013 SHMP includes vision, mission, goals, and objectives statements within a broader strategic framework that identifies the basis for setting mitigation priorities and using state and local capabilities to achieve outcomes that are consistent. The 2013 SHMP maintains and provides for continued progress on the following eight key strategies for action established by the 2007 SHMP and continued through the 2010 SHMP:

1. Adopt legislation formalizing California's comprehensive mitigation program
2. Strengthen inter-agency coordination actions, including state and local linkages
3. Broaden public and private sector mitigation linkages
4. Set targets for measuring future action progress
5. Enhance data systems and GIS modeling
6. Establish a mitigation registry for communicating progress
7. Expand mitigation project loss avoidance tracking through the SMART system
8. Connect mitigation planning with regional planning

Note that these strategies are overlapping and mutually reinforcing. Along with other mitigation actions identified in Chapters 5 through 7, these are supported by further progress descriptions identified in the Appendix L, Comprehensive Multi-Agency Mitigation Action Matrix. The following is a progress description for the eight strategies for action.

3.5.1 ADOPT LEGISLATION FORMALIZING MITIGATION PROGRAM

The framework for California's comprehensive mitigation program consists of a combination of actions taken by multiple stakeholders over time. These include:

- Executive orders requiring state agencies to work with each other and with the private sector on mitigation
- Legislative mandates directing state and local agencies to plan and undertake mitigation
- Voter approvals of major mitigation funding through bond elections
- Ongoing updating of risk assessments through statewide single-hazard plans
- Structural and non-structural mitigation actions taken by state agencies and commissions
- Regional agency coordination

Assembly Bill 2140

Assembly Bill (AB) 2140 (2006) provided post-disaster financial incentives for cities and counties that adopt their Local Hazard Mitigation Plans as part of general plan safety elements. Among other things, this bill:

1. Authorized cities and counties to adopt Local Hazard Mitigation Plans prepared under the terms of DMA 2000 as part of their mandated general plan safety elements.
2. Authorized the legislature to provide to such cities or counties a state share of local costs exceeding 75 percent of total state-eligible post-disaster costs under the California Disaster Assistance Act.
3. Required Cal OES to give preference for grant fund assistance for developing and adopting an LHMP to local jurisdictions that had not adopted such a plan.

Implementation of AB 2140 has held out promise of several benefits including: 1) a widened number of jurisdictions preparing LHMPs synchronized with general plan safety elements, 2) provision of new opportunities for linking state and local policies related to development in hazard-prone areas, and 3) greater support for local governments seeking to reconcile tensions between development pressure and safe land use planning practices.

Progress Summary 3.A: AB 2140 Implementation

Progress as of 2013: Since it went into effect in 2007, AB 2140 has enabled cities and counties to qualify for special post-disaster funding periodically available under the California Disaster Assistance Act. Following publication of the 2010 SHMP, certain key cities and counties such as San Francisco and Santa Barbara County have formally jointly adopted their LHMPs with the safety elements of their general plans. Such jurisdictions will benefit from post-disaster financial incentives built into AB 2140. Other jurisdictions are encouraged to follow suite.

State Flood Management Initiatives

California voters have approved billions of dollars in bonds over the years to finance various critical infrastructure improvements and retrofit projects. A November 2006 bond election resulted in provision of $4.9 billion of levee repair funding. The 2006 levee bond election led to formation of the Department of Water Resources' Delta Risk Management Strategy (DRMS) program and to initiation of a comprehensive flood mitigation program in the Central Valley. In 2008 the Delta Vision Report prepared by a blue ribbon

commission was published. It identified a long-term plan and program for managing Delta levee, water supply and use, and environmental issues, as well as a wide range of flood management projects.

For a full discussion of the status of recent flood management initiatives, see Chapter 5, Section 5.3.6.

Flood Hazard Mitigation Legislation

The successful bond election of 2006 was followed in October 2007 by passage of a major flood legislation package supporting integration of local land use planning with state floodplain mitigation actions. The primary bill was AB 162, which among other things required cities and counties to:

- Employ the land use element to identify and annually review areas subject to flooding identified by floodplain mapping prepared by FEMA or the Department of Water Resources
- Identify in the conservation element rivers, creeks, streams, flood corridors, riparian habitat, and land that may accommodate floodwater for purposes of storm water management
- Establish in the safety element (and other elements which must be consistent with the safety element according to state law) a set of comprehensive goals, policies, and objectives for protection of the community from unreasonable risks of flooding
- Review and identify in any updated housing element new flood hazard information that was not available during the previous revision of the safety element (and all elements of a general plan, whether mandatory or optional, must be consistent with one another)

Progress Summary 3.B: Flood Mitigation Handbook

Progress as of 2013: A handbook for local implementation of AB 162 and other 2007 flood legislation, titled "Implementing California Flood Legislation into Local Land Use Planning: A Handbook for Local Communities," prepared by the Department of Water Resources was distributed to cities and counties throughout the state in late 2010. The handbook functions as a supplement to the OPR 2003 General Plan Guidelines. Cities and counties are mandated by AB 162 and the related legislation to follow requirements regarding general plan preparation and other local planning matters. The flood legislation handbook will help them in establishing compliance with the new law. The handbook can be found at: www.water.ca.gov/LocalFloodRiskPlanning/

Central Valley Flood Protection Plan

Additional provisions of AB 162 were included for cities and counties within a specific area within the boundaries of the Sacramento-San Joaquin Drainage District. These provisions were included in conjunction with related provisions in companion bill Senate Bill SB 5 (2007) which sought to address problems of flooding in the Central Valley by directing the California Department of Water Resources (DWR) and the Central Valley Flood Protection Board to prepare and adopt a Central Valley Flood Protection Plan (CVFPP) by mid-2012. The purpose of the CVFPP was to improve flood management in areas receiving flood protection from existing facilities constructed under the State Plan of Flood Control.

SB 5 (2007) mandated that cities and counties within the boundaries of the Central Valley Flood Protection District amend their general plans and zoning to be consistent with the Central Valley Flood Protection Plan prepared by the Central Valley Flood Protection Board, and to deny subdivisions within flood hazard zones where flood protection is not provided or planned. Another bill, AB 70, provided generally that following the failure of a state flood control project a city or county may be required to assume a fair and reasonable share of the increased flood liability caused by its unreasonable approval of developments.

Progress Summary 3.C: Central Valley Flood Protection Plan Consistency

Progress as of 2013: In 2012, major action was taken by the Sacramento-San Joaquin Drainage District to adopt the Central Valley Flood Protection Plan (CVFPP). In related action, the legislature passed SB 1278 (2012) and AB 1965 (2012) which extended the time originally provided by SB 5 (2007) for localities to make their general plans consistent with the CVFPP. Among other things, these bills 1) established a July 2013 deadline for the Department of Water Resources (DWR) to complete 200-year floodplain mapping within this area, 2) allowed cities and counties in this area to take up to two years after July 2013 to amend their general plans to be consistent with the CVFPP together with a year beyond that to amend their zoning, 3) required amended city and county general plans to include data and analysis contained in the CVFPP and other flood hazard zones mapping, and 4) required cities and counties after July 2016 to make findings related to urban flood protections levels using criteria developed by DWR. For more detailed information regarding SB 1278 see Section 5.3.5.2.

Related Environmental Legislation

In November 2009, California legislation known as the Delta Reform Act was passed to address water supply reliability and Delta ecosystem health. The act, effective February 3, 2010, culminated in the creation of the Delta Stewardship Council (DSC) to achieve the state-mandated coequal goals for the Delta. The DSC's coequal goals are: 1) providing a more reliable water supply for the state and 2) protecting, restoring and enhancing the Delta ecosystem.

Progress Summary 3.D: The Delta Plan

Progress as of 2013: The Delta Plan is a long-term integrated management plan for the Delta that includes a management structure to foster coordination among multiple state and local agencies involved in the area and new rules to help achieve the coequal goals of water supply reliability and Delta ecosystem restoration and enhancement. The Delta Stewardship Council voted unanimously to adopt the Delta Plan in May 2013. The plan will become legally enforceable pending approval by the state Office of Administrative Law and filing with the California Secretary of State. For more information on the Delta Stewardship Council and the Delta Plan visit: http://deltacouncil.ca.gov.

Fire Hazard Legislation

Public Resources Code Sections 4201 through 4204 and Government Code Sections 51175 through 51189 direct 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. Referred to as Fire Hazard Severity Zones (FHSZs), these areas define the application of various mitigation strategies to reduce risk associated with wildland fires. Additionally, wildland urban interface (WUI) zones in unincorporated county areas, known as State Responsibility Areas (SRAs), were updated in 2007 when the Board of Forestry adopted revised Fire Hazard Severity Zones (FHSZ) for SRAs covering a total of over 31 million acres.

Government Code Sections 51175 and 51178 describe CAL FIRE's responsibility for adopting and implementing Fire Hazard Severity Zones (FHSZ) in WUI zones in State Responsibility Areas (SRAs) and in incorporated city areas, known as Local Responsibility Areas (LRAs). CAL FIRE has worked with local agencies to refine implementation of "Firesafe" regulations in Very High Fire Hazard Severity Zones (VHFHSZ).

Progress Summary 3.E: Senate Bill 1241 Wildfire Legislation

Progress as of 2013: Senate Bill SB 1241 (2012) is a bill requiring local governments in State Responsibility Areas (SRAs) and Very High Fire Hazard Severity Zones (VHFHSZ) to 1) update their general plan safety elements (and all elements of a general plan, whether mandatory or optional, must be consistent with one another) to recognize specific wildfire risks in such areas, 2) adopt special findings when approving subdivisions in such areas, and 3) use wildfire safety guidelines and California Environmental Quality Act (CEQA) initial study wildfire hazards checklist updates issued by the Governor's Office of Planning and Research (OPR) when those become available. For further information on the details and implications of implementation of SB 1241 see Chapter 5, Section 5.4.4.1.

3.5.2 STRENGTHEN INTER-AGENCY COORDINATION

Coordination among state and federal agencies is essential both for preparing the 2013 SHMP and implementing it successfully. A major step forward in coordination during the preceding 2010 SHMP planning cycle was formal consolidation of the former Governor's Office of Emergency Services (OES) and the California Governor's Office of Homeland Security (OHS) into a single, Cabinet-level agency. This was followed by renaming the consolidated agency with the prior title of the California Governor's Office of Emergency Services (now known as Cal OES), as of July 1, 2013. The benefit of this reorganization was the added focus on the relationship between Cal OES and the executive power of the Governor, giving Cal OES clearer authority to act on the Governor's behalf during emergencies.

Federal-State Coordination

In addition, federal-state coordination is facilitated through various formal and informal ad hoc consultation processes, including catastrophic event preparedness planning that has examined the role of mitigation in easing response and recovery requirements, as well as federal-state coordination related to emerging mitigation issues involving tsunamis, levee failure, flood hazards, and extensive fires in wildland-urban interface (WUI) areas.

Restructuring the SHMT

At the heart of this federal-state coordination is the State Hazard Mitigation Team (SHMT), restructured during the 2010 SHMP cycle into four working groups:

- Cross-Sector Communications and Knowledge Sharing Working Group
- Mitigation Progress Indicators and Monitoring Working Group
- Geographic Information Systems Technical Advisory Working Committee (GIS TAWC)
- Land Use Mitigation Working Group

Comprised of over 80 agencies and related organizations having responsibility for state-mandated hazard mitigation activities, the SHMT has been instrumental in implementation of the 2010 SHMP and parallel development of the 2013 SHMP through contributions of substantial new information about public and private sector hazard mitigation initiatives.

As summarized in Chapter 1, the SHMT met continuously as a whole from 2009 through 2011, and again from January 2013 through the present, to provide information regarding new laws, hazard conditions, and mitigation actions taken during the past three years. Through the four working groups, the SHMT carried out a variety of functions related to implementation the 2010 SHMP. The following section details some of these activities.

Progress Summary 3.F: SHMT Working Group Initiatives

Progress as of 2013: The State Hazard Mitigation Team (SHMT) was strengthened through formation of four strategic working groups meeting on ongoing implementation of the 2010 SHMP. As detailed further below, the Cross-Sector Communications and Knowledge-Sharing Working Group examined messaging and communications challenges across public and private sector organizational boundaries; the Mitigation Progress Indicators and Monitoring Working Group explored methods for enhancing mitigation progress tracking; the Geographic Information Systems Technical Advisory Working Committee (GIS TAWC) met with the Natural Resources Agency and other groups to launch MyPlan, an Internet Mapping Service (IMS) designed to provide local governments convenient single-access for GIS hazards mapping otherwise only available on multiple sites; and the Land Use Mitigation Working Group explored further issues of regional-local mitigation planning coordination. In addition, separate ad hoc working and advisory groups were formed to guide the preparation of the Adaptation Planning Guide and the California Vital Infrastructure Vulnerability Assessment (Cal VIVA) projects. Details of the strategic working group and the GIS TAWC recommendations are found below.

State-Local Coordination

Continuing assessment of LHMPs of cities, counties, and special districts has paralleled the SHMT process. Each agency on the SHMT represents a potential link between state and local government. Most state agencies have long-established relationships with emergency managers, city managers, county administrative officers, and other local government officers.

Since adoption of the 2007 SHMP, California has made significant progress in coordination of state and local hazard mitigation planning. Cal OES is interacting with the SHMT and local governments to more closely link hazard mitigation planning definitions, criteria, standards, and best practices between the state and local levels. During preparation of the 2013 SHMP, 374 FEMA-approved LHMPs were reviewed in order to identify ways to assess and further coordinate local and state hazard mitigation planning and improve LHMP quality. Findings regarding the 2013 LHMP review are included in Section 2.5 and Annex 5.

Progress Summary 3.G: LHMP Quality Improvements

Progress as of 2013: Under federal regulations (44 CFR 201.6), LHMPs must incorporate a plan maintenance process for updating each plan at least once every five years. Cal OES has used findings from prior LHMP assessments to develop guidance and training materials for local governments presented through a LHMP Training Program initiated in 2010. LHMP training workshops have been conducted in various parts of the state. Additionally, a major outreach effort toward improving LHMP quality launched in late 2011 is MyPlan, an Internet Mapping Service (IMS) providing a single online location for GIS natural hazards mapping otherwise available only from separate multiple sources. MyPlan is designed to improve the quality of local government risk assessments related to LHMP updates. Also, administrative procedures in the grant application review process have been changed to reflect this new quality improvement emphasis. For example, applications by local governments for hazard mitigation grant-funded projects must reference MyPlan as a common source of hazards and risk relation information.

Findings regarding the most recent review of FEMA approved five-year LHMP updates may be found in Chapter 2 and in Annex 5, California Local Hazard Mitigation Plan Status Report.

3.5.3 BROADEN PUBLIC AND PRIVATE SECTOR MITIGATION LINKAGES

During preparation and implementation of the 2010 SHMP, Cal OES extended its outreach to public and private sector organizations. Cal OES expanded direct outreach contacts with a broad range of interests established before and during the public review and comment period for the draft SHMP. Public communications issues examined through an online survey distributed to business and professional associations, local governments, and metropolitan planning organizations (MPOs) during 2010 SHMP

preparation were expanded during implementation to include a series of focused outreach meetings by the Cross-Sector Communications and Knowledge-Sharing Working Group.

Cross-Sector Communications and Knowledge-Sharing Working Group

Formed for the purpose of building collaboration between public sector, business and nonprofit private sector organizations to increase California's long-term resiliency, the Cross-Sector Communications and Knowledge-Sharing Working Group initially met in 2009 and 2010 in conjunction with preparation of the 2010 SHMP.

Subsequently, it met regularly during 2011 to explore cross-sector communications in greater depth and to chart a more definitive course. After several outreach efforts and work group discussions, it recommended that the Cross-Sector Communications and Knowledge Sharing Working Group develop appropriate messaging and collaborate with key organizations to identify effective forums for facilitating a dialogue regarding hazard mitigation. Recommendations emerging from the 2011 meeting series include the following:

1. *Identify, clarify, and refine custom messages for key stakeholder groups*. Several types of stakeholder organizations were identified with initial priority given to elected officials.

2. *Prepare and provide materials for identified key organizations to disseminate to their membership.* These materials include custom messages designed to resonate with the audience regarding how mitigation programs benefit them.

3. *Offer custom presentations (at conferences or similar association meetings) to promote mitigation programs to key stakeholder groups.* Several contacts with key organizations have been established and may be used for scheduling presentation opportunities.

4. *Integrate custom messaging into the Cal EMA Hazard Mitigation Web Portal*. The website should be clear and easy to use by local, private, and non-profit stakeholders.

5. *Support other working groups*. The Cross-Sector Communications and Knowledge Sharing Working Group has established contacts with several statewide public and private organizations that should be helpful to the other strategic working groups.

For a report on the outcome of the working group meetings held during 2011, see Appendix K.

Progress Summary 3.H: Cross-Sector Communications Working Group

Progress as of 2013: Cal EMA extended its outreach to citizen, business, and local government groups during the previous planning cycle, including sponsorship of the 2010 online survey distributed to business and professional associations, local governments, and metropolitan planning organizations (MPOs). These outreach efforts were supplemented by meetings of the Cross-Sector Communications and Knowledge-Sharing Working Group which initially was formed in 2009 and met during 2010. Following adoption of the 2010 SHMP, the working group continued meetings during 2011 to refine certain recommendations, including: tailoring of mitigation messaging for key stakeholder groups; provision of materials for dissemination to key organization memberships; preparation of custom presentations to key groups to promote mitigation; Integration of custom messaging into the Hazard Mitigation Web Portal; and extension of stakeholder organizational contacts to other strategic working groups.

3.5.4 SET TARGETS FOR MEASURING FUTURE PROGRESS

The 2010 SHMP explored the idea of setting near- and long-term mitigation targets by which to measure implementation progress. This is especially important for risk reduction actions related to primary hazards such as earthquakes, floods, and wildfires.

Strategic targets established for hazard mitigation can include quantified objectives expressing the numbers of vulnerable buildings to be identified and/or retrofitted by type of structure, other measurable outcomes reached, or a certain time deadline. Common factors are 1) determination of reasonable targets, 2) establishment of means by which progress can be measured, and 3) dates by which action must be completed.

Sometimes targets are broadly stated. For example, a state-initiated performance target-setting was Senate Bill 547 (1986) which required California cities and counties in high seismicity regions (previously referred to as Seismic Zone 4) of the Uniform Building Code then in force, to identify all "potentially hazardous" buildings (in this case, unreinforced masonry or unreinforced masonry structures) within their boundaries by January 1, 1990.

An example given in the 2010 SHMP of strategic target-setting included seismic retrofit targets established by Health and Safety Code Section 130050 et seq., expressed in terms of time:

- By 2013, replace or retrofit all acute care hospitals posing a significant risk to life in the event of earthquakes
- By 2030, replace or retrofit all acute care hospitals that will not be immediately occupiable and reasonably capable of providing emergency services after earthquakes

While they do not include numbers, these targets state conditions by which progress can be measured and determined. Other examples in California law include time targets, numerical targets, and certain programmatic requirements.

An example of a target reflecting programmatic requirements as well as a numerical target and deadline date is AB 32 (2006) which requires the California Air Resources Board (CARB) to develop regulations and market mechanisms to reduce California's greenhouse gas (GHG) emissions to 1990 levels by 2020, representing a 25 percent reduction statewide. This statewide GHG emission reduction target was subsequently strengthened by SB 375 (2008), which charged California's metropolitan planning organizations (MPOs) with establishing regional GHG emissions reduction targets meeting this overall statewide target.

It should be noted that setting hazard mitigation performance targets is a highly complex and expensive undertaking that implies the existence or development of capacity to measure progress against a given target. Given the size and complexity of California, establishment and administration of numerical hazard mitigation targets against which specific progress can be measured is a costly long-term undertaking requiring a strong policy commitment from within the highest levels of the state.

Mitigation Progress Indicators and Monitoring Strategic Working Group

Formed for the purpose of tracking mitigation progress and recording successful outcomes toward increasing California's long-term resiliency, the Mitigation Progress Indicators and Monitoring Strategic Working Group initially met in 2009 and 2010 in conjunction with preparation of the 2010 SHMP.

Subsequently, it met regularly during 2011 to explore mitigation progress monitoring in greater depth and to chart a more definitive course. Defining what constitutes mitigation progress and developing a framework for collecting, documenting, and disseminating that progress were the central themes

addressed by this working group. The challenge moving forward was to identify and refine key baseline data, institutionalize progress tracking, and provide a forum for highlighting and sharing success stories and best practices to support mitigation planning, programs and practices. Specific recommendations from the 2011 meeting series include the following.

1. *Track mitigation progress on a consistent and continuing basis*. Systematic access to easy to use reporting tools, such as the SHMP Progress Report Form being developed for the Cal EMA Web Portal, will provide for ongoing updates on mitigation projects and programs

2. *Seek good examples of mitigation progress that address a variety of hazards and program types.* Three case study examples of mitigation addressing each of the state's primary hazards of earthquake, flood, and wildfire were presented for in-depth discussion by the Working Groups during 2011

3. *Require Local Hazard Mitigation Plans (LHMPs) and plan updates to include progress reports on status of key state mitigation legislation/requirements*. Local hazard Mitigation Plans provide the best snapshot of mitigation being implemented by local jurisdictions and special districts

4. *Incorporate local and private sector mitigation progress into the 2013 SHMP*. The primary focus of the SHMP is to document mitigation programs carried out by state agencies and guided by state legislation. The Progress Report Form currently under development is one mechanism for collecting data

5. *Produce and publish state, local, and private sector mitigation success stories on the Cal EMA Mitigation Web Portal.* Mitigation success stories identified by the working groups or other means must be documented and shared with the larger community of mitigation professionals

6. *Incorporate mitigation indicators baseline data into Cal EMA GIS or MyPlan.* Several potential sources for baseline data have been identified by the Mitigation Progress Indicators and Monitoring Strategic Working Group

7. *Cross-pollinate with other working groups and planning activities*. There are overlapping themes and commonalities between the Mitigation Progress Indicators and Monitoring Strategic Working Group and the Cross-Sector Communications Working Group, the Land Use Working Group, and the GIS TAWC

For a report on the outcome of the working group meetings held during 2011, see Appendix K.

Progress Summary 3.I: Mitigation Progress Indicators and Monitoring Working Group

Progress as of 2013: During the SHMT strategic planning process, special attention has been given to the real-life challenge of setting near- and long-term mitigation targets and risk reduction priorities on a statewide basis, particularly those related to primary hazards such as earthquakes, floods, and wildfires. Intensive discussion of this strategic action component was undertaken by the Mitigation Progress Indicators and Monitoring Strategic Working Group during 2009 and 2010 in conjunction with preparation of the 2010 SHMP. Following adoption of the 2010 SHMP, the working group continued meetings during 2011 to focus and refine certain recommendations, including: tracking mitigation progress on a consistent and continuing basis, seeking good examples of mitigation progress that address a variety of hazards and program types, requiring Local Hazard Mitigation Plans (LHMPs) and plan updates to include progress reports on status of key state mitigation legislation/requirements, incorporating local and private sector mitigation progress into the 2013 SHMP, publishing public and private sector mitigation success stories on the Mitigation Web Portal, incorporating mitigation indicators baseline data into MyPlan, and cross-pollinating with other strategic working groups

3.5.5 ENHANCE DATA SYSTEMS AND GIS MODELING

During implementation of the 2010 SHMP significant steps have been taken to expand on previous progress toward enhanced geographic information systems (GIS) development. One such step is MyPlan, a new Internet Map Service (IMS) designed to provide single-source access to GIS hazard mapping otherwise available only from multiple sources. MyPlan builds on previously established enhancements to disaster history tracking, GIS modeling showing a sub-county multi-hazard risk assessment, and upgraded mitigation grant project tracking and location geocoding.

The purpose of MyPlan is to improve the quality of hazards and risk assessment by local communities in preparing Local Hazard Mitigation Plans (LHMPs), general plan safety elements (and all elements of a general plan, whether mandatory or optional, must be consistent with one another), and Local Coastal Programs (LCPs). MyPlan complements the preexisting IMS known as MyHazards which was established to provide homeowners, property owners, and residents with natural hazards data in response to simple queries involving a location or address. Data accessible in MyHazards on a more localized, neighborhood scale includes hazards such as flood, fault, liquefaction, and landslide zones. Mitigation strategies are also displayed based on applicability to that particular hazard. Users are provided links that explain how to complete mitigation actions.

GIS Technical Advisory Working Committee

The Geographic Information Systems Technical Advisory Working Committee (GIS TAWC) has met since 2009 to advance GIS in hazard mitigation and to assist in the SHMP update process. Formed for the purpose of building a website (MyPlan) to assist local governments in undertaking more effective Local Hazard Mitigation Plans and hazard mitigation grant projects, the GIS TAWC was created jointly by Cal OES, the California Natural Resources Agency (CNRA), and other participating entities.

The second phase of MyPlan development is anticipated with the support of GIS TAWC and the same collaborating entities. Phase 2 is seen as an enhancement, with modifications and adjustments to meet broader needs, including addition of available data layers jointly seen as valuable, such as dam inundation areas, wildland-urban-interface (WUI) areas, and fire threat projections.

Phase 2 funds have recently become available through a federal grant through FEMA Region IX which is interested in expansion of MyPlan on a multi-state basis. Preliminary discussions for expansion to other states have been held during the past two years since MyPlan's launch.

Interstate GIS Committee discusses pending MyPlan web portal supporting Local Hazard Mitigation Plans and projects in FEMA Region IX

Progress Summary 3.J: GIS TAWC and MyPlan

Progress as of 2013: The GIS Technical Advisory Working Committee (GIS TAWC), formed to guide mitigation-related GIS applications, met as a collaboration among Cal OES, the California Natural Resources Agency, U.C. Davis, and GIS sponsor agencies to help launch in the fall of 2011 MyPlan, a new online GIS hazards data Internet Mapping Service (IMS) designed to assist local governments in undertaking more effective local hazard mitigation. Launched in the fall of 2011, the MyPlan IMS provides GIS web-based mapping to specialized local users such as planning, building, public works, and administrative professionals at the city, county, special district, and tribal organization levels, as well as consultants under contract with local jurisdictions, who are tasked with evaluating and mitigating natural hazards.

Key purposes of the MyPlan project are to: 1) create a single IMS to help cities, counties, special districts, and state agencies efficient access to existing online GIS hazards datasets acquired from various sites sponsored by multiple federal and state agencies; and 2) support preparation of higher quality Local Hazard Mitigation Plans (LHMPs) prepared under the Disaster Mitigation Act of 2000 (DMA 2000), safety elements mandated by California general plan law, Local Coastal Programs (LCPs) prepared under the California Coastal Act, and publicly or privately sponsored hazard mitigation projects.

MyPlan is primarily targeted to users who need to create hazard maps for publication in local planning documents. Output includes high-resolution screenshots of user-created maps. MyPlan provides the ability to create GIS-based, hazard mitigation-related maps without using dedicated GIS software. Users are able to turn on and off base and hazard layers to create a custom map of their local area showing various hazards over a standard base map, adding selected base layers as desired.

For information on the MyPlan User Guide, see Appendix R.

3.5.6 ESTABLISH MITIGATION REGISTRY FOR COMMUNICATING PROGRESS

During preparation of the 2010 SHMP, the SHMT discussed the desirability of establishing with state and local agencies and the private sector a web-based registry of mitigation projects featuring a statewide database publicizing local experiences in mitigating various types of hazards, especially the primary hazards of earthquakes, floods, and wildfires. Such a database would represent valuable information on mitigation to be systematically organized over time into a broader registry accessible on the Cal OES Hazard Mitigation

Web Portal to enhance hazard mitigation strategies undertaken by state and local governments, businesses, and community organizations.

As a substantial step forward, the Cal OES Hazard Mitigation Web Portal is becoming an interim repository for a majority of previously reviewed FEMA-approved LHMPs in California, as well as success stories describing mitigation best practices examples. This provides public access to information in these plans and a foundation for the beginnings of a statewide hazard mitigation registry.

Another positive prospect lies with potential development and online availability of substantial portions of the Mitigation Grant Management (MGM) covering FEMA hazard mitigation grants issued in California, together with implementation of the SMART system, described in Section 3.5.7. The latter two sources, when placed online, will provide data on federal mitigation grant projects (HMGP, PA, FMA, etc.) underway or completed, together with SMART post-disaster reconnaissance assessments of completed projects.

The Mitigation Progress Indicators and Monitoring Strategic Working Group collaborated with the full SHMT during 2011 to prepare a Mitigation Progress Report Form by which to report updates to the SHMP, mitigation success stories, and locally significant mitigation progress. This form, recently placed online, has been used by SHMT members and others during formulation of the 2013 SHMP, and is expected to establish the basis for a future mitigation progress and project registry that can be integrated into MyPlan.

Ultimately, as funding becomes available, the MyPlan online GIS hazards mapping IMS represents the most promising long-term vehicle for establishment of a mitigation registry. The primary reason for this is that MyPlan would provide a geographic frame of reference for mitigation progress and best practices examples.

Progress Summary 3.K: Mitigation Action Registry

Progress as of 2013: During implementation of the 2010 SHMP, discussions among the Mitigation Progress Indicators and Monitoring Working Group, Cross-Sector Communications and Knowledge-Sharing Working Group, and GIS TAWC have explored various opportunities to advance the registry concept. The Mitigation Progress Indicators and Monitoring Working Group collaborated with the full SHMT during 2011 to prepare a Mitigation Progress Report Form by which to report ongoing mitigation progress at various levels and between sectors. Although implementation of the registry concept has been slowed by staffing and budget cuts experienced by state and local governments, success stories and adopted LHMPs have been placed online through the Cal OES Hazard Mitigation Web Portal. The online launch of MyPlan in late 2011 represents the most significant breakthrough toward long-term development of a potential mitigation registry. By adding a geographic component, success stories and mitigation progress can become more meaningful to local stakeholders seeking to improve hazard mitigation planning, projects, and practice.

3.5.7 IMPLEMENT SMART POST-DISASTER LOSS AVOIDANCE TRACKING

During preparation of the 2007 SHMP the concept of the State Mitigation Assessment Review Team (SMART), a post-disaster loss-avoidance tracking system, was first introduced. The purpose of SMART is to assess federally-funded mitigation projects completed prior to a disaster after the event to establish a record of the effectiveness (actual cost avoidance) of the mitigation actions. SMART system objectives were to assess the outcome of previously funded mitigation projects in a disaster area by 1) ascertaining loss avoidance performance at a given level of intensity of an event, and 2) identifying effectiveness of mitigation practices.

SMART was described in the 2010 SHMP as operating in two steps. Step 1 was to conduct overall reconnaissance using GIS to determine locations of federally-funded mitigation projects completed prior to the disaster, together with interviews with involved local project administrators to determine general post-disaster outcomes. Step 2 was where practicable, conduct detailed field evaluations of projects to

determine cost-effectiveness. At Step 2, more intense level loss avoidance effectiveness was to be assessed by onsite review and documentation based on the project Benefit Cost Analysis (BCA).

Post-disaster staffing for SMART field evaluations would be provided by Cal OES-certified faculty from the California State University (CSU) system from among its 23 campuses, acting in their role as Disaster Service Workers. Their assistance would be available under a joint Memorandum of Understanding (MOU) between Cal OES (formerly Cal EMA) and the CSU system signed in June 2010 during preparation of the 2010 SHMP.. The MOU establishes a broad base of technical support for detailed post-disaster SMART field evaluations (see Appendix X).

A pilot study undertaken by California Polytechnic State University – San Luis Obispo (Cal Poly) on a completed FEMA-funded mitigation project in Yountville was described in detail in the 2007 SHMP. A second SMART detailed project field evaluation was conducted in 2009 after the devastating Santa Barbara County Tea Fire in November 2008 (DR – 1731) in connection with parcels previously acquired for landslide mitigation. An overall benefit to cost ratio was calculated as part of the Tea Fire assessment, indicating an overall benefit ratio of 1.75 for this one event.

Implementation of the SMART field evaluator training system was undertaken largely in 2011. A key activity was the conduct of several field evaluator training and certification workshops by Cal Poly on behalf of Cal OES. The objective was to substantially expand the pool of qualified SMART field project evaluators through training and certification. When completed, the SMART workshops had trained 37 faculty members drawn from various campuses and fields of expertise, all with capability in BCA methods.

Cal OES has subsequently carried out ongoing post-disaster SMART reconnaissance activities (Step 1 described above) following federally declared disasters, including DR 1952 – Winter Storms of 2010, yielding several candidate project sites that hold promise for productive detailed field investigations. One project is in Santa Barbara County, and two others are in Orange County. A detailed field investigation with participation from Cal OES staff, Cal Poly faculty, and trained faculty from another CSU campus is pending (Step 2 described above).

Progress Summary 3.L: SMART Post-Disaster Loss Avoidance Tracking

Progress as of 2013: With the 2010 SHMP, the State Mitigation Assessment Review Team (SMART) post-disaster loss avoidance tracking system was refined to include a two-tier process: 1) an overall post-disaster reconnaissance to determine locations of mitigation projects completed prior to the disaster, together with general determination of project outcomes; and 2) detailed field investigations to determine cost-effectiveness. At the first-tier level, the overall post-disaster reconnaissance includes use of GIS to determine locations of mitigation projects completed prior to the disaster, together with interviews of local project managers to determine general post-disaster outcomes. At the second-tier level, loss avoidance effectiveness is assessed by onsite review and preparation of a detailed project Benefit Cost Analysis (BCA). Post-disaster staffing is provided by Cal OES-certified faculty from the California State University (CSU) system from among its 23 campuses, under a joint Memorandum of Understanding (MOU) between Cal OES and the CSU system completed in mid-2010. Training workshops jointly conducted by California Polytechnic State University (Cal Poly) and Cal OES in 2011 yielded a total of 37 trained faculty members from various CSU campuses.

A detailed field investigation for projects completed prior to DR 1952 – Winter Storms of 2010 – was completed in August 2013. For more information regarding SMART see Section 7.4.1.

3.5.8 CONNECT LAND USE MITIGATION WITH REGIONAL PLANNING

During implementation of the 2010 SHMP, Cal OES's stated intention has been to encourage metropolitan planning organizations (MPOs), regional transportation planning agencies (RTPAs), and councils of governments (COGs) to include hazard mitigation planning within regional planning. In the 2010 SHMP, Cal OES included a strategy to jointly pursue integration of state and local hazard mitigation planning with ongoing regional planning efforts. Integrated regional planning efforts that include broad-based stakeholder involvement lend themselves to integration of natural hazard mitigation considerations as part of comprehensive planning at a regional scale.

An opportunity to move in this direction was afforded by Senate Bill 375 (2008) which called upon California's MPOs to establish regional greenhouse gas (GHG) emissions reduction targets that combine to meet the overall statewide target of reducing statewide emissions to 1990 levels by 2020. A Strategic Growth Council (SGC), a cabinet-secretary-level body, was formed to coordinate the issuance of guidelines for grant funds to be used by MPOs, RTPAs, and COGs in the pursuit of strategic growth planning by which regional GHG reduction could be determined.

Land Use Mitigation Strategic Working Group

The Land Use Mitigation Strategic Working Group was formed for the purpose of strengthening land use mitigation methods to increase California's long-term resiliency. It initially met in 2009 in conjunction with 2010 SHMP preparation. The working group found that land use is primarily a local issue yet is guided by state mandates, that mitigation needs to be viewed as a component of sustainability, and that cost-effectiveness is an important incentive for local mitigation actions.

The working group then met during 2011 to explore land use mitigation opportunities in greater depth and chart a more definitive course, conducting a series of meetings focused specifically on sustainable growth planning under SB 375 (2008) in relation to flood hazard mitigation legislation, including AB 162 (2007), and SB 5 (2007). Discussions benefited from the active participation of representatives from federal, state, and regional agencies (COGs and MPOs); local governments; and emergency managers. Participation of such diverse entities was intended to improve understanding of the linkages between various state mandates as well as to encourage collaborative planning.

The Land Use Mitigation Working Group focused on the growing concern over climate change and its anticipated effects and the ways in which this concern is playing out in California planning practice. Awareness of climate change has spawned a flurry of legislation and multi-level planning/work efforts aimed at reducing greenhouse gas (GHG) emissions, especially those associated with transportation. The key challenge that has emerged is how to integrate many parallel planning efforts that support hazard mitigation and planning for more sustainable communities.

Most regional planning efforts to enhance sustainability focus on incorporating smart growth principles into regional land use plans. These principles are aimed at encouraging more compact development in which residences, workplaces and transportation systems are integrated to reduce reliance on motor vehicles with the intended outcome of reducing transportation related GHG emissions.

By contrast, state-mandated hazard mitigation efforts tend to focus on local safety and resiliency based on natural disaster threats such as earthquake, flood and wildfire. This duality means that land use plans emphasizing GHG emissions reduction may overlook or conflict with plans designed to reduce vulnerability to natural hazards.

Recognizing these challenges, the Land Use Mitigation Working Group formulated 10 recommendations for possible actions that could be implemented through SHMT coordination to strengthen land use mitigation:

1. *Develop regional hazard mitigation initiatives in concert with SB 375 Sustainable Communities Strategies*

2. *Encourage Local Hazard Mitigation Plans (LHMPs) and special districts to tie into these regional hazard mitigation strategies; encourage regional agencies to integrate local hazard mitigation efforts into their plans*

3. *Continue to encourage the Strategic Growth Council (SGC) to add hazard mitigation as a priority grant-eligible planning activity supporting resilient and sustainable growth planning*

4. *Prioritize mitigation projects on a regional level such that they benefit multiple communities - e.g. money spent on regional flood control benefits many communities*

5. *Add a safety element* (and all elements of a general plan, whether mandatory or optional, must be consistent with one another*) update requirement to General Plan guidelines and require consistency with LHMP efforts*

6. *Encourage cities and counties to update the safety elements of their General Plans to meet the LHMP requirements rather than writing separate plans*

7. *Pursue incentives for integration of LHMPs with safety elements involving both Cal OES and FEMA grant programs*

8. *Emphasize cost-effectiveness as an important incentive for mitigation actions at the local level*

9. *Promote the concept of a one-stop mechanism supporting local government pursuit of grant programs*

10. *Compile and provide easy access to mapping initiatives that support land use and mitigation planning*

The working group emphasized the first four of these recommendations for primary consideration by the SHMT it its ongoing effort to encourage integration of hazard mitigation planning with regional planning.

For a report on the outcome of the working group meetings held during 2011, see Appendix K.

Progress Summary 3.M: Reconciling Regional Planning and Hazard Mitigation

Progress as of 2013: The SHMT Land Use Mitigation Strategic Working Group met during 2011 with representatives of regional planning entities in the San Francisco Bay region (Association Bay Area Governments or ABAG), Sacramento region (Sacramento Area Council of Governments or SACOG), and the San Joaquin region to explore methods of strengthening coordination between regional sustainability planning under SB 375 (2008) and local hazard mitigation planning under SAB 162 (2007), with special attention to integration of flood hazard mitigations. The working group acknowledged that legislatively mandated regional planning to enhance sustainability may focus on incorporating smart growth principles aimed at generating more compact development to reduce reliance on motor vehicles with the intended outcome of reducing GHG emissions. By contrast, the working group noted that mandated hazard mitigation focuses on local safety-related actions taken to lessen the effects of natural hazards, such as floods. Thus, land use plans that emphasize reducing GHG emissions may overlook or be in conflict with those designed to reduce vulnerability to hazards. However, under SB 5 (2007), flood hazard mitigation planning is being coordinated on a regional basis through adoption and implementation of the Central Valley Flood Protection Plan. For more information on that process, see Section 3.5.1 in this chapter.

3.6 COMPREHENSIVE MULTI-AGENCY MITIGATION ACTION PROGRAM

As can be seen from the preceding progress statements in Section 3.5, California effectively uses a multi-agency approach, capturing the energy and resources of multiple state and local agencies as well as the private sector to make advances in natural hazard mitigation and disaster loss reduction. State agencies are tasked by statute and executive orders to provide mitigation programs related to specific hazards. Mitigation actions stemming from these separate authorizations are knit together into a comprehensive multi-agency mitigation action program, as described below.

3.6.1 MULTIPLE FUNDING SOURCES

As noted in Chapters 5 through 7, billions of dollars of state, local, and private funds are committed to hazard mitigation efforts in amounts far exceeding those administered by FEMA under the Disaster Mitigation Act and Flood Insurance Act grant program authorizations. This multi-agency approach is coordinated, yet decentralized. Operating through separate agency programs, the state's comprehensive mitigation program is fiscally supported by a variety of financial sources, including general funds, bonds, fees, and federal grants, as described more fully in Annex 4, Public Sector Funding Sources.

Thus, no single agency directs or has authority over all hazard mitigation actions and resources. Instead, because of California's size and complexity, the model is that of a distributed system of coordinated mitigation action. Within that, each agency seeks to avoid conflict or redundancies of its mitigation programs with those of other agencies, regardless of the funding source. For example, Caltrans administers a multi-billion dollar freeway bridge seismic retrofit and replacement program under separate funding authorized by voters and the California legislature. The same is true for the Department of Water Resources, which is overseeing a multi-billion dollar levee strengthening program with funds authorized by the voters.

3.6.2 COORDINATION OF MITIGATION ACTIONS

In this multi-agency context, coordination of mitigation planning and action priorities is undertaken through a variety of means, including cross-referencing of common mitigation objectives in separate agency plans as well as a variety of joint inter-agency coordination mechanisms, both formal and informal. Within each agency, coordination is exercised at both the management and field levels.

The SHMT has played an instrumental role in coordinating participating agencies at the management level in the preparation of this SHMP. It is now playing a critically important role in coordinating implementation of actions identified in the 2010 SHMP, monitoring progress, and conducting outreach to the private sector, in addition to preparing the 2013 SHMP. Coordination is focused at the statewide level in a wide variety of action areas specified by a broad range of programmatic legislation and executive orders.

Appendix L presents a matrix of mitigation actions identified in the 2013 SHMP, including the eight core strategic action program components described in Section 3.5.

3.6.3 COORDINATION OF MITIGATION ACTION PRIORITIES

Substantial variations exist in program authorization, staffing, budgetary resources, and capital programming among a variety of state and local agencies upon which the comprehensive multi-agency mitigation action framework depends (see the Multi-Agency Mitigation Action Matrix in Appendix L, see also Chapter 7 and Appendix Q). Prioritization of action items has been shown to be subject to ongoing modification through highly specific multi-centered initiatives in the form of new legislation, executive orders, local government actions, and private sector mitigation investments.

For this reason, the strategic action framework is included in the 2013 SHMP with the expectation that the SHMT can serve as a fulcrum for coordination. The SHMT is representative of a wide range of state agencies acting in a coordinated fashion to promote public and private sector mitigation funding investments of much greater magnitude than those represented by FEMA-administered programs such as HMGP, PDM, and FMA.

3.6.4 ROLE OF SHMT IN PLAN UPDATES

The SHMP is subject to regular review and systematic, ongoing updates. As pointed out earlier, the SHMP is a "living" document that reflects the state's ongoing hazard mitigation commitment, planning, and implementation actions. Therefore, monitoring, evaluating, and updating the SHMP is ongoing and critically important to the effectiveness of hazard mitigation in California.

In the 2013 SHMP, over 50 Progress Summaries track significant mitigation initiatives, strategies and actions underway or completed since adoption of the 2010 SHMP. A series of SHMT meetings has been held for this purpose, including multiple Strategic Working Group and GIS TAWC meetings, as described in detail in this chapter.

Cal OES monitors implementation of progress made toward plan goals and objectives, FEMA approval of Local Hazard Mitigation Plans (LHMPs), advances in hazards knowledge among other state agencies, changes in federal and state legislation, and performance of mitigation projects during hazard events, and grant administration. Additionally, Cal OES recommends new mitigation actions and tracks specific events such as new federally declared disasters

Evaluation of the SHMP is a function of multiple stakeholders, including Cal OES, member agencies in the SHMT, local governments, and the public. During previous revision of the 2007 SHMP, a major plan evaluation effort was undertaken through the SHMT and through public outreach, as described in Chapters 1, 3, and 7, and Annex 6.

The 2013 SHMP was prepared on the basis of a master outline designating content and approximate length of each chapter. Updates for each chapter were solicited by Cal OES from members following a SHMT kickoff meeting in January 2013. SHMT members submitted chapter and section updates for editorial integration by Cal OES and a faculty-student team at California Polytechnic State University-San Luis Obispo. An administrative draft 2013 SHMP was prepared by this team during the first half of 2013 and was followed by SHMT review and evaluation in the spring. A review of changes to each chapter was undertaken by the SHMT in June 2013. Revisions were included in a public review draft placed on the web in July 2013.

Recommendations for implementation of SHMP revisions and actions were based on 1) new technologies, such as use of the Cal OES web portal to disseminate plan concepts and to continuously collect information and comments; 2) new information from state agencies with scientific and/or regulatory responsibilities for hazard mitigation (e.g., additional California Geological Survey seismic mapping, CAL FIRE periodic wildfire risk map updates, and the Department of Water Resources' new flood maps and user handbook); and 3) adjustments to changes in federal or state laws, regulations, or policies.