

Emergency Management Sector Plan



AGRICULTURAL SECTOR PLAN



BIODIVERSITY AND HABITAT SECTOR PLAN



EMERGENCY MANAGEMENT SECTOR PLAN



ENERGY SECTOR PLAN



FORESTRY SECTOR PLAN



LAND USE AND COMMUNITY
DEVELOPMENT SECTOR PLAN



OCEANS AND COASTAL RESOURCES
AND ECOSYSTEMS SECTOR PLAN



PUBLIC HEALTH SECTOR PLAN



TRANSPORTATION SECTOR PLAN



WATER SECTOR PLAN





Emergency Management Sector Plan

Introduction

California (CA) promotes collaborative community-based planning and preparedness among stakeholders from all sectors of society and disciplines, working together to ensure effective response to emergencies (CA State Emergency Plan, 2009). Emergency management is a comprehensive system of policies, practices, and procedures designed to protect people and property from the effects of emergencies or disasters. It includes programs, resources, and capabilities to mitigate, prepare for, respond to, and recover in an all-hazards approach. While the scope, severity, and pace of future climate change impacts are somewhat difficult to predict, it is clear that the impacts will have bearing on emergency management capabilities and cause an increased need for services. The severity of emergencies is determined not only by the occurrence of natural events (that may be increasing in magnitude and frequency due to climate change), but also on the level of exposure and socio-economic vulnerability to those events (Safeguarding CA, July 2014).

Extreme weather is already changing the condition of emergency management. California continues to experience unprecedented drought conditions, which have already been occurring for more than four years. Destructive fires have also increased in their frequency, severity, and intensity - greatly impacting communities and the resources used to combat the fires. The toll of extreme weather events is being felt globally in terms of losses and costs: it is well documented that 2011 was one of the most costly years for natural disasters on record, in terms of the number and severity. Our approach to climate must be distributed and multi-faceted: public awareness, planning and increased resilience, and adjusting our resources and tactics to effectively respond and recover from future events. This plan describes how CA is moving forward to address climate in emergency management.

There are four phases of emergency management, and given the current and expected increase in climate change-related hazards projected for the future, climate must be considered in all phases:

1) Preparedness:

Activities conducted in advance of an emergency to develop operational capabilities and improve response to disasters and/or emergency events. This phase takes place before an emergency occurs, and can include plans and/or preparations made to save lives and to help response and rescue operations.

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2) **Response:** Activities conducted to save lives and prevent harm to the public, property, animals, and the environment during an emergency. This phase takes place during an emergency, and puts preparedness activities and plans into action.

3) **Recovery:** Activities that restore vital life-support systems to minimum operating standards after an emergency and support the return of communities to a (new) state of normalcy.

4) **Mitigation:** Actions taken to eliminate or reduce the severity of long-term risk to human/animal life, property, and the environment from the impacts of future disasters. This phase includes any activities that prevent an emergency, reduce the chance of an emergency happening, or reduce the damaging effects of unavoidable emergencies. Mitigation activities can take place both before and after emergencies.

The CA Governor’s Office of Emergency Services (Cal OES) has responsibility under the CA Emergency Services Act (ESA, Government Code Section 8550) to do, in part, the following:

- Support and act on behalf of the Governor’s Office during an emergency event
- Mission assign tasks to state agencies to be performed during an emergency
- Facilitate the rendering of mutual aid throughout the state

- Lead and direct state agency activities in support of local government during an emergency

Cal OES is also tasked with developing and maintaining a statewide emergency response system for use by all emergency response agencies

(ESA, Government Code Section 8607). The Standardized Emergency Management System facilitates prioritization of needs, interagency coordination, and the efficient flow of resources and information. SEMS is the state’s emergency response system and the fundamental structure for the response phase of emergency management. State agencies are required to use SEMS by law, and local government entities must use SEMS to be eligible for reimbursement of response-related costs under the state’s disaster assistance programs. SEMS by design is flexible and scalable.

The challenges posed by climate change could significantly alter the types and magnitude of hazards faced by communities within California and the emergency management professionals serving them. The Emergency Management Sector Implementation Plan, developed in support of *Safeguarding California: Reducing Climate Risk* (July 2014), describes an assessment of CA’s vulnerabilities as related to climate change (from

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an emergency management perspective), current emergency management actions being taken to prepare the state for both existing and future

climate impacts, and recommended next steps and strategies.

Vulnerability Assessment

CA is a wealth of diverse populations and geophysical and weather-related characteristics. CA’s geologic and geographic extremes are demonstrated by the fact that the state has both the highest and the lowest elevation points within the contiguous United States. Given this diversity, the climatic conditions vary significantly depending on latitude, elevation, and proximity to the coast (State of CA Emergency Plan, 2009). Climate impacts, such as more extreme weather events, sea level rise, changing temperature and precipitation patterns, and more severe and frequent wildfires, present new risks and uncertainties that will affect all phases of emergency management. Without actions to incorporate climate considerations into emergency management efforts, climate change will increase risk to public safety, property damage, and

emergency response and recovery costs to government and taxpayers (Safeguarding CA, July 2014).

As the effects of climate change continue to become more noticeable, vulnerability to the increased hazards associated with climate change is expected to surge for human and animal populations, the environment, and the state’s agricultural resources. The state is already vulnerable to a host of hazards, including earthquakes, floods, fires, volcanic eruptions, landslides, dam and levee failures, severe weather (including both atmospheric river storms and droughts), and tsunamis. Further hazards include emergencies related to hazardous materials,

nuclear power plants, cybersecurity, terrorist attack, pandemic/epidemic, and food and water supply (agricultural). Some of the direct impacts of climate change that create vulnerabilities that emergency managers must address include the following items.

INCREASING SURFACE AIR TEMPERATURES

The range of disasters and risks affected by increasing temperatures across California alone illustrate the breadth and severity of climate risks

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in the emergency management sector. While world leaders seek to limit global temperatures from rising more than 2° Celsius (3.6° Fahrenheit), California will potentially see temperature increases of up to 9 to 12 degrees in some regions, especially if global emissions are not reduced quickly and substantially.

The public health risks associated with even mild temperature rises are substantial due to the increased frequency and severity of heat waves. One report predicted that California could see up to 7,700 additional heat-related deaths per year by the end of the century—more than twice the average number of traffic deaths annually in the state today (Climate Risk in the Golden State, Risky Business). Emergency management preparedness activities will need to increase the focus on response to respiratory problems and increasing emergency room visits from vulnerable populations. Rising temperatures are also linked to the more rapid spread of diseases and pests, leading to public health and agricultural emergencies.

Wildfires are linked to multiple climate impacts and, like changing precipitation patterns, storm events, and temperatures, correlate to many public health and public safety concerns. California has already seen a rapid rise in the number and severity of wildfires, and emergency managers are working to prepare for wildfire occurrence rates that could double by 2085 (California Adaptation Strategy, 2009).

EXTREME WEATHER EVENTS

Climate change will create stronger and more frequent extreme weather events with more destructive rainfall and winds, directly affecting emergency management in the state. A study found that a single storm could cause up to \$725 billion in economic damages and directly cause harm to much of California’s population (ArKStorm, USGS). More powerful weather events along the coast will combine with sea-level rise to provide further challenges to emergency response. A 1.4 meter rise in sea-level combined with a 100-year flood event will put almost half a million Californians at risk (Impacts of Sea-Level Rise on CA Coast, CA Climate Change Center).

Powerful weather events along the coast will combine with sea-level rise to provide further challenges to emergency response

DROUGHT AND CHANGING PRECIPITATION PATTERNS

The current historic drought is the most salient example of the ways that climate change will exacerbate disasters and emergencies affecting CA. A recent study found that climate change contributed up to 27% of the severity of the current drought; even more sobering was NASA’s finding that climate change could make a mega-drought of three decades extremely likely in the next century.



These findings are indicative of the overall shift in historical weather and storm patterns, resulting in more extreme cycles between large-scale weather events causing flooding and longer periods of warmer weather and reduced precipitation resulting in drought. This cycle will create more frequent and destructive landslides, as well as negatively impact water quality and reliability. Warmer temperatures and changing precipitation patterns are also projected to cause abrupt declines in California’s snowpack, which the state depends on for water supply and environmental quality. The projected loss of up to 90% of snowpack in the Sierra Nevada mountains will have many consequences for the state’s mountainous regions. These factors will lead to more numerous and severe floods, wildfires, and other emergencies.

SEA-LEVEL RISE

Coastal impacts will often result from a combination of more extreme weather events and storm surge with sea-level rise, but additional factors like erosion, subsidence, and wave action also come into play to threaten critical infrastructure. Emergency managers are faced with increased vulnerabilities due to climate risks to roads, airports, water treatment plants, energy facilities, and hospitals related to sea-level rise and associated erosion and flooding.

These vulnerabilities are detailed in greater length in many areas, and Cal OES in particular has examined the impacts as they relate to its mission of protecting California’s people, economy, and

environment in the event of emergencies. In the State Hazard Mitigation Plan (SHMP), climate change is characterized as a condition that will change and potentially exacerbate the impact of other hazards, rather than a distinct hazard with unique impacts. For example, extreme heat and heat waves are existing hazards that are expected to be exacerbated by climate change.

These impacts will all affect the state’s emergency management efforts. Increasing hazards resulting from climate change will necessitate a more

robust emergency management and response community.

An increase in emergency events, and an increase in magnitude of those events, is expected to more quickly overwhelm local, county, and regional

resources, and necessitate the use of more state and federal resources. Continued coordination and collaboration between all levels of government, the private sector, and tribes are imperative to ensure continued success and risk sharing among the emergency management community and the public.

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CURRENT ACTIONS TO PREPARE FOR CLIMATE IMPACTS

Cal OES has statutory responsibility under the ESA to lead and direct state agency activities in support of local government during an emergency. Cal OES continuously works with other state agencies in all four phases of emergency management. The utmost priority in emergency management is to best protect Californians, and this plan will illustrate how ongoing and planned actions fit into the State’s broad initiative to safeguard against climate change impacts and emergencies and disasters overall. *Safeguarding California* presents four primary recommendations for emergency management to address climate change. These recommendations, and how they are being implemented, are described here.

Improve integration of climate impacts and projections into all phases of emergency management

Emergency management requires a proactive stance, and Cal OES strives to be at the forefront to integrate the best models and projections to address climate impacts in all phases of emergency management. Planning and providing incentives to incorporate that best available science that can inform emergency management is a key part of this recommendation.

To be effective, climate must be considered within the planning and risk reduction efforts already taking place. To facilitate this, Cal OES promotes the implementation of the Climate Adaptation Planning Guide (APG) and inclusion of climate

risk reduction into hazard mitigation planning efforts at all levels. In addition to the APG, the state promotes the principles of sustainability, resilience, and hazard mitigation through collaboration with key public and private sector organizations through mechanisms such as:

- Reviewing Local Hazard Mitigation Plans (LHMPs) and providing guidance on the LHMP process
- Assisting with the development of local, regional, and state emergency operation plans
- Encouraging LHMP adoption into the Safety Element of local government General Plans

APG implementation and hazard mitigation efforts also consider the vulnerability of various community resources to climate risks. Assisting communities with taking the steps to assess and protect the resources most important to their safety and wellbeing creates grassroots resilience against climate effects.

The state also continues to support the integration of climate risks into state and local government emergency planning efforts and enhance capacities at all levels to respond to and recover from emergencies in other ways. Grants, planning assistance and guidance, mutual aid agreements,

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post-disaster recovery, and hazard mitigation all play key roles that, when combined, help to ensure effective emergency management programs. As CA agencies continue to plan for the effects of climate change, opportunities for joint projects, information sharing, and leveraged resources between agencies must be considered.

Cal OES works with local agencies and the Federal Emergency Management Agency (FEMA) to develop LHMPs that meet local and regional needs for hazard mitigation, as well as federal requirements to qualify for disaster funding. Those funds, in turn, can be invested toward risk reduction projects. Cal OES continuously works to meet this objective and incorporate climate into our existing plan reviews of LHMPs, as well as guidance and training provided annually on the development of LHMPs. Cal OES has also developed sample language (approved by FEMA) for local jurisdictions to incorporate into their overall mitigation planning. We have seen that, increasingly, LHMPs are integrating climate change into their overall mitigation strategies. (Please refer to the Land Use and Community Development Sector Plan of this document for additional information on General Plans and SB 379).

FEMA mitigation grant opportunities include the Hazard Mitigation Assistance (HMA) Program, which consists of the Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation (PDM), and Flood Mitigation Assistance (FMA), as well as Fire Management Assistance Grants (FMAGs) and Public Assistance Grants

(Categories C-G). Assembly Bill 2140 (AB 2140, October 2006), allows a local jurisdiction to adopt their current, FEMA-approved LHMP into the Safety Element of their General Plan, which in turn can increase the percentage of available state disaster assistance through the California Disaster Assistance Act (CDAA).

Local jurisdictions must update their mitigation plans every five years in order to maintain eligibility for FEMA’s mitigation grant programs. To date, most counties in CA (80-85%) have current LHMPs. As funding opportunities arise, Cal OES continuously prioritizes those counties without current LHMPs to achieve the goal of full coverage in the state and holistically build resilience against climate impacts.

In line with the ongoing actions supporting LHMPs, Cal OES also works with many key stakeholders on the SHMP, which must be updated and approved by FEMA at least every five years. The SHMP is an umbrella document for statewide hazard mitigation, and is a collaborative effort to identify, reduce, or eliminate the long-term risk to human life and property from natural or human-caused hazards. The plan is also a proactive strategy for reducing disaster losses and building overall resilience, providing measures and guidance to protect CA’s economy

The SHMP is an umbrella document for statewide hazard mitigation, and is a collaborative effort to identify, reduce, or eliminate the long-term risk to human life and property from natural or human-caused hazards.



and environment from preventable losses and helping to bring funding to state and local agencies for hazard mitigation initiatives and projects. The Plan assesses overall mitigation progress, creates benchmarks for future action, and provides a coordinating frame of reference for state-local mitigation actions.

As part of the planning process for the SHMP, State Hazard Mitigation Team (SHMT) members meet regularly to address various implementation issues and work to prepare the subsequent update of the SHMP. The SHMT consists of over 80 agencies and organizations, and SHMT members are the primary resource for information contained in the SHMP. Working groups were established in the past to support cross-sector communications and knowledge sharing, and will likely stay part of the planning process moving forward in order to benefit future updates of the SHMP. Climate change has been incorporated into the SHMP since 2007, and will continue to be an integral component in future updates of both LHMPs and the SHMP. Starting in 2016, all states must incorporate climate into their SHMP in accordance with FEMA guidance.

Support risk sharing mechanisms

Risk sharing and cost transferring systems like insurance and disaster relief can be tools for managing climate risk. Efforts to reduce climate risks through hazard mitigation activities – including, but not limited to, fire hazard reduction, minimizing new development in areas most vulnerable to hazards, and improved flood

management – will continue to be important to manage risk and support sustainable insurance and disaster programs.

An example of a flood risk sharing mechanism is the Federal Flood Risk Management Standard (June 2015). With climate change, flooding risks could increase over time. To improve the nation’s resilience to flooding and better prepare the nation for the impacts of climate change, the President’s Climate Action Plan (June 2013) directed federal agencies to take the appropriate actions to reduce risk to federal investments. To further the Climate Action Plan, the President released Executive Order 13690 in January 2015 establishing a Federal Flood Risk Management Standard.

The new Federal Standard requires all future federal investments in and affecting floodplains to meet a higher level of resilience as established by the Standard. According to FEMA’s fact sheet on the FFRMS, the standard “...will help ensure Federal projects last as long as intended. The FFRMS will apply to the Hazard Mitigation Assistance Grants, the Public Assistance Program, and any other FEMA grants when they fund construction activities in or affecting a floodplain.” Both the Hazard Mitigation and Public Assistance

The state is continuously assessing the adequacy of its current emergency surge and response capacities and working with local government, private sector, tribal government and federal partners to address gaps.



programs require a state and/or local cost share, ensuring full inclusion in the commitment and investment in these projects.

Better understand climate impacts on all phases of emergency management

To understand how climate impacts will affect each phase of emergency management, it is important to assess adequacy of surge and response capacity in light of climate projections. Climate change is projected to increase the frequency and severity of natural disasters related to flooding, fire, drought, extreme heat, extreme cold, and storms (especially when coupled with sea-level rise). As indicated earlier in this document, this is already occurring in CA. Moving forward, more surge capability across the various emergency functions identified in the State Emergency Plan will be needed to supplement existing emergency response capacity.

The state is continuously assessing the adequacy of its current emergency surge and response capacities and working with local government, private sector, tribal government and federal partners to address gaps. Each year, the state conducts a comprehensive Threat Hazard Identification Risk Analysis (THIRA) and State Preparedness Report (SPR) that assesses our overall emergency capability needs and related gaps. The THIRA methodology provides a framework for emergency management organizations to define threats and hazards of concern to the community they represent, as well as assess the capabilities needed by the organizations to deal with the consequences of the defined

threats and hazards. This information leads to the establishment of capability targets across all of the thirty-one core capabilities defined in the National Preparedness Goal (NPG, FEMA, September 2011). The capability targets that are developed each year become the foundation of the annual SPR.

The state is also involved in multiple processes to facilitate mutual aid, both within the state and outside of the state. Along with Law Enforcement and Fire and Rescue mutual aid plans, the Emergency Manager's Mutual Aid (EMMA) and Emergency Management Assistance Compact (EMAC)

systems also facilitate surge capacity. EMMA is a program in California that supports disaster operations in affected jurisdictions by availing professional emergency management personnel from local and state government. EMAC was established in 1996, and can offer assistance during governor-declared states of emergency by allowing states to send personnel, equipment, and commodities to support disaster relief efforts in other states.

Additionally, Cal OES partners with the California Utilities Emergency Association (CUEA) and the Business and Utilities Operation Center (BUOC). CUEA serves as a central point of

The Business and Utilities Operation Center serves as a critical hub in emergency response to address the needs of impacted communities by organizing and leveraging private sector resources



contact to facilitate communications and resource management between utilities and public agencies, provide emergency response support for electric, petroleum, pipeline, telecommunications, gas, water, and wastewater utilities, and supports related preparedness and mitigation. The BUOC serves as a critical hub in emergency response to address the needs of impacted communities by organizing and leveraging private sector resources. Agencies involved in the BUOC (private sector and non-profit organizations) have agreements with Cal OES to provide this support during times of crisis.

In addition to the rigorous evaluation of emergency services in response to disasters including those caused by climate, the four phases of emergency management rely on science and research to inform decisions. This is particularly evident in the areas of weather and seismic science that over time have informed and improved the delivery of emergency management today. The state overall continues to invest significant resources to conduct and support initial climate vulnerability and cost assessments in a variety of sectors. Though great strides have been made to understand climate change and its associated hazards, it remains a new area of science as we attempt to grasp its future impacts. Additional research is still needed to expand upon and define climate vulnerabilities to CA's population, infrastructure, property, food and agriculture, and biodiversity. Monitoring and research related to extreme weather events such as flood, drought,

heat, fire, and related losses will continue to be vital in supporting emergency management and public safety in the future.

As part of the 4th Assessment of Climate Impacts on California, Cal OES developed a research proposal involving the vulnerability of state essential facilities to the effects of climate change. Further development of this proposal would provide a statewide risk assessment of existing state owned/operated structures critical to response and recovery operations that are currently located in areas of high hazard risk and subject to impacts of climate change. This 4th assessment proposal would be a comprehensive, multi-sectoral analysis addressing extreme events, local impacts, and response options to protect economic interests as well as natural resources.

Communicate climate risks

Outreach efforts are integral in helping communities better understand and plan for climate risks and extreme events such as fires, floods, storms, drought, extreme heat and extreme cold. Effective emergency planning can lower emergency response risks and costs.

The importance of outreach efforts also extends to response, recovery, and mitigation efforts. Over the past few years the state has faced a drought of historical proportions. In January 2014, the Governor declared a State of Emergency for drought, and a significant response is underway with local, state, tribal and federal agencies closely coordinating and sharing resources to support critical emergency needs. Outreach has proven



effective for drought. The call for Californians to conserve has resulted in water savings exceeding state targets.

Among the multitude of drought resources available through state and federal programs are emergency drinking water assistance as well as programs for agriculture. The state also continues to work with other stakeholders on advance planning measures to anticipate and mitigate the future effects of drought. In July 2015, a Memorandum of Understanding (MOU) was signed between Cal OES and Victoria, Australia. Victoria recently came out of a 12 year drought, and this MOU will result in increased information sharing between and impart critical lessons from this climate disaster and its resulting changes to emergency preparedness, response, recovery, and mitigation techniques.

Cal OES is also working closely with FEMA and local agencies to develop and update catastrophic disaster plans. Existing plans include a San Francisco Bay Area Earthquake Response Plan (update in progress), Southern CA Catastrophic Earthquake Response Plan, and the CA Cascadia Subduction Zone Earthquake/Tsunami Response Plan. Development of a Northern CA Catastrophic Flood Response Plan (NCCFRP) and a Volcano Response Plan are underway. The process to develop these catastrophic plans involves many agencies at all levels of government convening and determining effective disaster management strategies before an event occurs. These plans and planning efforts are tremendous assets to facilitate

local, state, federal, tribal, and private sector interaction and rapid response to catastrophic events. This is important, given the likelihood that CA will increasingly face events of a large-scale and/or catastrophic magnitude due to the projected impacts of climate.

The newly formed California Fire Service Task Force (TF) on Climate Impacts is an extension of the Blue Ribbon Fire Commission, which was initially established following the 2003 wildfires. Membership on the TF includes Cal OES, the Governor's Office, Office of Planning and Research, CA Natural Resources Agency, CA Military Department, CAL FIRE, FEMA, US Forest Service

and representatives of all of the key fire services agencies and associations in California. In continuing to build upon the state's wildfire preparedness, capability, and resilience efforts, the TF will review and advise on policy and operational recommendations to update past Fire Commission recommendations. The TF will also evaluate the most current climate threats and science, studies to develop new recommendations related to wildfire preparedness, response and mitigation needed to

In continuing to build upon the state's wildfire preparedness, capability, and resilience efforts, the California Fire Service Task Force will review and advise on policy and operational recommendations to update past Fire Commission recommendations.



successfully adapt to CA's changing climate. The inaugural Task Force meeting was held in July, 2015 in Sacramento.

The California Emergency Services Association (CESA) is a professional organization that promotes mutual support and cooperation across emergency management disciplines. Climate Change and Drought were some of the topics featured at CESA in 2015. Each year Cal OES has an opportunity to conduct training with CESA that provides wide reach to a key audience. In 2015, Cal OES conducted an LHMP Workshop as part of CESA, and participated in outreach to promote and demonstrate the MyHazards and MyPlan portals. MyHazards is a tool for the general public to discover hazards in their area (earthquake, flood, fire, tsunami) and learn steps to reduce personal risk to those hazards. My Plan is a tool to assist cities, counties, special districts, state and tribal entities with assembling and assessing GIS information on natural hazards that occur in California for use in developing maps for their mitigation plans. The initial objective of both tools was to capture current and future risk information, working in combination with other tools such as Cal-Adapt. Next steps for MyHazards and MyPlan include looking into how to incorporate climate projections and sea level rise into both tools to make them even more comprehensive.

Training resources related to emergency management and climate change are in very early development. The Climate Adaptation Strategies

for Emergency Services training course is one example. The course is designed to enhance awareness about current and future climate hazards and impacts that the emergency services sector may face, and provide information about the various resources that can be used to implement local climate adaptation strategies. Continued education, outreach, and training activities supporting climate adaptation and planning will better prepare emergency personnel and the public and support the building of a more resilient nation.

Cal OES continues to lead the state's efforts to train and exercise emergency plans and staff at all levels of government. An example of this effort is the state-level Capstone exercise series. Annual Capstone CA exercises are designed to improve emergency preparedness at all levels of government for catastrophic events, and are built upon the catastrophic disaster planning efforts previously mentioned. These and other exercises supported throughout the state can be designed to focus on known hazards tied to climate (ie extreme weather events, flooding, etc). These exercises are especially critical since disasters tied to climate are projected to increase in magnitude and frequency, overwhelming local resources at a faster rate, and necessitating increased use of statewide, out of state, private sector, and federal support.



Next Steps

This section looks to identify existing programs and activities that can be expanded to fulfill Safeguarding California recommendations, as well as propose new initiatives and activities that can assist with filling any implementation gaps. Items listed in this section will continue to be expanded as implementation needs are further identified and clarified.

We can more effectively leverage and prioritize existing resources, expand programs and efforts, and influence current and future activities to help meet the recommendations in Safeguarding California. For example, continued outreach on both the LHMP and the SHMP processes will occur, with increased emphasis on incorporating climate change impacts and adaptation strategies. Continued outreach to publicize, disseminate and encourage use of available guidance—such as the APG—is critical. As we build cadres of trained emergency staff that understand climate change, they can better anticipate and meet the increasing demands of mitigating, preparing for, responding to, and recovering from future disasters in CA.

PROPOSED ACTIONS AND RECOMMENDATIONS AND ACTIONS TO CONTINUE

- Look into how we can integrate climate projections and sea level rise (SLR) into the MyHazards and MyPlan tools, and continue to update these tools as additional climate projections become available.
- Continue to pursue research to evaluate state essential facilities at risk to climate impacts – including mapping, hazard identification

(ie coastal flooding, increase in temperatures, etc), and developing an action plan to support mitigation efforts. (This item relates to the previously mentioned research proposal put forth under the 4th Climate Change Assessment). Essential facilities* may include:

- o Public safety - Fire, rescue, law enforcement
- o Hospitals
- o Medical and emergency treatment facilities
- o Emergency operations centers
- o Designated emergency shelters
- o Power generating stations or other utilities required as emergency back-up facilities for essential facilities
- o Designated communications centers
- o Aviation control towers and air traffic control centers
- o Structures containing certain quantities of toxic or explosive substances
- o Water treatment facilities required to maintain water pressure for fire suppression



**Agencies and departments may identify other essential facilities based on their mission. Other examples could include cooling centers and other critical community resources such as transportation routes. Further information on locally identified critical assets can typically be found in local preparedness and response plans.*

- Support research identifying and evaluating communities most vulnerable to climate impacts, the results of which will further support adaptation and community resiliency efforts.
- Develop an interactive tool to support the Adaptation Planning Guide (and overall adaptation activities). This tool could complement the existing MyPlan and MyHazard tools, while providing another technical resource to support communities as they update their plans and develop adaptive strategies.
- Expand Climate Adaptation training opportunities, and consider courses that will increase awareness, understanding and competency about climate adaptation. Development and delivery of training should be a joint effort of CNRA and Cal OES, and other agencies, such as CA Department of Public Health (CDPH) for health-related topics.
- Model guidance for state agencies to integrate climate risk into their state-level emergency and continuity planning efforts, building upon Safeguarding CA efforts.
- As the state reviews requests for planning funds under the Pre-Disaster Mitigation funding program, climate shall be a required component.

Update state guidance for LHMPs to include a requirement that climate adaptation be included.

- Continue to expand upon and track progress toward climate adaptation goals within the SHMP. Future updates can articulate progress and highlight new and existing activities and success stories.
- Promote climate and community resilience by leveraging both pre- and post-disaster funds to reinforce or rebuild safer communities that are able to withstand future effects of climate.

Items to continue:

- Continue to review HMGP and PDM/Pre-Disaster Flood Management applications to consider climate needs.
- Continue to review current HMGP funding opportunities and projects that will maximize climate readiness and resilience to multiple hazards.
- Continue progress on CA Fire Service TF on Climate Impacts objectives, which will include work that specifically focuses on climate impacts and fires. Consider additional climate-related TFs using this construct for other hazards.
- Continue to outreach and communicate with all levels of government on climate change impacts, adaptation strategies, and mitigation activities:
 - o Continue to provide guidance and review for LHMPs, increasing the guidance efforts on how to incorporate climate change hazards and adaptation components into local plans.



- o Continue to work with key stakeholders on updating the SHMP – building out the climate change component and tracking.
- Continue to coordinate at all levels of government (private sector, businesses, local, county, regional, state, and federal) and share information about known climate change impacts and mitigation activities, related activities, actions, and success stories.
- Continue to support climate change assessments, which have been instrumental in guiding state policy and supporting informed responses to climate change.

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Monitoring and Evaluation

Monitoring, evaluation and continuous improvement are already integral parts of emergency management. Following each declared disaster in CA, an after action report is required to document lessons learned and areas of improvement. This is one several monitoring and evaluation activities where climate adaptation should be incorporated.

- Annual Threat Hazard Identification and Risk Assessment and State Preparedness Report
 - Update of Catastrophic Disaster Plans and testing through annual Capstone exercises
 - After Action Reports following disaster events, documenting and tracking corrective actions
 - Update of SHMP and SHMP implementation plan to demonstrate progress
 - Tracking of LHMPs that include climate and prioritizing associated funding requests for both projects and plans
 - Sector-specific efforts such as the Fire Climate TF and resulting recommendations and progress reports
- Cal OES will continue to seek ways and identify strategies to include climate adaptation within the existing evaluation and improvement cycle.



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Conclusion

Climate change and its impacts are already a reality affecting communities, natural resources, ecosystems, economies, and public health across the state and nation. More frequent and extreme temperatures and precipitation patterns, forest fires, heat waves, drought, snowpack and state water supply reduction, sea level rise and erosion along California’s coastline, present new risks and uncertainties that put lives and resources at risk and affect all phases of emergency management. These impacts have the potential for tremendous disruption to California communities, necessitating the aforementioned actions that will more formally incorporate climate considerations. California has arguably the most advanced emergency management programs anywhere, due to its diligence and foresight in developing and employing standardized systems and learning from disaster events. Further efforts to integrate climate will strengthen this foundation and alleviate risk to public safety, property damage, and emergency response costs now and in the years to come.