



Building Resilience: Evaluating California's Recent Wildfire Emergency Preparedness and Response Efforts

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Upon Call of the Chair
Suite 1200, 1021 O Street

INFORMATIONAL OVERSIGHT HEARING **SENATE GOVERNMENTAL ORGANIZATION COMMITTEE**

The State of California has the main responsibility for wildfire response activities—commonly known as firefighting—on about one-third of California’s land area. With over 38 million residents, the State of California is the most populous state in the nation and has the third largest land area among the states (163,695 square miles). The California Office of Emergency Services (OES) serves as the state’s leadership hub during all major emergencies and disasters. This includes responding, directing, and coordinating state and federal resources and mutual aid assets across all regions to support the diverse communities across the state.

The California Department of Forestry and Fire Prevention (Cal FIRE) works to safeguard California through fire prevention and protection, emergency response, and stewardship of natural resource systems. Wildfire response activities help limit the spread of large wildfires and stop them from damaging communities and harming residents. The State also runs programs to reduce the chances that wildfires will start and to limit the damage they cause when they do occur—also known as wildfire prevention and mitigation.

In recent years, California has faced an alarming increase in destructive wildfires. Most of the largest and devastating fires have taken place within the last decade, culminating in a particularly severe outbreak in recent years. This period has witnessed some of the worst wildfires in the state's recorded history.

For example, the 2017 Tubbs Fire, at the time the most destructive wildfire in California history, killed 22 people, and 5,000 homes burned down. The 2018 wildfire season included the Camp Fire in Butte County, which became the single most destructive wildfire in state history with nearly 19,000 structures destroyed and 85 fatalities, including the near-total destruction of the town of

Paradise. A few key factors have contributed to the recent increase in destructive wildfires including: climate change, poor forest and land management practices, and increased development in fire-prone areas. In addition to the destructive power of the flames, prolonged exposure to wildfire smoke can lead to an array of health issues, particularly for vulnerable populations such as children, the elderly, and individuals with pre-existing respiratory conditions.

The economic impact of wildfires can be devastating, as they often result in the destruction of homes, businesses, and critical infrastructure, leading to significant financial burdens on affected communities and the state.



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Additionally, the loss of natural resources and damage to ecosystems caused by wildfires can have lasting environmental consequences, such as increased soil erosion, impaired water quality, and loss of habitat for plant and animal species. As wildfires become more frequent and severe, understanding and addressing these interconnected consequences is vital for the long-term resilience and well-being of Californians.

Standardized Emergency Management System

In order to respond to frequent and multiple disasters occurring anytime and anywhere in the state, it is important that emergency response agencies operate within a clear and consistent organization structure. Public agencies are increasingly required to manage the costs of emergencies more effectively with fewer resources. Many different agencies must work together effectively to protect lives, property, and the environment during disasters. The Standardized Emergency Management System (SEMS) facilitates priority setting, interagency cooperation, and the efficient flow of resources and information.

Office of Emergency Services Warning Center

The California State Warning Center (SWC) is the official State Warning Point. The SWC is staffed 24 hours a day, seven days a week to identify potential and emerging threats, provide alert notification to all levels of government as well as critical situational awareness during an emergency or disaster. The mission of the SWC is to be a central intelligence hub for statewide emergency communications and notifications. Serving as a highly reliable and accurate “one-stop” resource for emergency management, law enforcement, fire, and key decision making personnel throughout the state.

The [State Warning Plan](#) integrates new and existing public alert, warning, and notification systems to provide state and local authorities who are responsible for alert and warning a range of capabilities and dissemination channels, thereby increasing the likelihood that a given message will reach both people in an affected area and those outside who can benefit from greater awareness.

The plan serves three basic purposes:

- Provides a framework of how the Governor, the National Weather Service, and authorized local government entities can provide emergency messages affecting a large area, multiple areas, or the entire area of the state.
- Provides guidance for the broadcast and cable industry in the use of the Emergency Alert System, both voluntarily and in the event of a national alert from the president of the United States.
- Provides a framework for how emergency warning centers and the broadcast community can work together to ensure that the residence of California can receive timely emergency information to take protective actions to save lives and property.

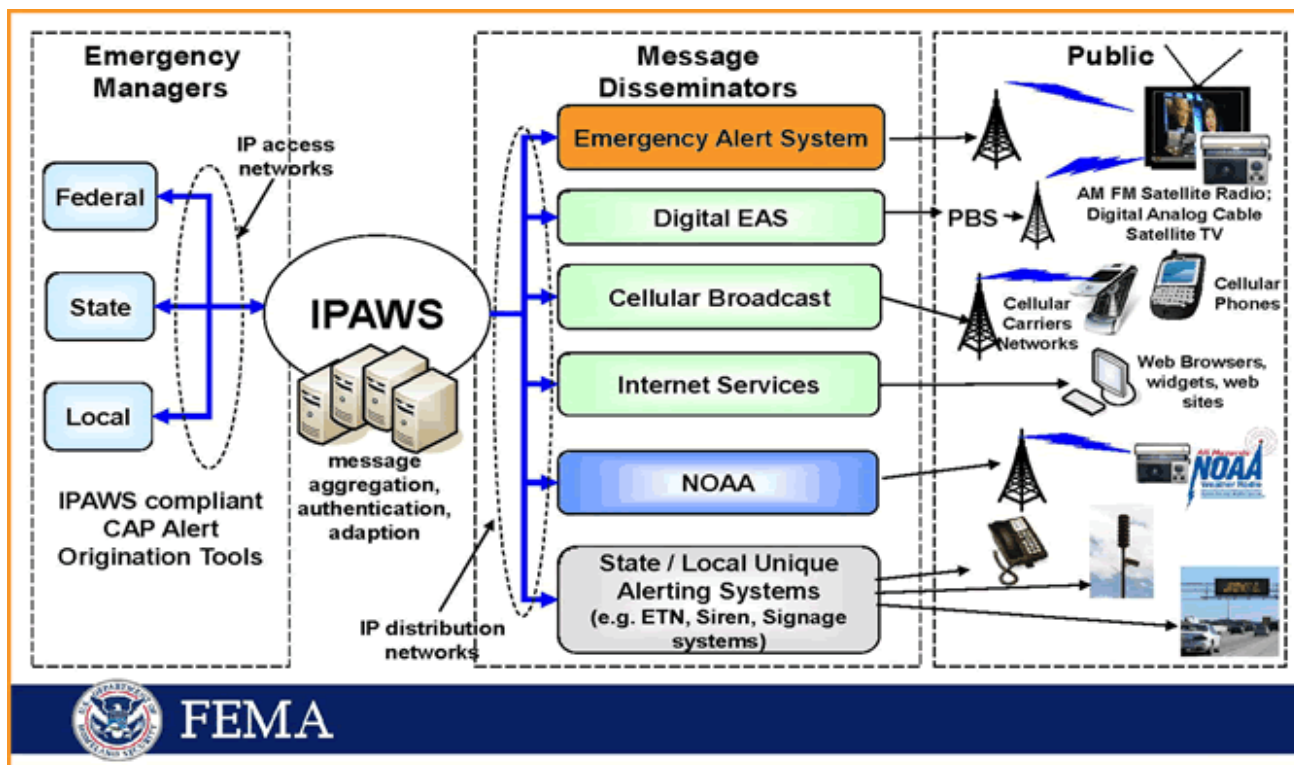
The [Emergency Alert System \(EAS\)](#) is a system that can be used by authorized warning originators to issue national, state, or local emergency warnings to the public by using broadcast, cable, and certain satellite program distribution as entry points. An EAS warning may be for a few blocks or widespread – large parts of a city, sections of specified areas (such as a county or parts of adjoining counties) or a part or all of a region; or several states or the entire nation.

The EAS is made up of radio, television, cable entities, and certain satellite distribution carriers cooperating on a voluntary organized basis for local and state warnings, but subject to mandatory compliance for Federal warnings per the Federal Communications Commission. State and local EAS plans are guidelines for broadcasters and cable TV operators; items such as details on mandated and optional monitoring assignments, codes for EAS Header, Required Monthly Test (RMT) schedules and other elements.

The EAS classifies alerts into several categories, with the highest priority given to Presidential Alerts, which are issued during national emergencies by the President of the United States or their designee. Other alert types include Imminent Threat Alerts, which warn of events posing an immediate danger to life or property, and Amber Alerts, issued for child abduction emergencies. Furthermore, the EAS integrates with the Integrated Public Alert and Warning System (IPAWS) to ensure efficient and coordinated dissemination of alerts across multiple platforms, such as the Wireless Emergency Alerts (WEA) system for mobile devices. This multi-tiered approach ensures that critical information reaches the public in a timely and effective manner, helping save lives and minimize damage during emergencies.

Integrated Public Alert and Warning Systems

IPAWS is a modernization and integration of the nation's alert and warning infrastructure that gives public safety officials an effective way to alert and warn the public about serious emergencies using the EAS, the Commercial Mobile Alert System, National Oceanic and Atmospheric Administration, Weather Radio, and other public alerting systems from a single interface.



<https://www.fema.gov/emergency-managers/> 1

Statewide Alert & Warning Guidelines

The Statewide Alert and Warning Guidelines were developed as part of the SEMS Technical Group through the SEMS Alert and Warning Specialist Committee. SB 833 (McGuire, Chapter 617, Statutes of 2018) required OES, in consultation with specified stakeholders, to develop voluntary guidelines for alerting and warning the public of an emergency, and required OES to develop an alert and warning training.

A public alert is a communication intended to attract public attention to an unusual situation and motivate individual awareness. The measure of an effective alert message is the extent to which the intended audience becomes attentive and searches for additional information.

A public warning is a communication intended to persuade members of the public to take one or more protective actions in order to reduce losses or harm. The measure of an effective public warning message is the extent to which the intended audience receives the message and takes the protective action and/or heeds the guidance.

It is an inherent responsibility of local government organizations and officials to keep the public informed about natural, human-caused, and technological disasters in addition to what actions they need to take to protect themselves and their families. Depending on how the local area governments have organized and coordinated the local area alert and warning system, the local government responsibility can be inclusive of city, special district, county, and multi-county jurisdictions.

Local government officials typically have the most accurate and timely understanding of the situation, necessary protective actions, and potential adverse impacts of the incident. It is incumbent upon local officials to rapidly and adequately communicate to the public what is occurring and any steps or actions the public needs to take.

WEAs are used to send concise, text-like messages to WEA-capable mobile devices during emergency situations. WEAs are broadcast from area cell towers to mobile devices in the area. Every WEA-capable phone within range receives the message. These include: Presidential Alerts: Issued during a national emergency; Imminent Threat Alerts: Issued for extreme weather and other threats to life or property within your area; and, AMBER Alerts: Issued for the abduction of a child in your area.

Wildfire Forecast & Threat Intelligence Integration Center

California's Wildfire Forecast & Threat Intelligence Integration Center (WFTIIC) serves as the state's integrated central organizing hub for wildfire forecasting, weather information, threat intelligence gathering, analysis, and dissemination. Established by SB 209 (Dodd, 405, Statutes of 2019), the WFTIIC also coordinates wildfire threat intelligence and data sharing among federal, state, local agencies, tribal governments, utilities, other service providers, academic institutions, and nongovernmental organizations. WFTIIC's website includes real-time data on active weather watches and incidents, forecasts, and threat indices.

Wildfire Technology Research Development and Innovation

Cal FIRE's Office of Wildfire Technology Research and Development (Office) was established as a permanent technology and research capability by SB 109 (Dodd, Chapter 239, Statutes of 2021). Research and development play a crucial role in advancing the application of technology and thought leadership to solving real world problems. Through research, new breakthroughs will be identified that can improve fire safety and firefighting efforts while supporting and stewarding our natural resources.

The Office will help develop advancements and tap innovation from the public and private sectors. The Office's focus is on evaluating new and novel approaches to fighting wildfire. Public, private, and non-profit organizations and companies work closely with the Office to advance the application of technology to wildland firefighting. Guided by an advisory board, the Office also plays a unique role in providing recommendations to state and local agencies on what the best and most effective technologies are available to them in the ongoing battle against wildfire.

Artificial Intelligence (AI) significantly enhances wildfire suppression by detecting fires early, predicting their occurrence, guiding firefighting efforts, and aiding in post-fire analysis and restoration. AI can analyze vast amounts of satellite imagery, weather and environmental data, and historical fire patterns to accurately forecast high-risk regions and potential fire behavior. Moreover, AI provides real-time mapping and tracking of a fire's progress, enabling efficient allocation of resources and faster response times. Utilizing AI-powered drones, emergency responders can survey affected areas and gather crucial information, such as hotspots and potential containment lines, to inform firefighters on the ground. Furthermore, AI can help identify optimal strategies for post-fire restoration, assisting in the regeneration of ecosystems.

Last mile connectivity is crucial for effective wildland firefighting. It enables real-time data collection and analysis, allowing first responders to communicate and coordinate their efforts. This improves response times and safety, as it allows for the use of advanced technologies like sensors and drones.

Internet of Things (IoT) technologies can play a critical role in wildland firefighting by improving situational awareness, enhancing firefighter safety, and optimizing resource management.

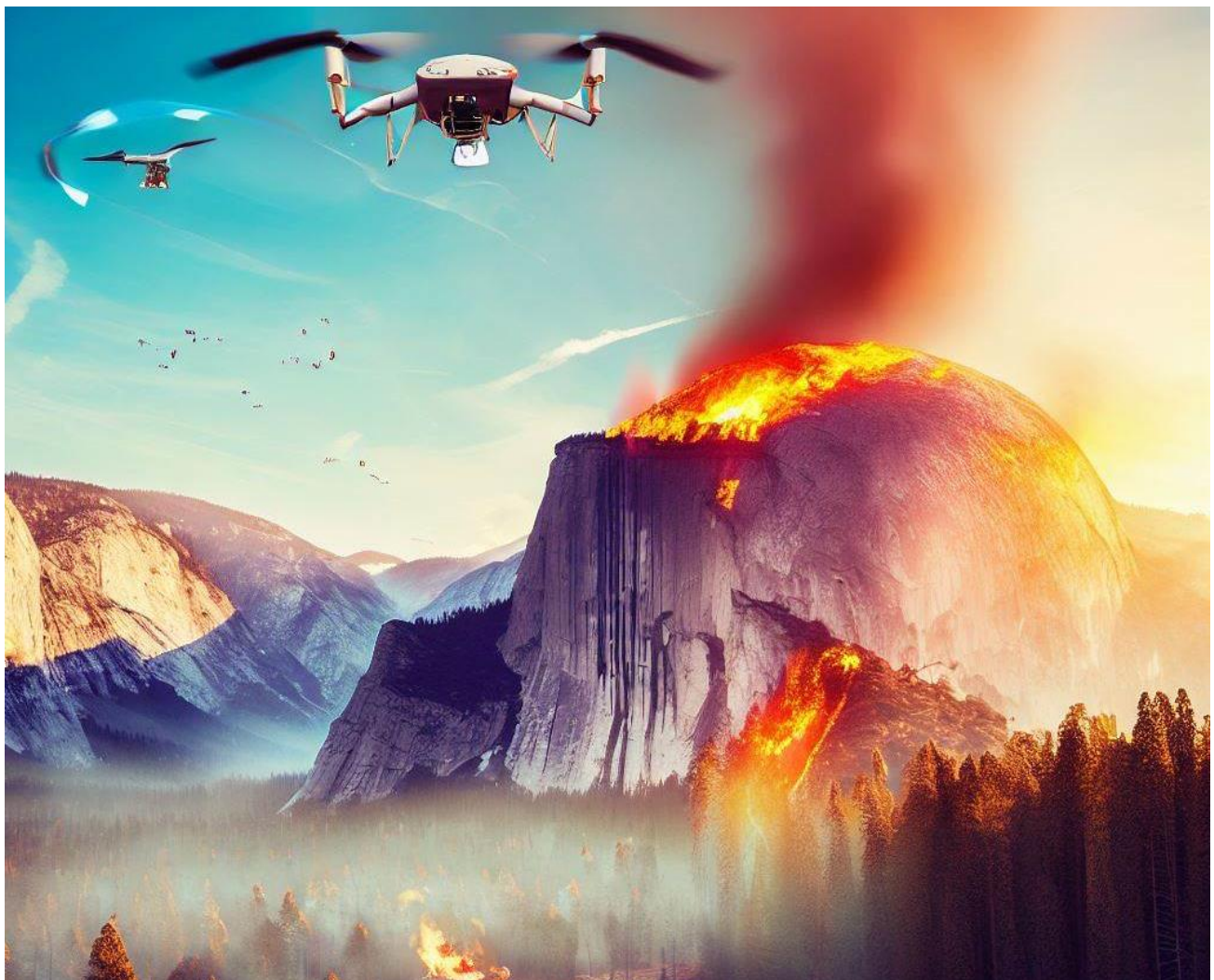


Image Created by Bing 1

Firefighting Resources of California Organized for Potential Emergencies

The Firefighting RESources of California Organized for Potential Emergencies (FIRESCOPE) program originated in Southern California and was organized in 1972. By legislative action, the FIRESCOPE Board of Directors and the OES Fire and Rescue Service Advisory Committee were consolidated into a working partnership in 1986. This consolidation represents all facets of local, rural, and metropolitan fire departments, Cal FIRE, and federal fire agencies.

The FIRESCOPE program is intended to complete the legislative attempt to unify these various fire agencies together into one voice and direction. The character of this group is comprised of diverse fire agencies derived from the founding legislation. The synergy created by these diverse fire agencies truly provides valuable input to the Director of OES in addressing the future of fire/rescue services in California and assures excellent representation for the continued development of FIRESCOPE products.

The organization/program of the OES Advisory Board and the organization/program of FIRESCOPE are to deal with mutual aid, cooperative agreements, and fire/rescue regional policy issues and to advise the Director of OES in matters of statewide importance.

The FIRESCOPE decision-making process rests within a majority-rule process based on the size of the Board and limited discussion time; minority viewpoints are also forwarded to OES.

Mutual Aid System

The Mutual Aid System is an extension of the concept of “neighbor helping neighbor.” The Law Enforcement Mutual Aid System was established in 1961 and has been used to restore order during emergencies, and to provide assistance to local agencies during other unusual events or catastrophic disasters. As a component of SEMS, the Mutual Aid System is based on four organizational levels: cities, counties, regions, and the State. The state is divided into seven Law Enforcement Mutual Aid Regions.

The basic concept provides that within the operational area, adjacent or neighboring law enforcement agencies will assist each other. Should the event require assistance from outside the county, the region will provide requested assistance to the impacted county. If the combined resources of the region are insufficient to cope with the incident, the Regional Coordinator contacts the OES Law Enforcement Branch for coordination of resources. A similar plan exists for Coroner and Search and Rescue Mutual Aid.

California Fire Assistance Agreement

The California Fire Assistance Agreement (CFAA) signed in 2020, and effective through 2024, outlines the negotiated reimbursement terms and conditions for local fire agency responses through the California Fire Service and Rescue Emergency Mutual Aid System. It allows the State of California and Federal Fire Agencies to utilize local government firefighting personnel and equipment and emergency assistance to the State of California and to Federal Fire Agencies.

Prepare California

The groundbreaking Prepare California Initiative is the nation's first grant program specifically aimed at building community resilience among vulnerable individuals living in areas of the state most susceptible to natural disasters. This initiative focuses on reducing long-term risks from disasters such as wildfires by investing in local capacity building, mitigation projects, and targeted, evidence-based strategies designed to safeguard communities.

Prepare California leverages funds approved in Governor Newsom's 2021-22 State Budget, with the goal of unlocking federal matching funds for community mitigation projects that would otherwise be inaccessible to vulnerable communities. The program targets the most socially vulnerable communities at the highest risk for future natural hazard events, identifying them by prioritizing California census tracts based on their estimated hazard exposures and social vulnerability.

Funding under the program supports projects addressing one or more of the following focus areas: Local Capacity Building; Whole Community Risk Reduction; Whole Community Approach; Protection of Life and Property; Public Education and Awareness; and Nature-Based Solutions to Hazard Risk. By fostering collaboration among various stakeholders, the program enhances whole community resilience and hazard mitigation capacity building at the local level.

A prime example of the program's success is a vegetation management and defensible space project around the Lick Observatory in San Jose, which protected the facility during the 2020 wildfires in the area. By investing in such proactive measures, the Prepare California Initiative demonstrates its commitment to promoting safety, preparedness, and resilience in the face of increasing threats.



Peter DaSilva / Special to The Chronicle 1

Current Legislation

SB-577 (Hurtado, 2023) – California Fire Service Training and Education Program. This bill would limit the ability of the State Fire Marshal to establish and collect admission and other fees associated with the Fire Services Training and Education Program and the Fire and Arson Training Act only to the extent that state appropriations and other funding sources are insufficient to cover the necessary associated costs. (Pending in the Senate Appropriations Committee)

AB-277 (Rodriguez, 2023) – Extreme Weather Forecast and Threat Intelligence Center. This bill would require OES and the Department of Water Resources to establish and lead the Extreme Weather Forecast and Threat Intelligence Integration Center for the purposes of collecting, assessing, and analyzing extreme weather data and atmospheric conditions. (Pending in the Assembly Water, Parks, & Wildlife Committee)

AB-609 (Papan, 2023) - Office of Wildfire Technology Research and Development: report on new technologies. This bill would require the Cal FIRE Office of Technology Research and Development to submit a report to the Legislature that assesses and evaluates new aerial firefighting technologies, as specified. (Pending in the Assembly Appropriations Committee)

Relevant Chaptered Legislation 2017-2022

SB-52 (Dodd) - State of Emergency: planned power outage. This bill defines a “deenergization event” as a planned power outage, as specified, and includes a deenergization event in the list of conditions constituting a local emergency, with prescribed limitations. Chapter 597, Statutes of 2021

SB-109 (Dodd) - Office of Wildfire Technology Research and Development. This bill establishes the Office of Wildfire Technology Research and Development within Cal FIRE, as well as the Wildfire Technology Research and Development Review Advisory Board, as specified, to conduct research and testing on emerging technologies to prevent, predict, and fight wildfires. Chapter 239, Statutes of 2021

SB-341 (McGuire) - Telecommunications service: outages. This bill requires the CPUC to establish resiliency plans for backup power requirements for certain telecommunications providers to ensure that service can be maintained for at least 72 hours during an electrical outage. This bill also requires certain telecommunications providers to establish and maintain public outage maps on their websites, and it requires OES to adopt requirements for public outage maps established and maintained by telecommunications providers. Chapter 425, Statutes of 2021

SB-450 (Hertzberg) - Fire protection: fire districts: funding: working group: report. This bill requires the Office of Emergency Services to administer the Special District Fire Response Fund, as specified, and develop a standard grant application form, as specified. Chapter 466, Statutes of 2022

SB-816 (Committee on Governmental Organization) - Master Mutual Aid Agreement: tribes.

This bill adds federally recognized California Indian tribes to the definition of the Master Mutual Aid Agreement. Chapter 292, Statutes of 2021

AB-580 (Rodriguez) - Emergency services: vulnerable populations. This bill, among other things, requires the Office of Emergency Services to coordinate with representatives of the access and functional needs population, as specified, to review local emergency plans, and makes various technical, nonsubstantive changes. Chapter 744, Statutes of 2021

AB-642 (Friedman) - Wildfires. This bill makes multiple changes to state law to enhance wildland fire prevention efforts, including, among other things, incorporating and facilitating cultural burning practices, and requiring the identification of moderate and high fire hazard severity zones in local responsibility areas, as provided. Chapter 375, Statutes of 2021

AB-1648 (Maienschein) - Disaster preparedness: local government: animal natural disaster evacuation plan. This bill requires any city or county to require, as a condition for obtaining a kennel license or permit, that the kennel owner create and submit to the city or county an animal natural disaster evacuation plan, as specified. Chapter 547, Statutes of 2022

AB-2322 (Wood) - California building standards: fire resistance: occupancy risk categories.

This bill requires the State Fire Marshal to research and develop, and to propose to the California Building Standards Commission, mandatory building standards for fire resistance based on occupancy risk categories in very high, high, and moderate California fire severity zones, as specified. Status: Chapter 284, Statutes of 2022

AB-2645 (Rodriguez) - Local emergency plans: integration of access and functional needs: community resilience centers. This bill requires counties to ensure community resilience centers are able to serve as community-wide assets during disasters – including extreme heat events – and integrate these centers into their local emergency plans, as specified. Chapter 247, Statutes of 2022

SB-160 (Jackson) - Emergency services: cultural competence. This bill requires a county to integrate cultural competence into its emergency plan, upon the next update to its emergency plan, and requires counties to provide a forum for community engagement in geographically diverse locations in order to engage with culturally diverse communities, as specified. Chapter 402, Statutes of 2019

SB-190 (Dodd) - Fire safety: building standards. This bill requires the SFM to develop a model defensible space program, as specified; requires the SFM to develop and make available a Wildland-Urban Interface (WUI) Fire Safety Building Standards Compliance training; and, requires the SFM to develop a Page 27 of 63 WUI Products listing of products and construction assemblies that comply with the WUI Fire Safety building standards, as specified. Chapter 404, Statutes of 2019

SB-209 (Dodd) - Wildfire: California Wildfire Warning Center: weather monitoring. This bill requires Office of Emergency Services (OES) and the Department of Forestry and Fire Protection to jointly establish and lead the Wildfire Forecast and Threat Intelligence Integration Center, as specified. Chapter 405, Statutes of 2019

SB-670 (McGuire) - Telecommunications: outages affecting public safety. This bill requires telecommunications service providers to submit a specified outage notification to OES when a telecommunications outage impacting 911 service and emergency notifications occurs. This bill makes OES responsible for notifying the appropriate county offices of emergency services, public safety answering points and sheriffs for areas affected by an outage. Chapter 412, Statutes of 2019

SB-1044 (Allen) - Firefighting equipment and foam: PFAS chemicals. This bill prohibits the manufacture, sale, distribution, and use of class B firefighting foam containing per- and polyfluoroalkyl substances (PFAS chemicals) by January 1, 2022, with some exceptions, and requires notification of the presence of PFAS in the protective equipment of firefighters. Chapter 308, Statutes of 2020

AB-38 (Wood) - Fire safety: low-cost retrofits: Fire Hardened Homes Revolving Loan and Rebate Fund: regional capacity review. This bill requires the California Natural Resources Agency to review the regional capacity of each county that contains a very high fire hazard severity zone to improve forest health, fire resilience, and safety; requires the seller of any real property located in a high fire hazard severity zone to provide prescribed disclosure notice to the buyer of information relating to fire hardening improvements on the property; and authorizes formation of a joint powers agreement between CalFire and OES to administer a comprehensive wildfire mitigation and assistance program for property owners. Chapter 391, Statutes of 2019

AB-477 (Cervantes) - Emergency preparedness: vulnerable populations. This bill requires a county, or a city and county, to include representatives from the access and functional needs population, as defined, in the next regular update to its emergency plan, as specified. Chapter 218, Statutes of 2019

AB-2213 (Limón) - Office of Emergency Services: model guidelines: telecommunications. This bill requires OES and California Volunteers to develop planning guidance to identify volunteers and donation management resources to assist in responding to disasters, as specified. Additionally, this bill expands existing authority granted to counties by authorizing cities and postsecondary institutions to access resident and student contact information for the sole purpose of enrollment in a public emergency warning system, as specified. Chapter 98, Statutes of 2020

AB-2386 (Bigelow) - Office of Emergency Services: disaster council plans. This bill requires OES to annually review a minimum of 10 local emergency plans to determine if they conform or exceed best practices identified by the Federal Emergency Management Agency, as specified. Chapter 254, Statutes of 2020

AB-2730 (Cervantes) - Access and functional needs: local government: agreement for emergency management and transportation. This bill authorizes a county to enter into an agreement with an adjacent county, upon the request of the adjacent county, for purposes of permitting the adjacent county to borrow, for compensation, the county's emergency management and transportation services in the event of an emergency, as specified. Chapter 256, Statutes of 2020.

AB-2968 (Rodriguez) - County emergency plans: best practices. This bill requires OES to establish best practices for counties developing and updating a county emergency plan, and to establish a review process for a county to request OES to review a county's emergency plan, as specified. Chapter 257, Statutes of 2020

AB-3267 (Smith) - Office of Emergency Services: State Emergency Plan. This bill requires OES to coordinate with representatives from the access and functional needs population when updating the State Emergency Plan and provides OES with additional time to complete an after-action report following each declared disaster, as specified. Chapter 260, Statutes of 2020

SB-821 (Jackson) – Emergency notification: county jurisdictions. This bill authorizes counties to enter into an agreement to access the contact information of resident accountholders through the records of a public utility, as specified, for the sole purpose of enrolling county residents in a county-operated public emergency warning system. Chapter 615, Statutes of 2018

SB-833 (McGuire) – Emergency alerts: evacuation orders: operators. This bill requires OES, in consultation with specified stakeholders, to develop voluntary guidelines for alerting and warning the public of an emergency, and requires OES to develop an alert and warning training, as specified. Chapter 617, Statutes of 2018

SB-1181 (Hueso) – Emergency services: certified community conservation corps. This bill authorizes OES to directly enter into an agreement with one or more certified community conservation corps, as defined, to perform emergency or disaster response services. Chapter 623, Statutes of 2018

AB-289 (Gray) – Office of Emergency Services: State Emergency Plan: update. This bill requires OES to update the State Emergency Plan on or before January 1, 2019, and every five years thereafter. Chapter 106, Statutes of 2017

AB-1877 (Limon) – Office of Emergency Services: communications: translation. This bill requires OES to create a library of translated emergency notifications and a translation style guide, as specified, and requires designated alerting authorities to consider using the library and translation style guide when issuing emergency notifications to the public. Chapter 630, Statutes of 2018