



## Agency Cooperation to Address Post-Wildfire Hazards



### Mud and debris flows inevitably follow wildfire

**Sacramento, CA** In early 2018, officials from the California Governor's Office of Emergency Services (Cal OES) and the Federal Emergency Management Agency (FEMA) Region IX officials were already busy addressing critical issues in the wake of a long list of wildfires that scorched multiple areas of the state. Then, late in the year, record-shattering fires in Butte, Los Angeles and Ventura counties brought the destruction of thousands of structures and a major loss of life.

Among the many challenges to response and recovery is that after soil stabilizing vegetation has burned, rain and snowmelt pose serious dangers from erosion. Mud and debris flows cause a variety of safety hazards, including loss of life, clogged

drainage systems, destroyed roads, and threatened structures. The spread of hydrocarbons and poisonous metals into waterways and aquifers is another factor that requires an emergency response.

Mission assignment is an important tool of emergency management. It allows a lead agency to task other agencies with a variety of responsibilities. Through this coordination, Cal OES tasked the California Geologic Survey (CGS) to send geologists to work with Riverside County in support of debris flow modeling, hazard identification and planning. State partners also trained Riverside County Flood Control staff and aided in further developing debris flow mapping, so the county could better identify evacuation zones.

The California Department of Water Resources (DWR) and California Department of Transportation (Caltrans) were also tasked to provide debris flow modeling and hazard mitigation design support.

The Cal OES Hazard Mitigation Assistance (HMA) team supported Riverside County with an emergency protective measure project that will help protect homes and an elementary school from flood and debris flow hazards. With information that CGS helped define, the county improved a monitoring system that provides awareness of risks to critical infrastructure during storms.

After the Camp Fire brought dev-

astation to the Town of Paradise, Cal OES mission tasked the DWR to deploy flood-fighting specialists and safety specialists to support ten California Conservation Corps (CCC) crews mission tasked to install erosion control measures supplied by the Department of General Services (DGS) and DWR. Crews installed straw waddles, sand bags and specific erosion control materials aimed at absorbing hydrocarbons and collecting metals.

DWR and CGS were mission tasked to assist with debris flow modeling and hazard identification in support of L.A. and Ventura counties after the Hill and Woolsey fires but did not deploy because the counties were able to complete the tasks with local resources.

Following the Carr Fire, the Cal OES HMA team executed grants for two projects to support Shasta County and the City of Redding. The California State Water Resources Control Board sponsored a Hazard Mitigation application, in partnership with the Western Shasta Resource Conservation District, for a \$9 million project to install erosion control materials to protect waterways. The City of Redding submitted an application, currently under FEMA review, to install a pump to deliver water from East Redding to West Redding in the event the drinking water inlet from West Redding's Sacramento River could not be used due to substandard water quality caused by the Carr Fire.

The Watershed Task Force (WTF) provides coordination of state and federal resources in support of local government efforts to implement watershed emergency protective measures after wildfire. Cal Fire's Watershed Emergency Response Team (WERT) does a thorough assessment of the impacts to the water-

shed and identifies physical values at risk (VARs), like homes, structures and properties. Federal partners with the National Park Service (NPS) also convene the Burn Area Emergency Rehabilitation (BAER) team to assess federal forest lands. As the VAR list is established by the WERT and BAER teams, the WTF coordinates local, state and federal resources to mitigate those risks, and tracks implementation of best management practices for emergency protective measures. The California Water Resources Control Board (CWRCB) partic-

ipates on the task force and has taken the lead to address water quality issues, in concert with the DWR and impacted local governments.

Through the WTF, the Cal OES HMA team supported a project to complete light detection and ranging (LiDAR) mapping over several thousand square miles of Northern California. This mapping will enhance future efforts to model debris flows from future fires, as well as improve debris flow modeling methods.



#### **More information:**

**California Governor's Office of Emergency Services**  
[www.caloes.gov](http://www.caloes.gov)

**California Department of Water Resources**  
[www.water.ca.gov](http://www.water.ca.gov)

**California State Water Resources Control Board**  
[www.swrcb.ca.gov](http://www.swrcb.ca.gov)

**FEMA Region 9**  
<https://www.fema.gov/fema-region-ix-arizona-california-hawaii>