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INFORMATIONAL HEARING
JOINT LEGISLATIVE COMMITTEE ON EMERGENCY MANAGEMENT
AND
ASSEMBLY SELECT COMMITTEE ON NATURAL DISASTER RESPONSE,
RECOVERY, AND REBUILDING

On the Alert: Strengthening California's Public Warning Systems

Tuesday, November 27, 2018
9:30 a.m.
Carpinteria City Hall
5775 Carpinteria Avenue
Carpinteria, CA 93013

Background Paper

Introduction

Once again, this year's wildfire activity in California has broken previous records of damage and destruction experienced by communities across the state. The Thomas Fire, which started in December 2017 and burned into the new year, was surpassed as the largest wildfire in recorded California history a mere six months after being brought under control by the Mendocino Complex Fire in Northern California. That fire, which burned between July 27th and September 18th, enveloped more than 459,000 acres across four counties. A month and a half later, the Camp Fire – now the deadliest and most destructive wildfire in California's history – started in the foothills of Butte County and burned throughout the month of November, incinerating the town of Paradise, killing 85 of its residents (with hundreds still unaccounted for), and destroying almost 19,000 homes and businesses. On the same day the Camp Fire started in Northern California, Southern California saw the ignition of the Woolsey and Hill fires in Ventura County,

which swept eastward into Los Angeles County and became the most destructive wildfire complex to impact that county.

Following what was then the most destructive wildfire season in California's history, the State Legislature convened a series of joint hearings in 2017 to examine the effectiveness of California's public warning emergency alert systems, as well as that of the communications networks used by first responders during disasters. On December 4, 2017, the Joint Legislative Committee on Emergency Management and the Assembly Committee on Communications and Conveyance held a hearing that explored the variety of different warning systems used to alert the public of an emergency in California, and evaluated how well those systems had functioned during the past year's wildfire season. Later, on March 7, 2018, these two committees held a second hearing focused on first responder communications networks and California's decision to opt into the FirstNet public safety network managed by the federal National Telecommunications and Information Administration (NTIA). The goal of these two hearings was to educate state policymakers on how these two categories of emergency communications networks functioned, and to identify areas for improvement in order to ensure both that communities are able to react quickly during an emergency, and that first responders are equipped with the tools necessary to protect public safety.

Shortly after these two hearings, several lawmakers introduced legislation to address shortcomings identified in California's public warning systems, including SB 821 (Jackson, Ch. 615, Stats. 2018), SB 833 (McGuire, Ch. 617, Stats. 2018), and AB 1877 (Limón, Ch. 630, Stats. 2018). This joint hearing of the Joint Legislative Committee on Emergency Management and the Assembly Select Committee on Natural Disaster Response, Recovery, and Rebuilding, will consider how the implementation of those recent bills, as well as other initiatives by local governments, have improved emergency alerting in California, and will also examine what further actions are needed to create a more robust, reliable, and effective network of public warning systems across the state.

Public Warning Systems in California

Shortly after 2:00 am on October 9, 2017, residents of Lake County awoke to a screeching blast on their cellphones. This simultaneous wake-up call for many of the 64,000 residents in that county warned of the approaching Sulphur Fire, a rapidly moving wildfire that had begun only an hour earlier. Fearing that residents could become trapped by wind-driven flames, the Lake County Sheriff's Office decided to issue a mandatory evacuation order and activated its Wireless Emergency Alert (WEA)

system, which overrode volume controls on cellphones and turned them into pocket-sized sirens. Within days, the Sulphur Fire had destroyed more than 160 structures, burned more than 2,200 acres, and displaced thousands of residents. Yet despite this widespread devastation, no Lake County residents are believed to have died during a wildfire siege that gripped communities throughout Northern California and elsewhere killed 44 people.

Lake County's experience with the Sulphur Fire shows the power that public warning systems have to save lives during an emergency. Having started late at night when most residents were asleep, the Sulphur Fire presented a particular challenge to emergency managers tasked with warning the public about the rapidly approaching flames. In generations past, during a fire residents would have awakened to the sound of church bells ringing out across the city -- a centuries-old technique for informing the community that an emergency was taking place. Lake County's WEA system is a modern-day equivalent to the bell tower, using cellular telephone technology to sound audible warning tones across a large area, signaling an unfolding emergency and the need to take immediate action. However, unlike the bell tower of the past, cellular telephone-based alert systems may not function when a fast-moving emergency – such as a wildfire – damages or destroys parts of the cellular network that it needs to function.

Today, emergency warning systems in California and across the country come in a variety of forms and each form has specific capabilities and drawbacks. Systems range from relatively low-tech options like making door-to-door announcements on foot, to auto-dialing telephones that can relay detailed information to houses at a block-by-block level. Since the middle of the 20th century, many jurisdictions have relied on outdoor warning systems -- like air raid sirens -- to warn the public of an emergency. Most siren systems do not provide specific information about an emergency, but rather prompt those hearing the siren to check local media (television, radio, and internet) to identify the hazard and obtain information on how to respond. Some local governments, like the City and County of San Francisco, have modernized their outdoor warning sirens to also broadcast digital voice messages with specific information about an emergency in multiple languages. While siren systems have certain drawbacks, particularly in rural areas where some residents may be too far away to hear them, they remain potent tools for raising the alarm quickly.

Another system common across the United States is the Emergency Alert System (EAS), administered by the Federal Communications Commission. This system, which

replaced the Cold War-era CONELRAD (Control of Electromagnetic Radiation) radio based system to warn of nuclear attack, is an integrated means of distributing emergency information quickly by relay -- first to radio stations, television stations and cable entities, and then to the general public. Broadcasters are required to participate in EAS for issuing certain national warnings, but most also voluntarily allow use of the system for state and local emergency messages. In California, EAS is used for warnings of an immediate nature, such as severe thunderstorms or tornadoes, evacuations of areas due to an incident (such as a wildfire or hazardous spill) or a tsunami, or other events requiring immediate action. Because of its vast operating footprint, an EAS warning may be issued for a few blocks or for 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, several states, or the entire nation. While EAS has a better capacity than other systems to deliver detailed emergency information to the listening or viewing public, it requires individuals to be tuned-in to receive the information, and may not be as effective as other warning options at night while people are sleeping or during a widespread power outage. However, the significant range of radio and television broadcast signals also allows EAS to communicate with residents in areas where all locally based alerting infrastructure has been destroyed.

Many California jurisdictions use auto-dial telephonic emergency notification systems to notify residents of an emergency. These systems can send pre-recorded messages to telephones identified as being located within a defined target area, usually based on the physical address assigned to a landline telephone number. Mobile telephones may receive an alert from a telephone notification system if the phone user has opted-in to the service and registered their device with the local jurisdiction, but the process is not automatic. These systems may not reach citizens who don't maintain a landline telephone and fail to opt-in their mobile device, commuters outside their home region, and out of town visitors to an area.

One of the more modern alert systems in use in California and across the country is the Wireless Emergency Alert (WEA) system. Administered by the Federal Communications Commission, WEA allows mobile phone subscribers to receive geographically-targeted, text-like messages alerting them of imminent threats to safety in their area. Unlike telephonic notification systems, individual phone users do not opt into the WEA system. Rather, alerts are broadcast to all mobile devices within a defined alert zone, meaning that an alert issued in downtown Sacramento is received by all WEA-capable mobile devices in that zone, even if they are roaming or the phone's

owner is visiting from another area. WEA's inclusive approach to issuing warnings to all mobile phone users within a defined area helps ensure that an emergency message is widely disseminated, which is beneficial in scenarios like the need to shelter a large population in place due to an airborne chemical release, but could be counterproductive in other scenarios such as a staged evacuation of an area with limited road capacity.

In 2006, following widespread criticism over the federal government's response to Hurricane Katrina, the Department of Homeland Security began the process of unifying several existing alert and warning systems into a single network called the Integrated Public Alert and Warning System (IPAWS). This system brought together EAS, WEA, the National Oceanic and Atmospheric Administration's Weather Radio alerting system, and others, into a single platform that allows authorized officials at the federal, state, tribal, and local levels to issue an alert simultaneously across multiple warning systems using a standardized format. This integrated approach to alert and warning gives emergency managers a broader range of options and communication pathways for delivering emergency alerts than any single system can provide, saving time and maximizing the impact of alerts issued during an emergency.

In California, the decision to use one or more specific systems to issue emergency warnings to residents is left to local governments. At present, California does not have a standardized statewide emergency warning system, though this is a subject the Legislature has pursued in the past (see e.g. AB 2231 [Pavley, Ch. 764, Stats. 2006]; SB 833 [McGuire, Ch. 617, Stats. 2018].

Recent Changes to State Law

California enacted three new laws this year and one in 2017 to improve public alert and warning capabilities across the state. First, SB 821 (Jackson, Ch. 615, Stats. 2018) gave counties the option to automatically enroll county residents into locally operated location-based telephone emergency notification programs. As noted above, a significant drawback to these alerting systems is that they require mobile telephone users to opt-in and register their device with their local jurisdiction in order to receive alerts from the service. This bill authorized counties to enter into agreements with residential utility service providers (like power, water, and trash service) to access the contact information of resident accountholders through the utility's records for the sole purpose of enrolling them in a county-operated public emergency warning system. This bill ensures that residents who do not wish to receive alerts have the opportunity to opt-out from participating in local warning systems should they so choose. It also

protects residents' fundamental right of privacy by strictly prohibiting the use of contact information obtained under this bill for any purpose other than emergency notification.

Second, SB 833 (McGuire, Ch. 617, Stats. 2018) requires the Governor's Office of Emergency Services (OES) to develop voluntary guidelines for alerting and warning the public of an emergency, to disseminate these guidelines to all cities and counties in the state, and to develop training programs for local officials on the acquisition and use of EAS and WEA equipment and software. SB 833 authorizes OES to condition a city or county's receipt of certain types of grant funding on that jurisdiction's adherence to the agency's alert and warning guidelines, which could include provisions concerning timelines for sending alerts during an emergency, considerations for coordinating alerts with neighboring jurisdictions, establishing pre-scripted emergency message templates, and establishing common alerting terminology.

Third, AB 1877 (Limón, Ch. 630, Stats. 2018) requires OES to create a library of translated emergency notifications and a translation style guide that emergency officials must consider when issuing emergency alerts to the public. This bill requires this library and style guide to cover the two most commonly spoken languages (other than English) in the state, and include a glossary of translated standard abbreviations used in emergency notifications. As with SB 833, this bill authorizes OES to condition a local jurisdiction's receipt of certain types of grant funding upon that jurisdiction translating the emergency alerts it sends to the public.

Finally, last year the Legislature passed AB 1646 (Muratsuchi, Ch. 588, Stats. 2017), which required certain local agencies to develop an alerting and notification system in coordination with local emergency management agencies, unified program agencies (including hazardous waste and hazardous materials facilities), first responders, petroleum refineries, and other public entities (such as schools, hospitals, and social service agencies) in order to alert the community surrounding a petroleum refinery in the event of a disaster. This bill directed OES to work with those specified authorities to develop model memoranda of understanding concerning the operation of refinery-related alerting and notification systems across jurisdictional boundaries.

Today's hearing will include testimony from OES on their implementation plans for these four bills, as well as testimony from county emergency management officials on their efforts to implement these bills and other local initiatives to improve emergency alerting in their jurisdictions.

Next Steps – Improving Emergency Alerting in California

While the Legislature has taken decisive action to improve the effectiveness of public warning systems in California, more needs to be done to ensure that residents threated by disaster receive timely and accurate information from public safety officials. The news describing this year's wildfires – as was the case last year – featured firsthand accounts of residents who barely escaped the approaching flames and only learned of the danger they were in when a neighbor knocked on their door.

There are many potential causes for these apparent gaps in the ability of our emergency notification systems to accurately reach all residents. Some of these causes may relate to the areas where these alerts are being broadcast. Particularly for cellular telephone-based alerting systems, many of our rural communities in California may not have adequate wireless network coverage to receive alerts on their cell phones. Even if communities do have adequate coverage, in some cases insufficiently protected cellular infrastructure located in the wildland-urban interface (WUI) may be quickly lost during an emergency like a fast moving wildfire before an alert message can be sent. On the other hand, some urban areas in California with very good wireless telephone coverage have experienced difficulties receiving emergency alerts, including during the most recent nationwide test of the "Presidential Alert" component of IPAWS, where cell phone users in the same room as others who got the alert received no warning.

The reported failures of our public warning systems during emergency events suggest a need to more thoroughly analyze the actual performance of these systems in the field and more regularly exercise their capabilities to identify system weak points. In areas where residents cannot be ensured access to warning system infrastructure (like wireless networks) that broadcast emergency alerts, appropriate officials ought to clearly inform them that signals from a local public alert system may not reach them and provide alternate instructions on how they will be notified of an emergency situation. Consideration should also be given as to whether warning system infrastructure is sufficiently adapted to local environmental conditions to ensure uninterrupted performance during a disaster.

The challenges reported with alerts issued via cellular telephone-based warning systems emphasize the need to adopt a multi-layered approach to issuing public alerts, employing multiple redundant alerting systems simultaneously whenever feasible. No alerting system is 100 percent effective, and communicating critical emergency information through different channels helps ensure that residents are minimally

impacted by performance gaps in any one system. Today's hearing will feature expert testimony by state and local officials who will address further actions needed to create a more robust, reliable, and effective network of public warning systems across the state.

Conclusion

Wildfires and other disasters like earthquakes and floods are part of California's natural landscape. While these hazards will always be with us, the impact they have on our lives and communities can be mitigated through tools like the emergency warning systems operated by California's local governments. By examining the recent steps the Legislature and local governments have taken to improve these systems, and by identifying the next steps that should be taken to address known shortcomings, this hearing will help the Legislature and the public better understand what is being done at the state and local levels to make these critical systems even more effective and reliable.

The public warning systems discussed in this hearing are lifesaving tools that can give people in the path of a fire precious minutes to get to safety. No amount of planning and preparation can stop wildfires from erupting, but with effective warning systems in place, California's first responders have a potent tool to give the public time to react during an emergency.