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2012-2013

EMERGENCY MANAGEMENT

STRATEGY AND LEADERSHIP IN CRITICAL TIMES

MARCH/APRIL 2014



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EVERYTHING

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Mark Ghilarducci,
Director, Office of
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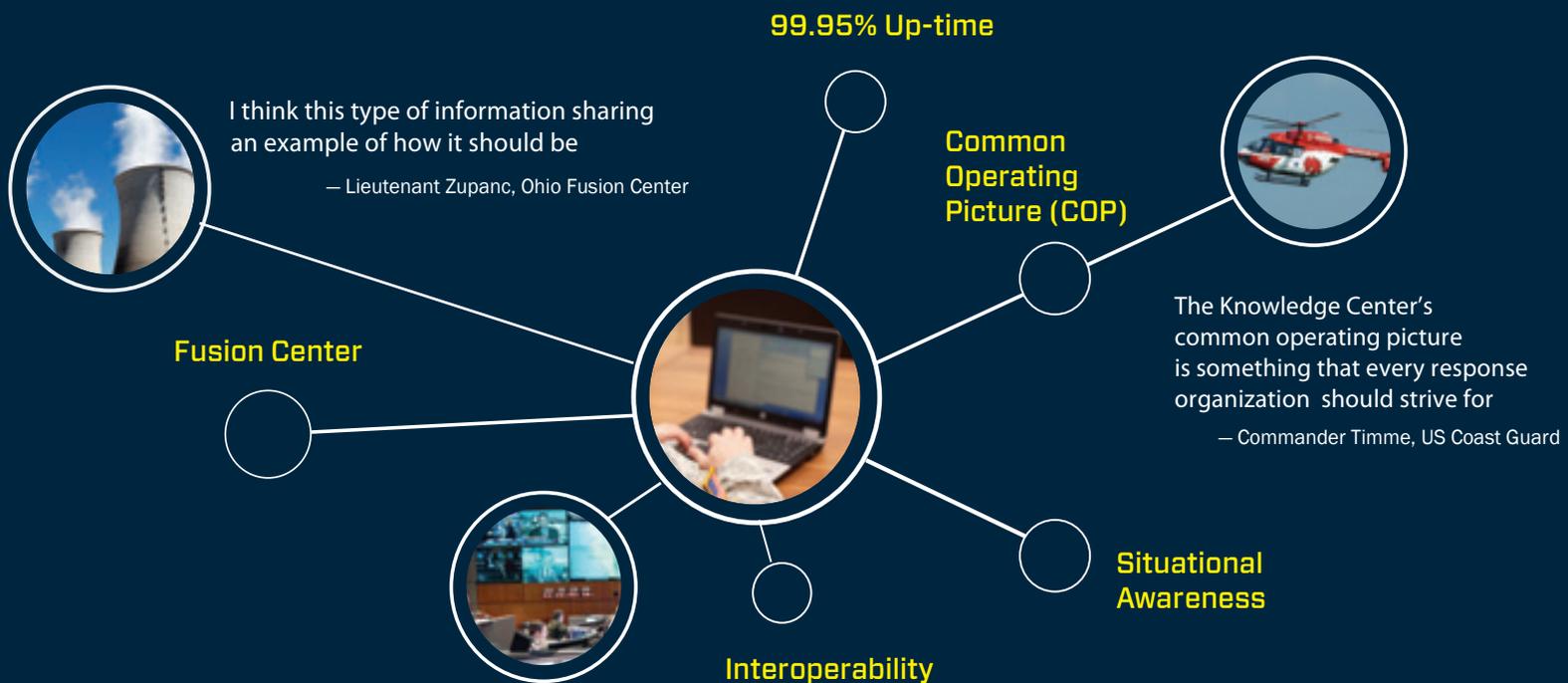


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My first full-time position in emergency management was as a single-employee emergency manager of a county in Tornado Alley. Talk about hopping. I don't think some people from larger departments always realize the experience that these types of folks have when it comes to working with them or even hiring them because the single-employee emergency management folks have had to do all facets of the jobs by themselves. Depending on the part of the county they served in, they might have been busy with activations year-round as well. It's a tough job that I have a ton of respect for.

— Derek White in response to *The One-Person Shop* in the January/February issue

I think the article was spot on for showing how we in the smaller emergency management agencies work. Seems to me we are all pretty much operating the same way. I just recently responded to a neighboring jurisdiction to assist with a bio-diesel fuel explosion at a production facility. Heard nothing but good comments on how we all came together and handled the problem. There were many volunteers that worked around the clock to ensure a

“Volunteerism is still working for us.”

positive outcome. Just like in the article, volunteerism is still working for us.
 — Rickey Jagers in response to *The One-Person Shop* in the January/February issue

Great article. I know [Breanna] Koval well, as we work in the same region in Minnesota. I would like to see a similar article about the emergency manager who wears many hats such as myself. Walk in my shoes. The emergency management requirements and reporting responsibilities to the state and federal governments have become overwhelming, and just plain don't get done even if they are on a nice whiteboard (which I have and use). And if the reports and other “stuff” do not get done, we don't get money! And who suffers? The citizens of the county.

— Al Fjerstad in response to *The One-Person Shop* in the January/February issue

My biggest asset is to be able to use and know my resources!
 — Wendy Bales in response to *The One-Person Shop* in the January/February issue

Thank you for this excellent, in-depth article.
 — Barbara Spencer in response to *Weathering the Storm* in the January/February issue

Great article, thank you for publishing this. The next time you hear someone claim that the National Flood Insurance Program somehow incentivizes people to build in the floodplain, remember that it's actually the opposite. As per the article, “The city doesn't allow any structures that are intended for human occupancy in [the 100-year floodplain].”
 — Gregg D in response to *Weathering the Storm* in the January/February issue

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PUT AN END TO UNPLANNED OUTAGES

Advanced Technology — and Personalized Support — keep government agency networks highly redundant and resilient

Oh, the trouble public agency data centers have seen

According to a recent survey by *Government Technology* magazine, nearly 40 percent of public organizations experienced five or more IT outages in a year. And over 50 percent cite the need for stronger network redundancy as a top network priority.

Telecommunications leader Cox Business helps government entities avoid these unplanned outages, which can hit agency pocket-books to the tune of more than \$100,000 each day. Cox couples the latest fiber optics and coaxial technology with industry leading service to deliver the highest levels of business continuity and disaster recovery.

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Even with upgraded, innovative technology, public agencies wind up without access to outstanding service. Cox Business addresses this need by assigning a support team to each of its public customers. The team typically includes an account manager, sales engineer and billing coordinator, and a local technical assistance center and a network operations center.

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By Jim McKay

Trends for 2014 and Beyond

Redicting the future is tricky, but by looking at the recent past we can say with relative certainty that these issues will come to the fore or continue to gain traction in 2014 and beyond.

Risk-Based Planning and Resourcing

As jurisdictions continue to determine how to do more with less, risk-based planning and resourcing will become even more important. It will be more vital than ever to be able to identify and assess each risk and assign resources accordingly. Performance measures and the ability to show benefits from money spent may too become critical.

Jurisdictions must improve at planning for and mitigating assessed risks, while still maintaining the ability to respond to unanticipated events.

Focused Social Media Use

Boston and New York City learned the value of a concentrated effort to use social media to inform and calm citizens during a disaster. Media reports were so varied and inaccurate after the Boston Marathon bombings that the Police Department's tweets effectively became the official word during and after the incident. Not all emergency managers are taking advantage of social media's opportunities, but it's become a viable, even necessary way to communicate with the public before, during and after a disaster.

Building and Rebuilding for Sustainability

There's no one solution to developing a resilient community, and while there are usually multiple options to rebuilding, communities often fall into the trap of rebuilding back as they

were, inviting the same disaster scenario. The days of subsidizing bad behavior in the form of non-market-based flood insurance and federal aid that helps communities build back right in the crosshairs of the next disaster are waning. It's too easy to make the wrong choice and build back as things were.

There's more emphasis on relocating properties, to name one solution, and addressing the risks brought by a warming climate.

Education

The emergency management and public safety fields will increasingly ask for individuals with more education. There's an ongoing debate about education versus experience, but both are important in an increasingly complicated world. As emergency management grows as a profession, the knowledge of emergency managers will have to be deeper. It is no longer a profession to "fall into."

Some law enforcement agencies are investing more in applicants with college degrees.

Evolving Terrorism Threats

Cyberattacks are a real threat to 911 centers, emergency response centers and other resources, not to mention critical infrastructure. From 2006 to 2011, cyberevents against the U.S. government increased 680 percent.

In addition, active shooter events have risen over the last several years, said the FBI, citing a report by Texas State University, whose statistics point to a threefold increase. This is domestic terrorism, just as it was when Maj. Nidal Malik Hasan killed 13 at the Fort Hood Army base in Texas and when Joseph Stack crashed an airplane into the IRS building in Austin, Texas. 

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⊕ In the News

Atlanta was paralyzed by a January snowstorm that rendered the city similar to a scene from *The Walking Dead*, according to news reports. Cars were abandoned at various angles on thoroughfares and interstates, leaving many to walk for miles to get out of the cold. It was gridlock and people were stranded for as much as 10 hours on the motorways.



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Terrorism Database

It's easy to lose track of the terrorism headlines.

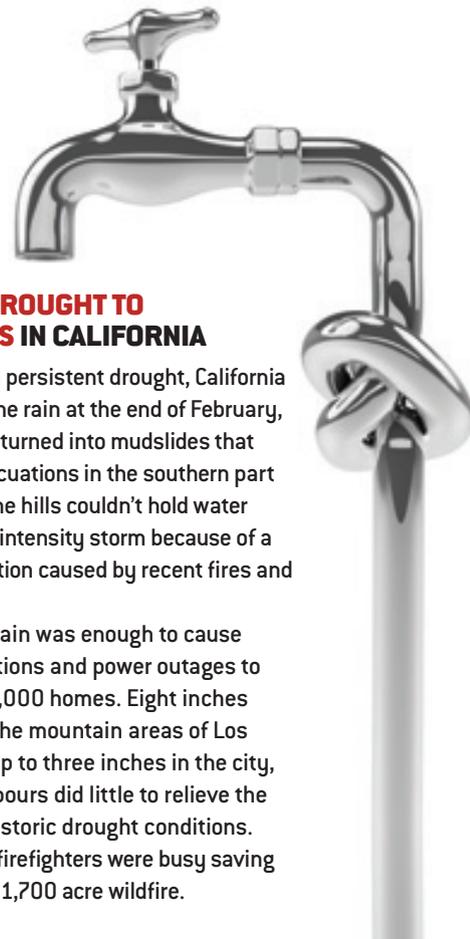
These days they arrive as if written in routine, sometimes penetrating front-page news, sometimes relegated to short back-page briefs. After so many campaigns in the Middle East, so much political rhetoric and editorial banter, the impact often sounds *ad nauseam*.

It all notwithstanding, the University of Maryland's National Consortium for the Study of Terrorism and Responses to Terrorism is assiduously taking note, in December releasing data that reported 8,400-plus casualties in 2012.

In another striking statistic, the data identifies that while terrorist acts spread across 85 countries in 2012, Pakistan, Iraq and Afghanistan account for more than half (54 percent), while also representing 58 percent of all terrorist-related fatalities.

The totals represent an all-time high since the center — funded by the DHS — began tracking terrorist acts in 1970. Previous record highs for fatalities were last reported in 2007 at 12,500 deaths. In a view of terrorist acts as a whole, 2011 tallied the previous high at more than 5,000 incidents recorded.

Interestingly, the level of detail in the data — accessed through an online portal called the Global Terrorism Database — also differentiates incidents by the type of attack, target, weapon used, city and perpetrator group, in addition to giving each event a specific geocoded tag.



FIRES TO DROUGHT TO MUDSLIDES IN CALIFORNIA

Reeling from a persistent drought, California finally got some rain at the end of February, which quickly turned into mudslides that prompted evacuations in the southern part of the state. The hills couldn't hold water from the high-intensity storm because of a lack of vegetation caused by recent fires and the drought.

The heavy rain was enough to cause home evacuations and power outages to more than 30,000 homes. Eight inches of rain fell in the mountain areas of Los Angeles and up to three inches in the city, but the downpours did little to relieve the region from historic drought conditions.

In January firefighters were busy saving homes from a 1,700 acre wildfire.

TOP 6 World's Deadliest Terrorist Groups Based on Fatalities in 2012:

1 /	TALIBAN	>2,500
2 /	BOKO HARAM	>1,200
3 /	AL-QAIDA (in the Arabian Peninsula)	>960
4 /	TEHRIK-E TALIBAN (Pakistan)	>950
5 /	AL-QAIDA (in Iraq)	>930
6 /	AL-SHABAAB	>700

FRACKING CAUSING MORE EARTHQUAKES?

Killer tornadoes, sizzling summers, treacherous ice storms. Barbara Scott was prepared for all that and more when she moved from Denver to Bluff City, Kan., a half-dozen years ago. But earthquakes? In Kansas?

"It's like the earth just rolled under my house, raised it up and lowered it down," she said of the quake that struck in December 2013 between Bluff City and Caldwell. Further rattling Scott was the possibility that the earthquake was man-made, a byproduct of our lust for energy. "We thought it might be the fracking," she said. "We have so much of that going on down here." Kansas is one of five states least likely to experience earthquake damage, state officials say. The worst on record was of 5.5 magnitude in 1867 near Manhattan.

SOURCE: MCCLATCHY NEWS SERVICE



AUTOMATED TRAIN COLLISION-PREVENTION SYSTEM

New technology that could stop or slow a train before an accident — reducing the likelihood of operator errors becoming deadly — will be installed on all Maryland Area Regional Commuter trains.

The Maryland Board of Public Works recently approved a \$13 million contract to begin installing "positive train control" equipment, which uses GPS and radio signaling to react automatically if a collision or derailment is anticipated.

Such a system might have prevented the December 2013 derailment of a New York passenger train that came off the tracks as it sped too fast into a turn, killing four and injuring more than 70.

SOURCE: MCCLATCHY NEWS SERVICE

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GOT AN APP FOR THAT? PROBABLY.

Thanks to smartphones and the apps made for them, emergency managers and the public they serve now have a wealth of help at their fingertips for almost any disaster scenario. They can look up the effects of toxic chemicals, brush up on first aid, find the nearest shelters or turn their phone into a flashlight. Apps filled with reference material and up-to-the-minute data can help them respond to an emergency.

“The goal is to get the right information in the right hands at the right time,” said Scot Phelps, professor of disaster science at the Emergency Management Academy in New York. One example is a first aid app offered by the American Red Cross: “You can get some people to take a first aid class, but you can get millions of people to take one minute to install an app.”

Apps have opened up new avenues for communicating with the public, said Bryan Koon, director of the Florida Division of Emergency Management.

“We’re always trying to get information to people to help them prepare for disasters and to get them to understand real-time information: Here’s the evacuation route, here’s the shelter information, here’s where the tornado is,” said Koon. “Now if people are in their car



BY MARGARET STEEN

EMERGENCY MANAGERS AND THE PUBLIC NOW HAVE EASY ACCESS TO INFORMATION FOR MOST DISASTER SCENARIOS.

evacuating, they can go to an app and find out where the shelter is. If they're at a store, they can pull up what should be in a disaster kit."

The availability of smartphones and apps has been a big change for emergency managers.

"Ten years ago, we would be on our desktop computers," Phelps said. "Now disaster managers can access a humongous amount of information from their phones, no matter where they are."

In fact, there are so many apps that it can be overwhelming to sort through them all, or to find the emergency preparedness apps among the latest games.

It's first helpful to understand the different types of apps available. Some are stand-alone: They may provide reference material on everything from hazardous materials to pharmaceuticals. Many of these are basically reference books that are now

available as an app — with the added benefit of being more portable and searchable.

Other apps give responders access to an emergency management department's software system.

"We have in the state of Florida software for logistics management for disasters," said Chuck Hagan, state logistics chief for the Florida Division of Emergency Management. "It's a huge application." It manages every

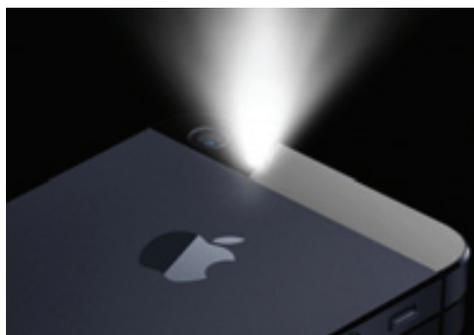
resource, from the warehouse to field operations to shipping and receiving. Now an app available for Android phones and iPhones gives users access to the system without being at their computers. “It’s a mobile access portal back to a much larger, robust application.”

RECOMMENDATIONS

Experts offer these recommendations for specific apps or types of apps that are worth considering adding to your smartphone or recommending to the public as well. For most apps mentioned, a simple Web search will turn up a site where they can be downloaded.

LOCAL APPS. One of the keys to preparedness for both the public and emergency responders is to know what is happening locally. Some local jurisdictions have created their own apps, such as Ready NYC and SD Emergency by ReadySanDiego.

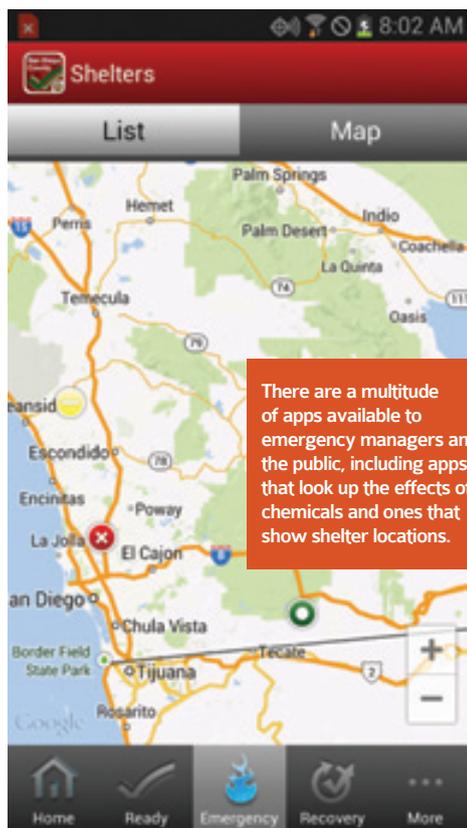
“The importance of tailoring it to the local hazards is that it adds to the credibility and makes it more relevant,” said Francisco Sánchez Jr., public information officer for the Harris County Office of Homeland Security and Emergency Management in Houston. More general apps can



certainly be helpful, but people want the most relevant information at their fingertips. “Tapping and clicking has made us lazy. We don’t want to scroll through 30 disasters to find the one that’s relevant to us.”

Many more general apps also help emergency responders and the public stay on top of local events. These include Twitter, Instagram and local news sources like television stations and newspapers. Some experts also recommend police scanner apps, but check laws in your state to make sure the apps are legal there.

Finally, see if your local utility company has an app. The app My conEdison, for example, can help customers of that New York City utility report and get information on outages.



MAPS AND WEATHER. These apps are helpful even when there’s not an emergency. Google Maps, Waze and iOS Maps all provide traffic information as well as maps. Weather information is also helpful. “There are seemingly thousands of weather apps,” said Adam Crowe, director of emergency preparedness at Virginia Commonwealth University in Richmond. This helps both first responders and the public prepare for bad weather even when they’re not in front of a computer or TV. The Weather Channel is one place to start, or search for “best weather apps” and determine what will best meet your needs.

FLASHLIGHT. This function is built in on some newer phones and is an app on others. “We’ve pushed for years for people to have a flashlight and batteries,” Crowe said. “But having a flashlight on your phone is quick, free and easy.”

NOTE-TAKING AND RECORDING. Many productivity tools aimed at a general audience are extremely useful for emergency managers.

For example, Phelps counts several of them among his most useful apps, including: Evernote for uploading files, photos, audio and notes into one place; ColorNote to make quick task lists; AudioNote for recording notes on the iPad; the 37signals suite of tools for project management, contact management and chat; and Incident Command Table to plot events on Google Maps.

EMERGENCY PREP APPS. The American Red Cross and FEMA both provide apps that are useful. The Red Cross’ applications are listed at www.redcross.org/prepare/mobile-apps, and include apps for finding shelters and instructions for performing first aid. FEMA’s app is at www.fema.gov/smartphone-app.

TECHNICAL APPS. A number of more specialized apps are designed for first responders or citizens with a particular interest in emergency preparedness. The National Library of Medicine has a Web page that lists many of these: disasterinfo.nlm.nih.gov/dimrc/disasterapps.html. The page includes apps like Mobile REMM for responding to radiation, WISER for responding to hazardous materials, and links to a number of disaster-specific resources including the American Red Cross’ apps for hurricanes, tornadoes and earthquakes. There’s also a link to an app from the Centers for Disease Control and Prevention that tracks flu outbreaks.

PROMOTING LOCAL APPS

Beyond the apps already available, emergency managers can consider putting together their own app for the public to download.

“It’s a very exciting opportunity for emergency managers, because of the proliferation of smartphones and the ease with which we can now get information directly to our citizens,” Koon said. “It’s easier than ever before.”

Crowe said emergency management has been “behind the curve” when it comes to using apps to communicate with the public. But there is an opportunity to change that.

Creating apps isn’t cheap, Koon said, but there are many people available who know how to do it.

Koon does have some concerns about the idea of emergency management departments rushing to create their own apps for the public to download. Getting people to download and use an app requires marketing,

Q&A: Text-to-911

Another Form of Communication Seeks to Help Improve Public Safety

SMS text messaging has evolved in the last decade from a teenager phenomenon to a tool for the hearing and speech impaired to a main form of communication for the majority of U.S. citizens who carry a cell phone.

SMS text messaging is beginning to enter another stage of utility with the “text-to-911” initiative — a way to contact emergency services via SMS technology when voice communications aren’t possible. While very few public safety answering points (PSAPs) in the U.S. are able to receive and respond to these transmissions, the country’s four largest wireless telecommunications carriers will voluntarily enable greater connectivity of SMS text messaging to 9-1-1. Jeanna Green, 9-1-1 design engineer for Sprint, talks about the limitations and possible benefits of text-to-911.

Q: What is text-to-911 and who would benefit from it?

JEANNA GREEN: Text-to-911 is the ability to type and send a text message to a PSAP via a wireless phone to request emergency assistance. While the interim SMS text-to-911 solution may provide the most overall benefit to the deaf, hard-of-hearing and speech-impaired communities, it is expected to be increasingly used by the general public. Messaging within the industry encourages the concept of “call when you can, text if you can’t.” Text-to-911 will also be suggested in circumstances when voice calling is unavailable or unsafe, such as during incidents of domestic violence where a voice 9-1-1 call could endanger a victim further.

Q: What are the expectations and limitations for text-to-911?

JEANNA GREEN: SMS is a “best efforts” store-and-forward messaging technology that has been around for a long time and was never intended to provide time-sensitive, mission-critical assistance such as contacting emergency services. The initial text-to-911 solution will be limited to the capabilities of the existing SMS service offered by participating wireless service providers. For example, it won’t be available to wireless subscribers roaming outside their home wireless network and won’t automatically provide location information to the PSAP. The service is being voluntarily offered in the interim until the more comprehensive Next Generation 9-1-1 (“NG9-1-1”) system is developed and adopted, which should enable the transmission of text, images, video and other data to PSAPs.

Q: The large wireless carriers have committed to providing this service in areas where PSAPs are able to receive and respond to transmissions. What is the timeline for this implementation?

JEANNA GREEN: Although there is a deadline for the national carriers to have their networks ready to provide text-to-911 service by May 15, 2014, PSAPs must also send a letter to the carriers requesting implementation of this service once they are able to receive SMS text messages. It could take perhaps as much as six months from the date of the request to fully implement the service to that PSAP.

Q: Tell us about Sprint’s involvement with text-to-911 as part of its overall planning.

JEANNA GREEN: As a company dedicated to the importance of communications for the deaf, hard-of-hearing and speech-impaired communities, we’re enthusiastic about helping expand the public’s ability to get critical assistance when they need it. Towards that end, Sprint continues its active participation in standards bodies and industry working groups, along with cooperative efforts with PSAPs across the country. Additionally, Sprint evaluated two “text control center” vendors in 2013, completing a six-month trial with the State of Vermont, testing a delivery solution with the State of Maine and another solution with Mid-America Regional Council. These are innovative partnerships and we’re proud to be a strong contributor in the evolution of emergency communications that bring such benefit to our communities.



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Turkey-Inspired App



Bioengineers at the University of California, Berkeley have developed an app that recognizes chemical vapors with a biosensor that was inspired by the heads of turkeys.

The skin on a turkey's head shifts in color from red to blue because of bundles of collagen interspersed with blood vessels. As the vessels swell or contract when a turkey gets mad or excited, the collagen fibers change and that changes how light waves are scattered and thus changes the colors of the bird's head.

Researchers used this information to develop the iColour Analyser, a mobile app that copies the color-changing ability of the turkey to create biosensors that can detect dangerous chemicals. The sensors were developed from bacteriophages (viruses that infect bacteria) that act as the collagen fibers do in the skin of a turkey. This feature allows it to detect toxins or airborne pathogens.

"In our lab, we study how light is generated and changes in nature, and then we use what we learn to engineer novel devices," UC Berkeley associate professor of bioengineering Seung-Wuk Lee said in a statement.

"Our system is convenient, and it is cheap to make," Lee added. "We also showed that this technology can be adapted so that smartphones can help analyze the color fingerprint of the target chemical. In the future, we could potentially use this same technology to create a breath test to detect cancer and other diseases."

since the app is "just one of thousands of different things out there," he said. "The chance is that we'll do too many apps. I'm concerned that we'll all spend lots of our own dollars on this, with maybe not the ROI that is possible if we collaborated."

Emergency management departments should consider joining forces with nearby jurisdictions to develop better apps and marketing strategies. "If you dilute it too much, perhaps we're not accomplishing what we could," Koon said.

MORE CONCERNS

There are other caveats regarding both creating and using apps in emergency management.

For example, when an emergency management department creates its own app, is it overlooking existing apps? One strategy, Koon said, is for emergency management departments to work on feeding data to apps that are already being used — sending shelter location information to mapping apps, for example — instead of creating their own and hoping people will download and use them.

"Should we be creating that last mile to the user, or should we be putting the data out there so the right people pick it up and put it in their product?" he said.

It's important for several reasons to not become overly dependent on apps and smartphones.

For one thing, only a certain percentage of the population will download a preparedness app and then remember to check it when an emergency actually happens. "People who are downloading an app on public safety are probably already well connected," Sánchez said.

Another key concern is what happens when cellphone towers are taken out during an emergency and smartphones can no longer connect to the Internet. While some apps will work without access to a cellular or wireless network, not all do.

"For disasters and emergencies, that's critical to know," said Stacey Arnesen, branch chief for the Disaster Information Management Research Center at the

National Library of Medicine (NLM).

It's worth spending some time with critical apps to figure out how they will function without connectivity.

The NLM includes on its site an explanation of the types of apps and how they will perform in an emergency: Native, or stand-alone, apps store content on the mobile device,

so they keep functioning even without an Internet connection. Web apps — including those that use the user's location to customize data — will work only when connected to the Internet. And mobile Web links are simply links to Web pages, optimized to work well on a mobile device. These also require Internet connectivity.

Some apps have certain content that stays on the phone and other functions that require an Internet connection. A few

apps explain this, but for most, "the thing we found most useful is to put it in airplane mode" and try using it, said Jennifer G. Pakiam, a technical information specialist at the NLM. That way you'll see exactly how useful — or not useful — the app will be if your Internet connection goes down.

Finally, remember that mobile devices need power to run. "We have to be careful that we're not totally dependent on any one system," Hagan said. "Your battery may die; we may lose cell towers. We keep a lot of books around here for when the computers crash or we lose connectivity."

Despite these drawbacks, though, mobile apps have great potential for helping emergency managers in responding to emergencies and reaching the public.

"They can help us with reports, checklists, geolocation and situational awareness," Sánchez said. "Almost all of our phones can download an app. I think apps would allow us to work across jurisdictions and across organizations and provide a common platform."

And for the public, they also provide a new level of emergency preparedness, Sánchez said. "For the spontaneous emergency, you might not be home, but you do have your mobile device with you." ✚

"Tapping and clicking has made us lazy. We don't want to scroll through 30 disasters to find the one that's relevant to us."

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THE CONTEMPOR GUARD

THE NATIONAL GUARD HAS UNDERGONE AN EVOLUTION TOWARD ALL-HAZARDS RESPONSE IN RECENT YEARS, ESPECIALLY IN CALIFORNIA.

ARY



There are some pretty gnarly looking YouTube videos showing California National Guard officers dropping water on the destructive Rim Fire that burned more than 257,000 acres in California in August 2013.



On display in the videos is the kind of effort that went into combating the massive blazes and took the combined efforts of forces like the National Guard, the California Department of Forestry and Fire Protection (Cal Fire) and the U.S. Forest Service to quell. In all, those entities poured at least 250,000 gallons of water or retardant on the blazes.

The videos show the result of the all-hazards and whole-community mentality that the guard has adopted more since 9/11 and especially Hurricane Katrina. The guard works alongside the California Emergency Management Agency in a state where threats of wildfires, floods and earthquakes are omnipresent.

The guard's Joint Operations Center (JOC) near Sacramento is staffed 24/7, and on the day *Emergency Management* visited, staff members were tracking a system that turned out to be the devastating Typhoon Haiyan that killed more than 6,000.

The JOC is a modern operations center, and guard personnel can drill down into areas affected by a potential disaster and obtain a great degree of situational awareness. For example, if there's an earthquake in the Bay Area, the guard can locate personnel in the area and within 15 minutes know which soldiers will and will not be recallable.

"Google Earth allows us, with our layers and feeds that we leverage from Northcom



A California National Guard officer drops water on the Rim Fire in August 2013.

FELICKS/CAGUARD



[U.S. Northern Command in Colorado], existing relationships and mutual aid agreements, and pull up layers such as Caltrans to see what traffic is like,” said Maj. Brandon Hill. “We can use these layers and the ability we have with personnel in the JOC to push someone in the area, whether it’s [guardsmen] from out of state, local first responders or military.”

“During the Rim Fire, you’d have seen this room fill up with our aviation assets, our Cal Fire partners and others,” said Maj. Dan Bout. “We had Army aviation and Air National Guard aviation assets, including their liaison officers, right here at these stations providing information to us so the decision-makers can say, ‘We need to put more assets on the south side of the fire’ or whatever that incident commander from Cal Fire or the U.S. Forest Service needed.”

During the Rim Fire last August, Black Hawk helicopters manned with guardsmen dropped 660-gallon buckets of water on the fire, something that the guard trains for regularly. That all-hazards training came after Katrina when the guard realized it had to improve natural disaster response.

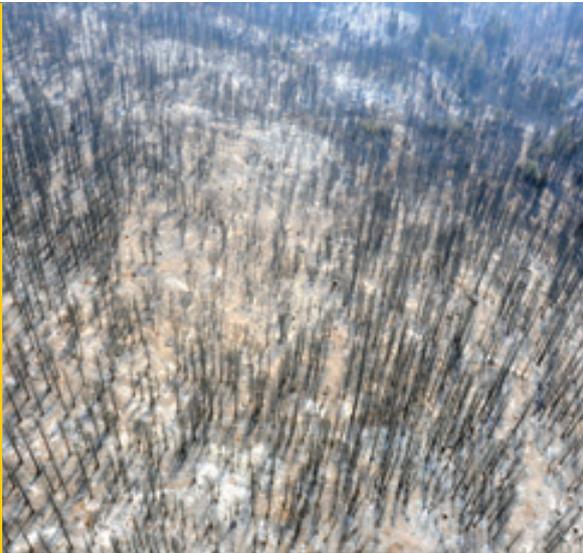
Col. Wesley L. McClellan, deputy director of J-3 operations, said the biggest change that came from 9/11 and Katrina was training to support civil authorities. He said the training led to partnerships and helped “bridge federal-state planning efforts, promote mutual understanding and enhance unity of effort.”

During an event, the guard will be on alert in the JOC until a mission-tasking request is made. Guardsmen track the event, do predictive analysis, maintain situational awareness and are in constant communication with partners in preparation for a formal request. “During the Rim Fire when we had all the state’s fixed-wing and rotary-wing assets already committed, they recognized that gap, turned to the National Guard and said, ‘We need X number of rotary-wing aircraft and so on,’” Bout said.

Tracking an event and maintaining situational awareness is key to being ready when the call comes. “They’re busy. We’re not calling them, saying, ‘Do you need us?’ We’re doing that predictive analysis and saying, ‘We think they’re going to run out of resources,’ which means we’re next in

line to get a phone call for aviation assets, or soldiers and airmen to help out,” Bout said.

“We have a close working relationship with the National Guard,” said Mark Ghilarducci, director of the California Office of Emergency Services. “I have liaisons here 24/7, and we share information on joint priorities. The National Guard provides support for all of the agencies, predominantly public safety, but depending on the situation, the National Guard is a force multiplier. They’re the governor’s army, so they are — through my office — tasked to do a multitude of support, whether it’s aircraft transporting people or getting boots on the ground.”



The National Guard helped pour more than 250,000 gallons of water on the Rim Fire.

There are more than 20,000 guardsmen in the state, most based in high-population areas like the Bay Area and Southern California. There are also smaller units, called armories, of about 120-150 personnel in some of the state’s less populated areas as part of more than 200 guard installations.

The guard is prepositioned, physically and otherwise, to respond to most scenarios. “We have a lot of priority intelligence requirements based on seasons,” Hill said. “We’re entering a flood season, so there are different layers, such as river gauges and weather feeds, that we monitor.”

In addition to blazes, the fire season also brings the second and third effects of flooding

and mudslides, and the guard must be ready to respond to those. That’s where predictive analysis comes into play. “Instead of having a knee-jerk reaction, we know it’s coming based on what was happening in the JOC,” Bout said.

Part of avoiding a knee-jerk reaction is getting “socialized” to any response that might be necessary. That means practice. Once a year, reservists drill to see if they’re up to a major response. They test everything, including their fitness, if radios work, if they’ll have food and water for three days, and if the administrative tasks are taken care of.

“It’s not as simple as putting in a call because these are reservists,” Bout said. “That’s one thing California prides

itself on. By practicing, coming up with a system and then vetting that system, we have the ability to respond that doesn’t exist in a lot of other National Guards.”

In a state as diverse as California, the focus must be on all hazards, and the guard must be ready to respond to many possibilities on short notice. “If you’re on the East Coast, your predominant emergency is going to be a hurricane, where it’s all hands on deck, the disaster’s coming and you have advance notice,” said Hill. “In California the things we’re looking at are no-notice.”

Hill said the response is similar to any guard response but more flexible and diverse. “We don’t want to be limited,” he



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said. “We have plans for every major catastrophe in California you can think of.” Redundancy is important too since the JOC is in a flood plain. “We even have our own internal plans if this building gets flooded. We have an alternate location in Fresno.”

The signal to respond comes as a tasking request from the state’s Office of Emergency Services. The guard will have been monitoring the situation at the JOC, prepping to deploy assets. The smaller, 150-man units can be deployed within six hours and are generally moving within two or three hours of the request.

“That’s six hours,” Hill said. “That doesn’t mean we sit in the JOC at three in the morning and wait. I have the authority at two in the morning to make that call to the company commander and say, ‘Alert, recall your forces to your armory.’ They’ll have six hours to marshal a certain number of personnel, vehicles, etc., and then depart. I can give initial guidance and say, ‘Get down to Oakland and link up with the EOC, here’s your point of contact, go.’” That call may go out several ways — high-frequency radio, email, alert systems, the Ever-bridge notification system or by phone.

The larger, 500-man units can be deployed in 12 hours, depending on the location in the state. Onsite, personnel are staged in a process called Joint Reception, Staging, Onward Movement and Integration (JRSOI). “Instead of flooding people, that’s what JRSOI prevents,” Bout said. “It’s a processing point and puts them in the theater and keeps track of them.”

A tiered response will let a unit get to the site, establish command and control, and provide early eyes and ears on the situation. If guard and military personnel from other states are called in, they’ll all be under the management of a dual-status commander.

Dual-status command was another initiative that came out of Katrina, where 70,000 soldiers showed up in force, but there was no chain of command. Each state now has a dual-status commander, who’s in charge of both National Guard and active-duty personnel.

“We moved to the dual-status commander concept fast and that’s been a great thing,” Ghilarducci said. “We introduced a concept called the California military coordinating officer, which is equivalent to the federal DCO

The National Guard works and trains alongside the California Department of Forestry and Fire Protection.



[defense coordinating officer], but on the state side and that rolls into liaison and support much like the federal DCO does with FEMA. No other place in the country has this yet.”

The dual-status command structure was used successfully during Hurricane Sandy, where state and federal personnel worked under the same chain of command and helped local first responders deliver 6 million meals and more than 8 million gallons of unleaded and diesel fuel.

The structure also helps with the whole-community approach the guard has embraced since Katrina. “Along with 9/11, Katrina was one of those pivotal domestic incidents that highlighted the critical importance of pre-incident planning, shared situational awareness and interagency coordination,” McClellan said.

Most states don’t have a 24/7 JOC. But California is unique and so is the guard’s ability (much like Florida and New York)

to do water search and rescues. Every few months the guard is deployed for maritime service. For instance, the guard was recently asked to help with a rescue 1,300 miles off the San Diego coast. It was out of the Coast Guard’s reach, and the Air Force couldn’t support the mission. The guard flew two aircraft from Moffett Airfield in the Bay Area, assisted a Chinese fishing vessel, then handed it over to the Coast Guard.

“That’s something we’d quarterback here in the JOC with our supporting units throughout the state,” Hill said. In fact, he said, the guard responds to a search and rescue or other emergency every three days or so. They also provide shelter for the homeless at armories throughout the state at different times of the year. It’s all part of the guard’s new community mentality. ✚

jmckay@emergencymgmt.com

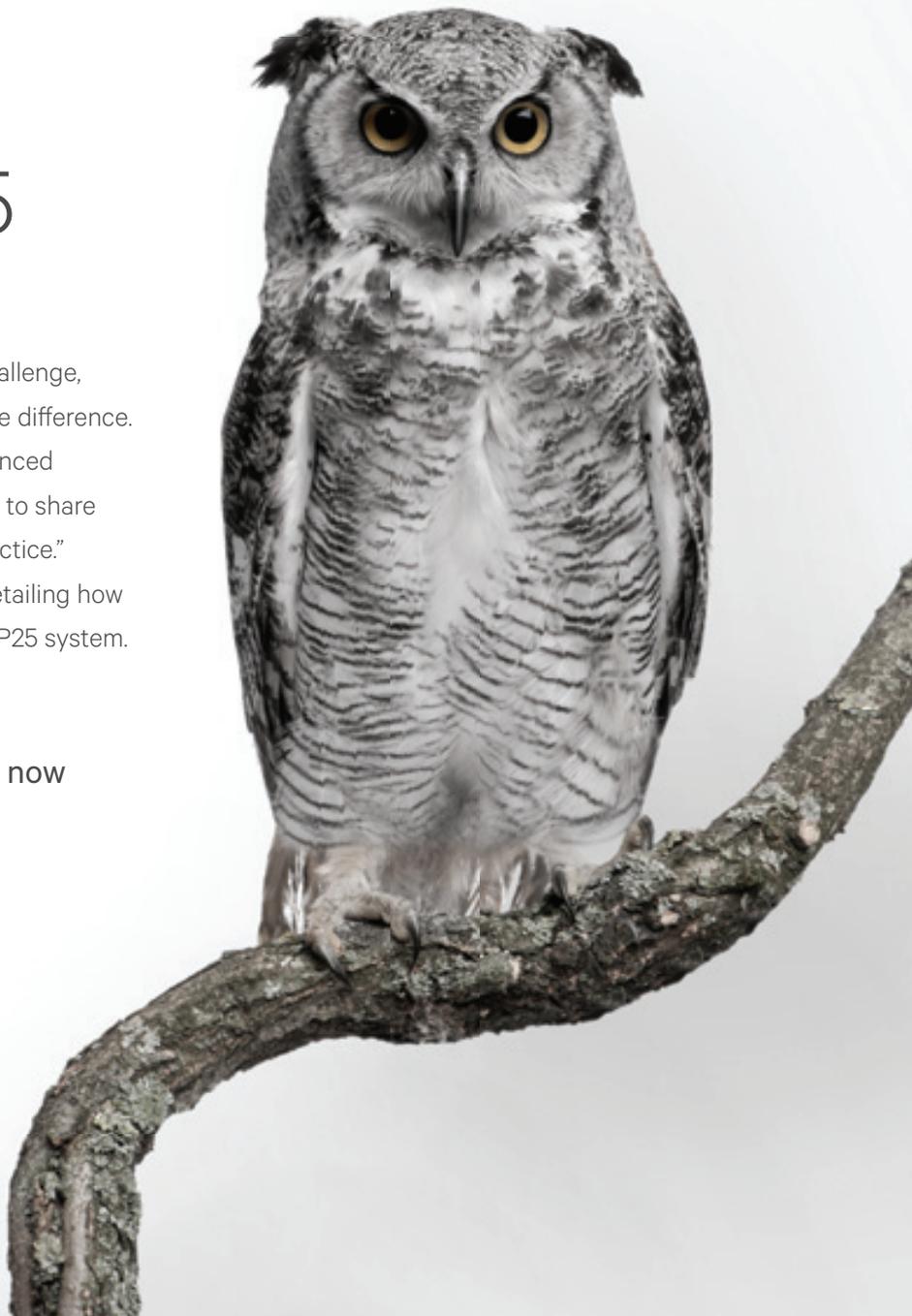


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BY JUSTINE BROWN / CONTRIBUTING WRITER

JOPLIN'S NEW-



Focusing on rebuilding Joplin's schools gave the community something to look forward to after the devastating tornado in 2011.

RENDERING PROVIDED BY JOPLIN SCHOOLS

- AGE SCHOOLS



LOSING 600,000 SQUARE FEET OF EDUCATIONAL SPACE DEVASTATED JOPLIN, MO., SCHOOLS, BUT REBUILDING PROVIDED AN OPPORTUNITY TO INNOVATE.

The EF5 tornado that hit Joplin, Mo., on May 22, 2011, spent 32 minutes on the ground. In that brief period, the twister managed to inflict immense damage.

The storm, which featured winds exceeding 200 mph, killed 161 people and destroyed more than 25 percent of the city, including 7,000 homes and nearly 2,000 buildings. It was the deadliest single U.S. tornado since 1953.

And the twister didn't spare Joplin schools. Twenty of the school district's buildings were damaged or destroyed, causing more than \$100 million in damage and leaving more than 4,000 students without a school to attend.

"The tornado seemed to take a direct hit on the schools," said Joplin City Manager Mark Rohr. "But we were fortunate it happened on a Sunday afternoon and not on a school day."

As the city battled shock and confusion in the wake of the disaster, Rohr, Joplin Schools Superintendent C.J. Huff and other city leaders concluded that moving ahead with plans to repair the city would be key to the healing process.

"I can't even begin to describe the sights, sounds and smells of what I experienced," said Huff. "It was an abysmal feeling. We were in a very bad place as a community. But you can't just stay in that place. So we started talking about what the future would look like and making plans right away."

A few days later, Huff announced his intention to the school board: Joplin schools would open again in time for the fall semester, which was just 84 days away.

"Making that declaration was important for a number of reasons," he said. "It created a vision and helped us to stop focusing on the despair. Instead, everyone started thinking about how we were going to pull together to get our schools back online in time for the next school year."

THE SEARCH FOR SPACE

In all, Joplin lost more than 600,000 square feet of educational space. The process of finding temporary classrooms for 4,000 kids and repairing the damaged schools was at first overwhelming.

"Obviously you don't have a game plan for something of this magnitude," Huff said. "But we started by working with the local Chamber of Commerce, real estate agents and the Army Corps of Engineers to find large, open spaces that could be modified to meet our school needs."

Among the first priorities was creating an interim high school. The devastated Joplin High, which had served 2,200 students just before the disaster, had been the city's only high school.

"Not only was the high school important because of the number of students that attended, but also because, as high school students, these would be the last memories of their K-12 education," Huff said. "We wanted to treat our kids right and make sure the facilities were high-quality, even though they were temporary."

The city secured 100,000 square feet of vacant retail space at the north end of Joplin's largest mall, once occupied by a Shopko department store. Corner Greer & Associates of Joplin was selected to retrofit the space and transform it into an educational area. Designers and contractors had just 55 business days to complete the job. They not only had to be fast, they also had to be creative in working with limitations. For example, the kitchen and science labs had to be housed in modular trailers outside the building.

Because of limited space at the mall facility, the Joplin School District chose to use the space only for juniors and seniors (approximately 1,100 students). Freshmen



City officials in Joplin turned the disaster into an opportunity to rebuild schools for the 21st century.

IMAGES PROVIDED BY JOPLIN SCHOOLS



BACK-TO-SCHOOL TIMELINE





FEBRUARY 2012
BOARD OF
EDUCATION
APPROVES
DESIGN PLANS

APRIL 3, 2012
\$62 MILLION
BOND
REQUEST
PASSES

MAY 22, 2012
GROUND-
BREAKING
CEREMONIES
FOR NEW
BUILDINGS

JULY 2012
CONSTRUCTION
BEGINS AT
SOARING
HEIGHTS
AND EAST
MIDDLE
SCHOOL

AUGUST 2012
CONSTRUCTION
BEGINS AT IRVING
ELEMENTARY SCHOOL

JANUARY 6, 2014
FIRST DAY OF
SCHOOL IN
NEW BUILDINGS



Twenty school district buildings were damaged or destroyed.

and sophomores were sent to Memorial Middle School, which wasn't hit by the tornado. Other temporary facilities were constructed or retrofitted in various locations to accommodate the rest of Joplin's students. Huff said the biggest challenge was retrofitting an 80,000-square-foot industrial warehouse that had nothing but a gravel floor — it didn't even have windows, air conditioning or power.

"We did a lot of juggling to make all the puzzle pieces fit," Huff said. "It was a full-court press for each of those 84 days."

In the end, the city successfully found facilities for all its students and the new school year started on time.

NEW BEGINNINGS

Once students were in their temporary facilities, city officials turned their attention to replacing what had been lost. Rebuilding Joplin schools had one distinct advantage — starting from scratch gave school officials an opportunity to improve both safety and the learning environment. Each of the new schools built or under construction has one or more FEMA-compliant EF5-rated tornado shelters.

"All of our schools will now have safe places for all the children," Huff said. "That's important, obviously from a safety perspective, but also from a mental health perspective. Our district has 7,747 kids, and about 40 percent of those kids lived in the direct path of the tornado. Most of them experienced an EF5 tornado up close and personal, and lost everything in the storm. They need that peace of mind, as do the parents. Post-traumatic stress is still very prevalent here."

The shelters will also be open to the community 24/7. By the time all construction is complete this August, Joplin schools will have enough room to shelter approximately 15,000 people.

In addition to improving safety, Joplin officials took the opportunity to incorporate 21st-century learning environments into the new schools. District leaders engaged high school staff, students, administrators and parents to brainstorm new ideas. A team of administrators toured tech-savvy schools around the country, as well as innovative companies like Apple in Cupertino, Calif., to examine cutting-edge work environments.

MORE LESSONS FROM JOPLIN

JOPLIN CITY MANAGER MARK ROHR was at home the evening the EF5 tornado tore through the heart of Joplin. "I got a phone call from the fire chief," said Rohr. "He said, 'You better come now.'" Not realizing the extent of the damage, Rohr headed into the city expecting to rally a few local officials to perform storm assessments. "The closer we got to the city, the worse it was," he said. "We saw the vocational school was gone, and the high school was almost completely gone. We had a lady run up and ask us to help some people that were trapped in a church." After assisting with several critical situations, Rohr went to work with other officials to organize Joplin's response. That evening, they took a helicopter ride over the city to assess the damage using night vision goggles. What they saw was devastating. "One-third of the city was gone," Rohr said. "When we got back, I worked with city staff all night long to organize what we needed to do."



The immediate response from a school perspective centered on three priorities:

1. Account for all students and staff. Social media played a huge part, as cellphones weren't usable.
2. Get an assessment of damage to facilities, and determine what facilities might be usable again.
3. Secure valuables that could be salvaged safely, from medications in nurses' cabinets to technology to student records.

Rohr and other city officials worked incessantly from that point forward doing whatever needed to be done to repair the damages. Joplin received an outpouring of support from federal, state and other agencies. "One challenge we had was so many people that came here to help didn't know the city," Rohr said. "We tried to match each of them up with a city employee who knew the city inside and out. However, we still ran into challenges because even the lifelong residents didn't recognize parts of the city. In some cases, there was so much damage there was no way to get their bearings."

City officials were also amazed by the number of people who came forward to volunteer. In all, the city had 175,000 registered volunteers. "We weren't prepared for the outpouring of support that came our way, and managing the donations and volunteers," Rohr said. "We needed to find something for everyone to do to contribute because we wanted to enable everyone to help."

Rohr wrote a book, *Joplin: The Miracle of the Human Spirit*, following the ordeal. In the book, he recounts many of the events following the disaster and recommends how other cities might better prepare for the unexpected. "We got a lot of help, and we wanted to make sure we shared what we learned with others," Rohr said.

“All of our schools will now have safe places for all the children. That’s important, obviously from a safety perspective, but also from a mental health perspective. Our district has 7,747 kids, and about 40 percent of those kids lived in the direct path of the tornado. They need that peace of mind, as do the parents. Post-traumatic stress is still very prevalent here.”

“We didn’t take the traditional approach to school construction,” Huff said. “We are creating schools that have a very open environment and collaborative spaces.”

The new schools have moveable walls that allow educators to create flexible spaces where students can collaborate in large and small groups. In addition, small group “think tank” areas are located in all the new buildings.

Technology also plays a key role. Franklin Technology Center will be incorporated into the new Joplin High School, and thanks to a \$1 million donation from the United Arab Emirates Embassy, all 2,200 Joplin high school students now have a dual-platform laptop computer. All new buildings are also wired for current and future technology opportunities.

From a curriculum perspective, Huff said they have developed a new Career Pathway framework for course delivery.

“In essence we will be creating interdisciplinary teams that are in the process of delivering rigorous, project-based instruction in the students’ areas of interest,” he said. “We have five broad career pathways kids can choose from.”

Care was also taken to ensure the new school buildings would be efficient. While they won’t be LEED (Leadership in Energy and Environmental Design) rated due to the high cost of certification, the buildings were built with sustainability in mind, with everything from the materials used, to rain water collection for irrigation, to natural daylighting, and motion on/off switches in the classrooms. In addition, the new Joplin High School has a conduit in place to incorporate solar power once it becomes cost effective.

MOVING FORWARD

Though the 2011 tornado left a permanent scar on Joplin, Huff and Rohr are thankful something good came out of the wreckage. In January 2014, students moved into two new elementary schools and a new middle school. The permanent high school will be complete in August. The schools will not only be stronger,

safer and better equipped to handle another tornado should one occur, but they also have the distinction of being some of the most advanced learning spaces in the U.S.

“We took the design of our new schools very seriously, and we went above and beyond to research best practices from a learning

standpoint as well as from a construction standpoint,” Huff said. “When all is said and done, we’ll have some pretty amazing new schools that are efficient, cost effective and innovative.” +

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Firefighters' roles have expanded far beyond flames and into other areas of responsibility like hazmat response.

IMAGE: U.S. AIR FORCE/KENNY HOLSTON





Today's firefighter is expected to wear many hats, sometimes even a law enforcement one.

SPREAD TOO THIN?

By
Adam Stone

As firefighters arrived on the scene, they knew they'd encountered something truly different that would test their accumulated skills. The lady had a snake under her rug. "I said to her, 'With all due respect, why did you call the fire department?'" said Phil Davis, a retired deputy fire chief from Elk Grove, Calif. "She said, 'Because I knew you'd come.'"

It's true. Rescuers want to rescue, and that ever-ready mentality has been the hallmark of fire departments for decades. (Cats in trees? No problem.) But that same can-do attitude has some policymakers thinking that firefighters can — and will — do anything.

In most fire stations today, putting out fires is merely the start of a day's work. In addition to the emergency medical services that have long been a part of the repertoire, many fire stations field their own specialized hazardous materials team. They perform skilled rescue operations from deep wells and swift water, deliver babies, engage in counterterrorism and sometimes even catch snakes.

Of the 31,854,000 calls to U.S. fire departments in 2012, only 1,375,000 were for fires. Medical aid accounted for the bulk of the rest at 21,705,500, according to the National Fire Protection Association. Hazmat, mutual aid, false alarms and other events made up the difference.

Some say this ever-expanding mission creep is dangerous, stretching resources too thin and diluting firefighters' ability to do what they do best. It seems reasonable to ask: How did we get here? What are the risks? And what's to be done about it?

In the News

What do firefighters do besides dousing flames? A scan of recent headlines helps demonstrate the degree to which fire stations have extended their efforts.

In July, New Mexico hazmat teams dispatched from local fire stations three times in a single week. In one case they tackled a suspicious package containing an unknown powder addressed to Gov. Susana Martinez's office. The letter contained court documents. Earlier that week, clerks in the Santa Fe and Tierra Amarilla courthouses had opened similar packages, with hazmat stepping in each time.

Last summer an Arizona monsoon sent firefighters on swift water rescues three times in under an hour. A man got trapped in his car, a woman was swept under a bridge and a teen boy got stuck in the middle of a wash.

In December, five Cornelius, Ore., firefighters won commendation for helping a woman deliver a baby in her car. And in September, firefighters in Brooklyn, N.Y., delivered Toni Davis' baby on the couch in her apartment. "God bless those firemen; they always come through for us," said new grandmother Arlene Davis.

Sometimes they even put out fires.

Gathering Momentum

The fire department's expanding role has been going on for decades. In the 1970s, doctors home from Vietnam began introducing emergency medicine into firefighting. Hazmat emerged in the 1980s, and in the 1990s, firefighters increasingly took on the role of technical rescue experts.

Lately the call for services has cascaded: Hazmat has come to embrace weapons of mass destruction, which has led to counterterrorism duty. Somewhere along the way, active shooter response got tossed into the mix. In the most extreme examples, some firefighters also serve as active police officers.

Much of this expansion is budget driven. With rescue professionals already on the payroll, some policymakers have seen a natural logic in saddling those professionals with additional rescue-related tasks (or at least roughly related).

Some of the phenomenon can be attributed to firefighters themselves: that can-do persona, that readiness to serve. And some of it's just lousy PR work. "The fire service hasn't done a good job marketing itself," Phil Davis said. "There's still this wrong belief that firefighters are sitting around the station

petting the Dalmatian and playing checkers. So when people at the highest level of government see a need, they'll say, 'Let's give it to the fire department, they're not doing anything.'"

Paying the Price

Some see a definite upside to all this. At the Sacramento, Calif., Metropolitan Fire District for example, Battalion Chief Steve Turner sees counterterrorism as a natural extension of firefighters' emerging role as a force for prevention. Heightened awareness of terror threats is a natural corollary to promoting smoke alarms. "If we see a box of chemicals, 10 years ago we wouldn't have known to take that seriously," he said. "Now we do know, and we have systems in place to take that more seriously."

But there's a price to pay: All these extra responsibilities come with added training requirements, said Kevin Spellman, retired captain of the San Rafael, Calif., Fire Department. By the time he retired in 2010, "we were spending considerable time on training to meet these ever-increasing federal requirements."

"The citizenry would get themselves into trouble, and when we responded we'd sometimes get ourselves into trouble. So the federal government said, 'Let's develop rules to protect us from ourselves.' Now you're spending a tremendous amount of time in the classroom, in addition to an increasing number of incidents you're responding to."

The pressure is especially strong on the 20 percent of firefighters who do this for a living. For them, training is mandatory, whereas volunteers can't be forced into a classroom. Yet without that added training, those volunteers can't be tapped to help meet the expanded operational requirements, thus putting more pressure on the careerists.

That demand for perpetual training weighs heavily on Paul Lurz, a battalion chief in the Baltimore County Fire Department, where work beyond the occasional house fire now includes hazmat, search and rescue, and work with the county bomb squad.

"One of our main challenges is the number of training hours required," he said. With multiple divisions and battalions, along with 25 paid stations and 33 volunteer stations, getting everyone trained takes much effort. It has a lot of moving parts, and everybody must talk to everybody else."

Most in the field agree that some cross-training does make sense. Emergency medicine, for instance, has been a part of the fire community for so long, no one really questions its validity. Hazmat too is largely an accepted discipline.

“These things make sense, but there comes a time when you reach the saturation point. Not everyone can be an expert in everything,” Spellman said. Yet some people strive to do just that.

Wearing Two Hats

In addition to being fire battalion chief, Turner is a reserve deputy sheriff for the county. Some would call it the ultimate in mission creep, literally wearing two hats.

He recalls an incident in which a fire got complicated when the resident started screaming that her boyfriend had lit the blaze. “The focus is on the fire, when this guy shows up,” said Turner, who kept operating the pumps until the man started a fight. “Then I took off my fireman hat, took on my law enforcement role, and took this guy under control, putting him into custody as a suspect in this fire.” Specifically, Turner got the man on the ground, improvised handcuffs, secured the suspect in the fire truck and then returned to his hose.

With 25 years’ firefighting experience and another 15 years wearing blue, Turner sees pros and cons. On the upside, he said, the expanded role gives people a chance to exercise a range of skills, giving departments more expertise to choose from depending on the need.

At the same time, juggling fire and police duties can get complicated for a department. Recruiting can be a challenge. “You need people with the capability and interest to do both jobs,” Turner said. Even if you can find them, they tend to defect at a higher rate, as their interests push them one way or another.

Some say the dual-role scenario might work occasionally, but it generally isn’t sensible to expand a firefighter’s role all the way over into the yard next door.

“It’s a completely different skill set to be a police officer,” Davis said. “There’s a fundamental psychological profile to this. Firefighters aren’t enforcement people. They like being the good guy. They’re helpers, they’re rescuers. That’s a big component in all this. Most firefighters don’t want to be cops.”

A Juggling Act

Want to or not, some will be cops, while others will rescue from rivers, analyze white powders and perform many other tasks that don’t involve dousing flames. How is a fire department supposed to make it all work?

Lurz focuses on the training challenge, which he’s tried to overcome by incorporating some learning aspect into the daily routine. “We try to have a culture where people come in and train every day,” he said. “They’re putting their hands on the equipment, they’re documenting, they’re drilling.”

Often this requires crossjurisdictional cooperation, with many companies teaming up to leverage their ability to train efficiently. The department has a specialist who oversees training, while each battalion shift has a facilitator to coordinate learning exercises. “Is this a need that exists only on my shift, or does it exist at the battalion or department level? Your thinking process has to include identifying this training need in every context,” Lurz said.

One common solution is to share a skill among multiple jurisdictions: A few hazmat experts from multiple fire stations, for instance, can come together as a single team, as needed. This helps to share the training burden.

Better PR would help too. “The fire department must be involved in the community, starting with the fire chief,” Davis said. “The chief must be active in the chamber of commerce and service organizations so people can see what they do.”

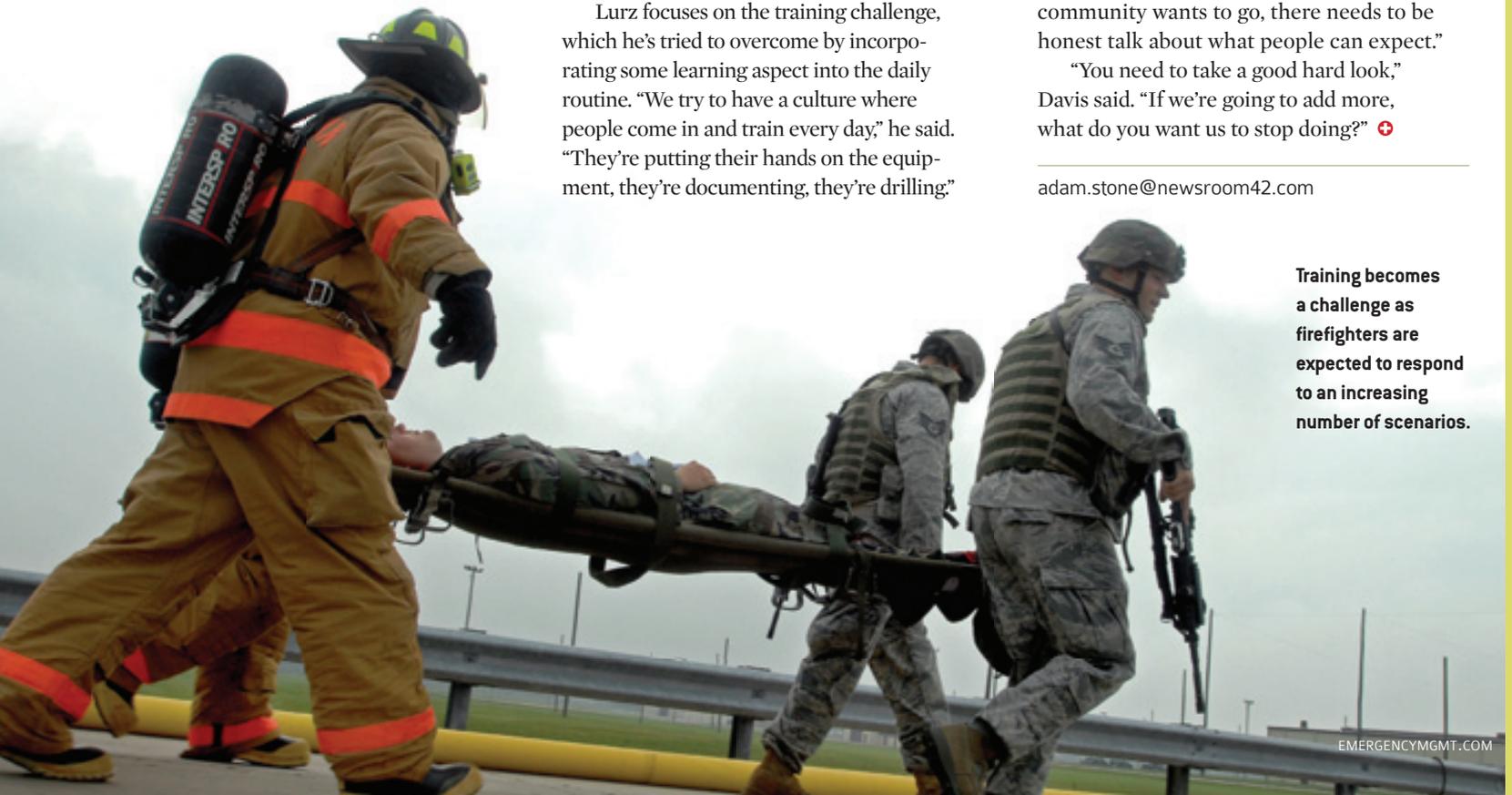
When all else fails, fire departments may need to check the mission creep by doing the unthinkable: saying no.

“They have to define their missions and level of service well, and they may have to set the bar lower in the level of service,” Turner said. “There’ll be sacrifices in staffing and response time. If that’s the direction the community wants to go, there needs to be honest talk about what people can expect.”

“You need to take a good hard look,” Davis said. “If we’re going to add more, what do you want us to stop doing?” +

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Training becomes a challenge as firefighters are expected to respond to an increasing number of scenarios.





A Balancing Act

How California's Mark Ghilarducci stays in front of a host of threats.

As director of the California Office of Emergency Services, Mark Ghilarducci uses every bit of his 30 years of diverse service in the public and private sectors, working in emergency services, fire and rescue and homeland security.

He is charged with keeping California up to speed on a host of threats, including earthquakes, floods, mudslides, wildfires, terrorism and other issues, including — of course — drought. The state is in its third year of drought as fire season approaches. Ghilarducci talks about how he keeps California abreast of the various risks and hazards.

By Jim McKay | Editor

⊕ Of course we first have to address the drought. From an emergency management perspective, how do we mitigate these circumstances?

The drought is one of these evolving situations. Unlike a fire that smokes or some sort of infrastructure damage, where you can see the damage and have a tangible sense of what it means, this is one of those situations that unless you do something about it proactively when it's on you, when it becomes a public health and safety crisis, it's too late.

Drought, particularly one at this level, has an impact on every sector we deal with. Whether it's transportation or education, food and agriculture, water supply, health and medical — all of these different sectors can be impacted. My role as the state's emergency manager is to coordinate all of the various agencies that have a responsibility and then do the advance planning to anticipate those vulnerable communities or issues that are going to rise up. We then put countermeasures in place so the disaster doesn't get out in front of us.

With the dry conditions, we're already in fire season. We've had to staff up three months beforehand and so that's another emergency management public safety concern. One of the governor's directions was to do early seasonal call-back for our [California Department of Forestry and Fire Protection] firefighters. Our strategy has been to be very aggressive in initial attack, get on fires fast and keep them as small as possible.

⊕ Let's switch gears and talk about earthquakes. We had a swarm of them in Southern California in 2012. Describe that scenario, how you reacted and why.

One of the things about earthquake swarms [sequences of localized earthquakes] is what do they really mean. Is it on an active fault or on a seismic gap, an area that hasn't been active for a while? Does it look like the swarm is accelerating and having an impact on structures? I convene the California Earthquake Prediction Evaluation Council, get their scientific interpretation and then based on that, issue an earthquake advisory saying, "We've had this swarm, there is a high probability that we will have more earthquakes as strong as or stronger than the last one you felt, so be prepared."

JESSICA MULLOHLAND

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That's what we did during the Brawley, [Calif., earthquakes in 2012]. The seismologists felt that it was in a critical area and could result in something greater.

+ How are you preparing for long-term recovery when/if that really big earthquake finally hits?

This is a big deal. It's multifaceted, and the first facet starts way before the earthquake even hits and that's building community resiliency and sustainability. We do that through public education, hazard mitigation programs and having robust plans we exercise. Then, of course, when the earthquake occurs there is a very aggressive response. But the recovery — and I've seen it in many disasters — is really the Achilles' heel. We can respond pretty well, but it's the long-term recovery that is really challenging. We here in California have been looking at restructuring our entire recovery framework. We're taking the National Disaster Recovery Framework, the overarching framework, which is really important that we consider because the federal government is going to be in to help us. But it's not just a government solution. We have engaged the private sector in a significant way, building [memorandums of understanding] with multiple private-sector entities to become part of the solution in rapidly recovering our communities. We think that the mitigation programs and focusing on resiliency before the event and having the private-sector engagement will really help us move forward.

Part of that private-sector engagement is the financial piece and having a pipeline of rapid financial support in catastrophic investment to help these communities get back online. We're really looking at prioritizing what needs to be done, first, second, third, and we really need to do that in close coordination with local government.

+ How vulnerable is California to a tsunami, and is it prepared?

We've thought quite a bit about it. The one thing about tsunamis and the way you address that is really getting the word out fast and for local coastal communities to have plans to notify the public that lives there and also the public that is visiting, particularly in our beach commu-

nities. Get the word out to move through evacuation routes that are well posted.

We did a significant amount of inundation mapping along all of our coast to help generate the evacuation routes and high points where citizens can go during a tsunami warning. It's an ongoing, ever-evolving thing we need to do. If we see an event coming, we turn that information around rapidly to the 911 centers around the state and the emergency managers and then through the plans, they get that information out by social media or other forms of communication. Through the 911 centers, they notify law enforcement and fire, who can then ensure that evacuation starts.

In some cases, it's just moving to higher ground to protect yourself. But understanding the speed and intensity of tsunami movement and what it could mean is a big factor. And public education is a big part of that.

"California has a robust emergency management system that we use in our mutual aid supporting county to county, city to city throughout the state every year for all kinds of threats."

+ In such a diverse state with so many risks, how do you prioritize risk?

We're constantly re-evaluating our risk matrix in California. We know for the most part that an earthquake is our highest threat, highest-consequence scenario. So really, when you look at the worst-case scenario planning for earthquakes and the way we approach our planning initiatives and exercises around that, it sort of trickles down to all the other threats. You need to tweak a bit; certainly if you've got a human cost threat, an act of terrorism, there are certain intelligence things we need to build into that. We may need some specialized resources to respond. But California has a robust emergency management system that we use in our mutual aid supporting county to county, city to city throughout the state every year for all kinds of threats. It doesn't really matter what the threat is, we use it to expand or contract based upon the incident and we try to re-evaluate this threat matrix each time.

After an earthquake, from there we look at the matrix each year and determine where we would put the greatest amount of resources that we have for planning, preparedness and training.

+ You mentioned terrorism, and that is never on the back burner, is it?

It can't be. I'm also the homeland security adviser for the state, and terrorism and transnational crime, human trafficking and narcotics trafficking all falls under this office and you have to keep an eye on that. It's an ever-changing threat matrix as well. We have a broad suite of efforts — everything from critical infrastructure protection to our six regional fusion centers as well as our engagement with regional gang task forces and other efforts.

+ Can you explain your efforts regarding human trafficking?

Human trafficking is becoming a well understood threat in California. We're a border state with Mexico, our highway system is a pipeline to moving people who are being trafficked to the middle of the country through

our highway corridors, whether for narcotics reasons or sex trafficking. We have task forces all around the state that are very tactical that we support and are engaged with. And we're working closely with the U.S. attorney in the various districts in California and our local law enforcement to really focus on this whole human trafficking situation: increased awareness, interdiction and then enforcement.

+ How often is the EOC active?

Our operation center is always activated, just at different levels depending on the incident. There is enough going on in California all the time — it's so big and complex. We try to adjudicate everything at the lowest level, but our system allows us to expand rapidly. For example with the drought, it's significant, it's statewide, we have the EOC activated at a higher level, we have state agencies engaged and doing their coordination. If we don't have a need to go to out minimum activation level, our fire and rescue division has their own center to get fully engaged and we would support them as necessary; law enforcement has the same thing. **+**

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Compliance Made Easier

New tool helps colleges and universities avoid key hurdles with Clery Act reporting.

By Jessica Hughes | Contributing Writer

Struggles to comply with the Clery Act — which requires disclosure of crimes on college campuses — have many higher education institutions under investigation by the U.S. Department of Education or worse as fines have been levied on many schools for incomplete reporting.

Inadequate reporting has been found to be too common and sometimes there are loopholes in reporting, which can be caused by a lack of communication on campus, reducing the law's effectiveness.

One Michigan-based company has taken action using local university and law enforcement input to create solutions for colleges to make their reporting and communicating easier, more secure and automatic.

CSAReport, a Web-based crime reporting tool that uses cloud-based technology, is designed for those on campus to communicate crime reports to officials and administrators via a mobile device or computer.

The tool is designed to help schools meet their obligation to report crimes for Clery purposes, and the fact that it makes reports immediately known and actionable is what is touted most by Clay Frey, managing director of Criminal Sciences, the company that makes the tool.

“CSAReport closes the gap between the report and those who need to see it,” Frey said.

For instance, colleges and universities without their own law enforcement agency often rely on outside organizations to

provide crime reports, meaning the information is accessed infrequently in some cases. Alternatively, CSAReport makes the college or university aware of reports as they are created — even alerting them through push notifications when certain crimes are reported. The institution can then share the reports with a law enforcement agency that can tie its own information to the reports.

Administrators and law enforcement officers can also use CSAReport to generate other information like statistical trends on high-crime areas or times of day, said Robert Macinnis, IT director of Criminal Sciences.

The technology was made specifically for campus security authorities, which is a Clery-specific term for someone in an authority position, like a professor or athletic director, who doesn't officially work in public safety but is required to report crimes under the act. Campus security authorities can be magnets for safety information because students are likely to discuss incidents with people they know and trust, said Alison Kiss, executive director of the Clery Center for Security on Campus, a nonprofit that

Frey said is working with his company to develop audit tools for Clery reporting.

Elevated Reporting

Criminal Sciences designed its reporting tool for Western Michigan University after previous work with the institution made it clear that there was no existing product offering a cross-agency platform to securely report crimes, according to Lt. Scott Coy of the university's Public Safety Department.

The company had done considerable work researching and understanding Clery Act requirements while delivering a reporting and analytics product, CS Watchman, to the university, Coy said.

"The largest breakdown in reporting, anywhere, can be the lack of communication and common definitions within a single campus."

Some of the key elements of CSAReport include multiple levels of security and authorization, ease of implementation and no investment or annual cost, and that it can be a stand-alone product used to report crimes from multiple sources at any time, including during an emergency, Frey said.

It also takes into account requirements under the Clery Act with its custom forms that direct users to enter information and answer questions like where the incident occurred using predefined fields to qualify the incident as a Clery one. According to Kiss, incorrectly reporting a crime's geography is a common violation and schools can be fined \$35,000 per violation or risk losing federal financial aid funding.

All this specificity helps institutions issue an annual crime report, while also maintaining an accurate and timely daily log to report Clery-related crimes and complaints with their dates, times and locations. Schools must also make these reports public within two business days.

CSAReport replaces the paper trail with a digital footprint. The program tracks all who touch and modify each report throughout its life, making it easier to track fraudulent reporting, and to collect, organize and understand the reports.

Providing a Global View

Coy said that while the university is testing CSAReport to ensure that it's ready for universitywide adoption, it has

used Criminal Sciences' CS Watchman product for nearly 18 months.

Whereas CSAReport is the information collecting and processing piece for campus security authorities, CS Watchman is a reporting tool that can pull from multiple systems to give a global view of an agency's key performance indicators for administrators and decision-makers. CS Watchman then tracks and analyzes Clery-related crimes for the university.

Coy said he uses CS Watchman several times a day and at least every morning over his cup of coffee, allowing him to manage information and view trends in real time on his phone.

Mackinac County, Mich., Sheriff Scott Strait is another CS Watchman user. Strait said the county is in the early stages of adopting the technology and has the records management tool in place, with the dispatch system to follow. Although the county doesn't have a Clery Act obligation, he said Criminal Sciences tailored its Clery-based template to fit Mackinac's needs.

Like Coy, Strait said the main barrier to implementation was getting the county's existing vendors to provide access to its databases.

Collaboration and Communication

Because Mackinac is a rural county with public safety officers filling a variety of roles, Strait said he and others at city police, EMS and fire use CS Watchman to share information across services. This is the goal of the tool — to communicate securely, Frey said. "So there are no barriers, it's all open."

And according to Coy, what makes the CSAReport useful is that it cross-references Michigan statutes to the federal ones used in the Clery Act so that the university, as well as officers and lay people, can connect using their local language.

"The largest breakdown in reporting, anywhere, can be the lack of communication and common definitions within a single campus," Coy said. 📍

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In the aftermath of hurricanes Katrina and Rita, one key deficiency exposed in emergency planning and management was the lack of a plan to address reunifying children with their parents or legal guardians. But the hope is that won't be highlighted as an issue in the future: A recently released framework — developed by FEMA, the U.S. Department of Health and Human Services, American Red Cross and National Center for Missing and Exploited Children (NCMEC) — aims to help prepare agencies to better address child reunification during emergencies and events.

“Katrina obviously taught many emergency management professionals a lot about various facets of emergency management,” said Sharon Hawa, program manager of emergency communications at NCMEC. The document that describes the framework, *Post-Disaster Reunification of Children: A Nationwide Approach*, is designed to provide state and local jurisdictions, as well as others, a template to build a plan that suits their specific needs.

“It is meant to be a framework that will provide local jurisdictions and states a scalable document with the resources they would need and the first steps to build their own local child reunification plan,” Hawa said. “It really was meant to encourage local jurisdictions to take that part of reunification as a priority and to write plans around it, but not feel overwhelmed by the fact that there is yet another plan they have to write.”

The document notes that it was created “to support the overall reunification processes and procedures by establishing a fundamental baseline, assisting in identifying the role of lead and supporting agencies and organizations, and serving as a tool to enhance reunification elements of existent emergency preparedness plans and/or help guide the development of new all-hazard reunification plan elements and procedures.”

No one would argue about the importance of including children and families in emergency management plans — but it does add a lot for agencies and their planners to consider. “I think people find it overwhelming when they hear that there is a document that gives them everything they need to help them start thinking about or planning or even just start the discussion on reunification,” Hawa said.

As emergency management agencies set their plans, they should involve hospitals in



CDFIF/FEMA

A Colorado first responder rescues an infant whose parents were incapacitated. Tracking children during disasters is the goal of a new guide.

Tracking the Little Ones

Out of lessons from Katrina and Rita comes a framework for child reunification after a disaster.

By **John Twachtman** | Contributing Writer

the process, added Sarita Chung, director of disaster preparedness at Boston Children's Hospital's Division of Emergency Medicine.

“As we set up the framework, we also need to look at the medical side of it, recognizing that the medical side may have children or families that are displaced and will need to also participate in that reunification,” she said.

Law Enforcement Is Overwhelmed

A key concern amid a major disaster such as hurricanes Katrina and Rita is how resources are allocated.

“Law enforcement worry about public safety and emergency management are worried about human services, sheltering

and feeding, and most of the time that reunification piece goes untouched,” Hawa said. “Most of the time, we're lucky because reunification is one of the things that does sort itself within 24 to 48 hours, but when you are talking about children, 24 to 48 hours can add a whole host of problems that we don't want to see happen. So the faster reunification of children can happen, the better.”

With Hurricane Katrina, for example, it took more than seven months before the final reunification case was closed. More than 5,000 children were separated because of that disaster.

And during an emergency, NCMEC is available to help state and local jurisdictions,



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something that's highlighted in the framework document.

"We try to talk to state and local emergency management professionals and law enforcement to let them know we have resources that are no cost to states, can help them with that reunification of children, to take local burden off and help them focus on other tasks," Hawa said. "The reunification piece will be left to people who have the ability, the time and the expertise to do it. Really, it's just about a simple request."

But it's not just about helping state emergency management staff. After a disaster, numerous agencies and organizations — 911 call centers, hospitals, nonprofits — are inundated with calls about missing people. "They get probably hundreds, if not thousands, of phone calls if it is a larger-scale disaster," said Hawa. "It inundates the local service and creates a block of phone calls that might need to get through. And it creates an overwhelming amount of work for that local staff."

During Katrina, at the request of the Department of Justice, NCMEC set up a call center in its Alexandria, Va., headquarters where all calls related to child reunification were routed to. Hawa said NCMEC was able to take the calls and leads about children and work directly with various partners and its own workforce to help expedite the process of reuniting children with their parents or guardians. This included a group of retired law enforcement professionals, known as Team Adam, that has experience in search and rescue, homicide investigations and missing children cases — so its members understand the complexities related to these situations.

"Their expertise in this area can provide additional resources to a local jurisdiction that has been impacted by a disaster, that doesn't have a reunification plan in place," Hawa said. However, she stressed that Team Adam is meant to supplement local law enforcement and emergency management personnel, rather than replace them.

Post-Katrina Changes

NCMEC's call center worked so well during the aftermath of Hurricane Katrina that it led to the establishment, at the direction of Congress through the Post-Katrina Emergency Management Reform Act, of the National Emergency Child Locator Center, which is located in Florida.

"On a day-to-day basis, it supplements our 24/7 call center in Virginia, but during a disaster, it would stand up solely for that disaster at the request of the state to manage all child reunification calls," Hawa said. Just as redundancy is important to all response agencies, NCMEC has plans in place in the event that the call center operations need to expand or relocate. Hawa said there are several facilities located throughout the U.S. that could be used for this purpose.

Another tool developed by NCMEC that launched last June is the Unaccompanied Minors Registry, something anyone who comes in contact with an unaccompanied



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minor can access via a smartphone, tablet or computer. It asks a few questions about the child and the user of the registry.

“If you happen to be the one who finds the child, but you hand the child over to law enforcement, a Red Cross shelter worker or whatever the case may be, we ask for information about where this child is now, who has protective custody of this child at this moment and then that information goes directly to the National Center for Missing and Exploited Children,” Hawa said. “We will work to verify the information and to follow up and ask if they had a reunification either by working directly with law enforcement or with our own resources on the ground.”

One of the post-Katrina lessons that helped shape the registry was the importance of being able to upload photos and video to the system.

“People who have a smartphone oftentimes can take photos or video, and we noticed that during Katrina photos were

a way of reunifying a child with family,” Hawa said. “It’s an important element to include.”

Users can upload a photo of the child to the system, which helps NCMEC create posters and spread the information in communities.

Next Steps

While not necessarily a living document that will be updated, the framework will receive addendums as new lessons are learned from future events, though there are still some areas that need to be addressed from the post-Katrina fallout.

One addendum highlighted by Hawa was how to deal with reunification when children come from broken homes or are under the legal guardianship of someone other than their birth parents. During Katrina, this became an issue because court records that would identify the child’s legal guardian were destroyed by flooding, leaving the possibility for children to be reunited with the wrong party.

Hawa recalled concerns from that time, where parents who didn’t have custody of their children, who may have been living with grandparents, for example, suddenly claimed the kids for financial gain. She said this is a key issue that will be addressed by future additions to the document.

Technology could also play a greater role in the reunification process, Chung said, though more research on this is needed. She noted a pilot project conducted at Boston Children’s Hospital that used computers to extract information — such as age, gender, hair color, eye color and skin color — about an individual from photographs to help match children to information in various databases.

“Our pilot program was pretty successful,” Chung said. “We are looking for more funding to develop it.” +

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By Eric Holdeman

Asymmetric Resilience

The word “asymmetric” is most typically associated with “asymmetric terrorism” in today’s emergency management vocabulary. However, I see the word “asymmetric” as being helpful in defining what we mean by disaster resilience.

Resilience is a fairly new word that’s become almost as popular as “paradigm” was years ago. People drop it into their conversations and writings regularly. My day job even has the title “director of regional disaster resilience.” Sounds good, but what does it really mean to obtain disaster resilience and what does resilience look and feel like?

Resilience isn’t easily defined or executed. It’s the combination of many factors and actions by multiple individuals and groups. Typically it’s not the No. 1 priority for any institution or government, yet taken as a whole, the investments in resilience pay huge dividends when disasters do strike.

Resilience has most frequently been used for the disaster recovery phase of emergency management. Well trained and exercised people make better decisions faster, thus speeding up the response and recovery process. Mitigation measures, when implemented before the disaster, can eliminate or minimize damages from natural and technological disasters, thus providing resilience.

Disasters are becoming almost routine from a news perspective. In the last three years, the federal government has spent an average of \$85 billion each year. The number of annual billion-dollar disasters is escalating. While severe weather accounts for most disaster costs, there are other human-caused disasters lurking. Consider that one estimate of the physical damage and economic impacts from the 9/11 terrorist attacks is \$178 billion.

You can’t pin the disaster resilience responsibility on just one function of society. Responsibility for resilience is also asymmetric. Governments at all levels, the private sector,

nonprofits, tribes, neighborhoods, families and individuals all have responsibility for achieving a measure of resilience. Ever since 9/11, the burden of government funding of preparedness and disaster resilience has shifted to the federal level. While extensive federal grant funding wasn’t supposed to supplant state and local funding, you only have to look at the budgets of many states and local communities to see that it has replaced state and local dollars that were there before. Now with the drawdown of federal grants, the pinch in emergency management budgets is being felt severely. From a funding standpoint, disaster resilience will suffer until all parties share the funding burden.

Public-private partnerships are also critical if a community and region are to become truly resilient. The significant concentration of critical infrastructure in the private sector begs us to have closer working relationships and plans. The interdependencies between infrastructures and a functioning economy require us to work more harmoniously and to put aside jurisdictional rivalries to achieve stronger regional collaboration.

While individual deeds are appreciated and single-discipline actions that work to build capabilities enhance resilience, group action that’s multi-jurisdictional and multi-disciplinary becomes a force multiplier when it comes to disaster resilience. To achieve resilience will require “bending” the stovepipes to allow for better coordination and eliminate duplicate efforts.

Lastly, resilience is asymmetric because the path to resilience isn’t predefined. It has many shapes and sizes, all defined by the actions taken, or not taken, by people and institutions as they make their choices in building and designing for the future. 



ERIC HOLDEMAN IS THE FORMER DIRECTOR OF THE KING COUNTY, WASH., OFFICE OF EMERGENCY MANAGEMENT. HIS BLOG IS LOCATED AT WWW.DISASTER-ZONE.COM.



GETTING AHEAD WITH GRANTS

The federal government alone offers billions of dollars each year in IT grants that are often targeted to local governments.

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- ▶ Best practices to managing grant funding for successful outcomes

Download the webinar archive at www.govtech.com/webinars/Winning-Programs-A-Guide-to-Grants-for-Government.html

For a free download of the interactive grants guide, visit http://govtech.com/CDWG_Grants_Guide



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Rehydration Solution

Drip Drop Inc., maker of a rehydration solution that combines medical technology with great taste, announced that Chinook Medical Gear will become a distribution partner.

Developed in 2008, Drip Drop has been consistently tested and validated in extreme conditions unique to the armed services, emergency and relief personnel. Since 2010, Drip Drop has worked with international relief organizations to provide assistance to populations in Haiti, Pakistan, Japan, the Philippines, South America and the horn of Africa, following natural disasters and famine. Drip Drop has also been used and distributed by U.S. Special Forces and Navy Seals following Hurricane Sandy in the United States.

www.dripdrop.com



MOISTURE BARRIER TAPE

Gore has developed a new tape that's unaffected by storage interactions and eliminates the need for new gear to be stored in open air. Turnout gear manufacturers are working to incorporate the GORE-SEAM tape into their products utilizing Gore moisture barriers.

www.gore.com



Electronic Care Reporting

The **SafetyPAD electronic patient care reporting system** allows agencies to collect, utilize and share incident and patient EMS data on the scene. This empowers first responders to focus more on the patients and less on the paperwork. The technology also allows firefighters and emergency medical technicians to generate pre-hospital patient care documentation in the field in real time.

The system's Enterprise Agent module allows near-real-time information to be sent to key personnel in the event of catastrophic or widespread conditions that could affect the public's need for medical response. The departments can provide a rapid and appropriate response based upon current conditions in the field. www.safetypad.com

RADIATION DETECTOR

First responders such as police, firefighters and border-protection officers, as well as military personnel, now have a new versatile handheld gamma and neutron radiation isotope identifier engineered for use in severe environmental conditions. The **Thermo Scientific RIIDEye X** is designed to protect first responders from harmful radiation by enabling them to detect and identify radiation in the environment and give users feedback on radiation location, type and quantity.

This new instrument is designed to locate and identify gamma and neutron radiation sources within cargo, food, solids, liquids and semi-solids, or persons. With its reinforced, dust-proof and water-resistant casing, the compact, lightweight RIIDEye X is engineered for use in nearly any environment and can withstand drops from up to one meter.

www.thermoscientific.com/RIIDEyeX





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By Ryan Holeywell

'Fire Borrowing' Disrupts Fire Prevention Measures

In 2012, the Waldo Canyon wildfire destroyed nearly 18,000 acres of land in El Paso County, Colo., making it, at the time, the most destructive fire in state history. Today Sallie Clark, the county commissioner who represents much of the area that burned, wonders whether the fire needed to be so severe. "If the forest had been mitigated," she asked, "would it have been so out of control?"

IF THE FOREST HAD BEEN MITIGATED, WOULD IT HAVE BEEN SO OUT OF CONTROL?

Indeed, a growing number of voices at all levels of government are questioning whether the federal government's approach to wildfire prevention is running as well as it could. At a recent Senate

subcommittee hearing, Jim Hubbard, deputy chief of the U.S. Forest Service, testified that in 2013, more than 4.1 million acres burned in the United States. On its face, that doesn't mean much, but it's part of a troubling trend: Wildfires in the U.S. are becoming bigger, more destructive and more frequent.

In the last six years, eight states experienced the most destructive fires in their histories, according to Hubbard, and today, wildfires burn twice as many acres annually as they did 40 years ago. The situation has created a vicious cycle for the feds. Because the Forest Service is spending so much money extinguishing fires, it is forced to take money from other areas, including those focused on fire prevention. The process, known as "fire borrowing," is disruptive to the agency's operations, especially since the diverted funding often isn't restored. Critics say that's indicative of a short-sighted approach to budgeting.

Ryan Yates, who works in federal affairs for the National Association of Counties, said the feds have also pulled back on "active management" of federal forest land, which includes using it for timber, cattle grazing and recreation, due to litigation and environmental rules. The result is more overgrown forests that act as fuel for fires.

Though the issue involves federal lands, it's one that state and local leaders, especially those in the West, have taken a keen interest in. That's because wildfires and the effects of wildfires often cross jurisdictional boundaries. In El Paso County, for example, the 2012 fire was on federal land, but it displaced 340 families, impacted tourism and has led to more frequent flooding in the county.

Last year, the U.S. House passed H.R. 1526, which would allow for greater timber production on federal lands, ostensibly making the forest less dense and susceptible to fires, and would give counties a greater role in actively managing parts of the national forest land. The legislation has the backing of the National Association of Counties, but it faces strong resistance from environmental groups.

Meanwhile, Colorado U.S. Sen. Michael Bennet has introduced a bill that would establish a pilot program to make grants available to states for wildfire mitigation and preparedness. For now, local officials are waiting to see if Washington will develop a fix before the next big fire impacts their communities.

"The fire hasn't happened yet," Clark said, "but it will. It's not a matter of if. It's just when." ⊕

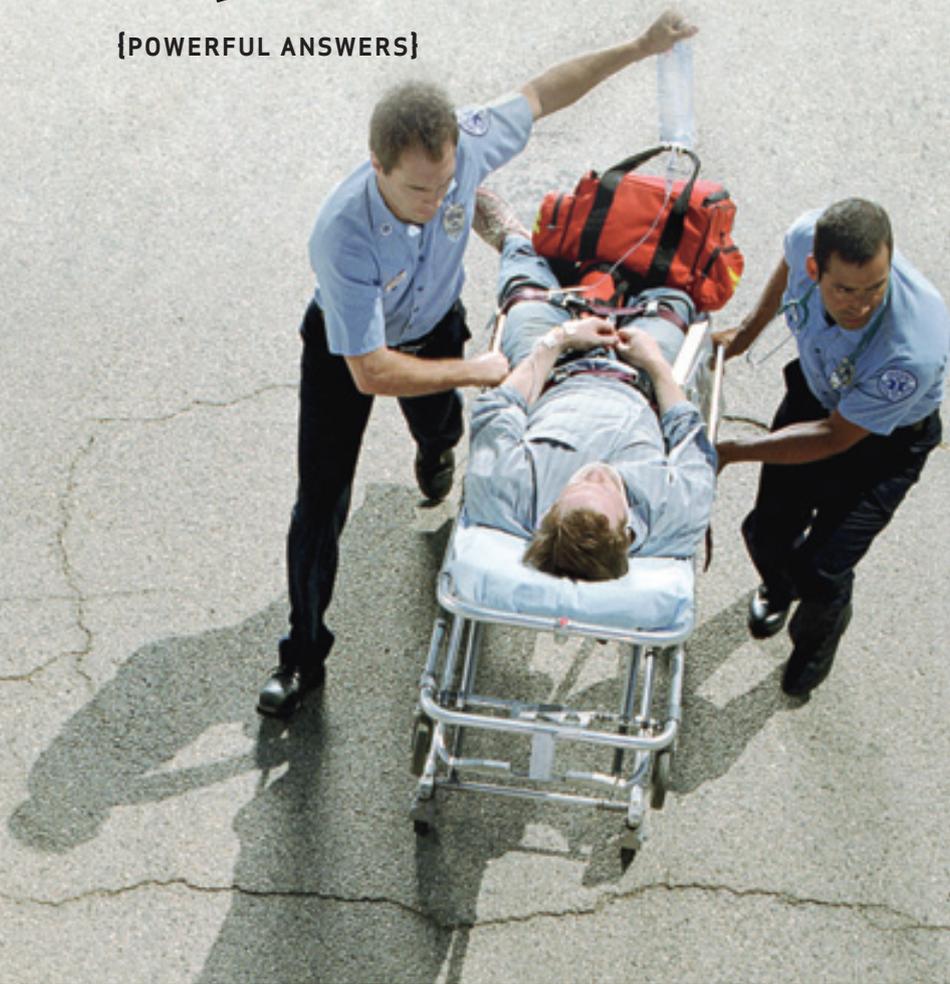


RYAN HOLEYWELL IS A FORMER STAFF WRITER AT GOVERNING MAGAZINE.



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