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2012-2013

EMERGENCY MANAGEMENT

STRATEGY AND LEADERSHIP IN CRITICAL TIMES

MAY/JUNE 2014



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BATTLED A
HISTORIC DROUGHT

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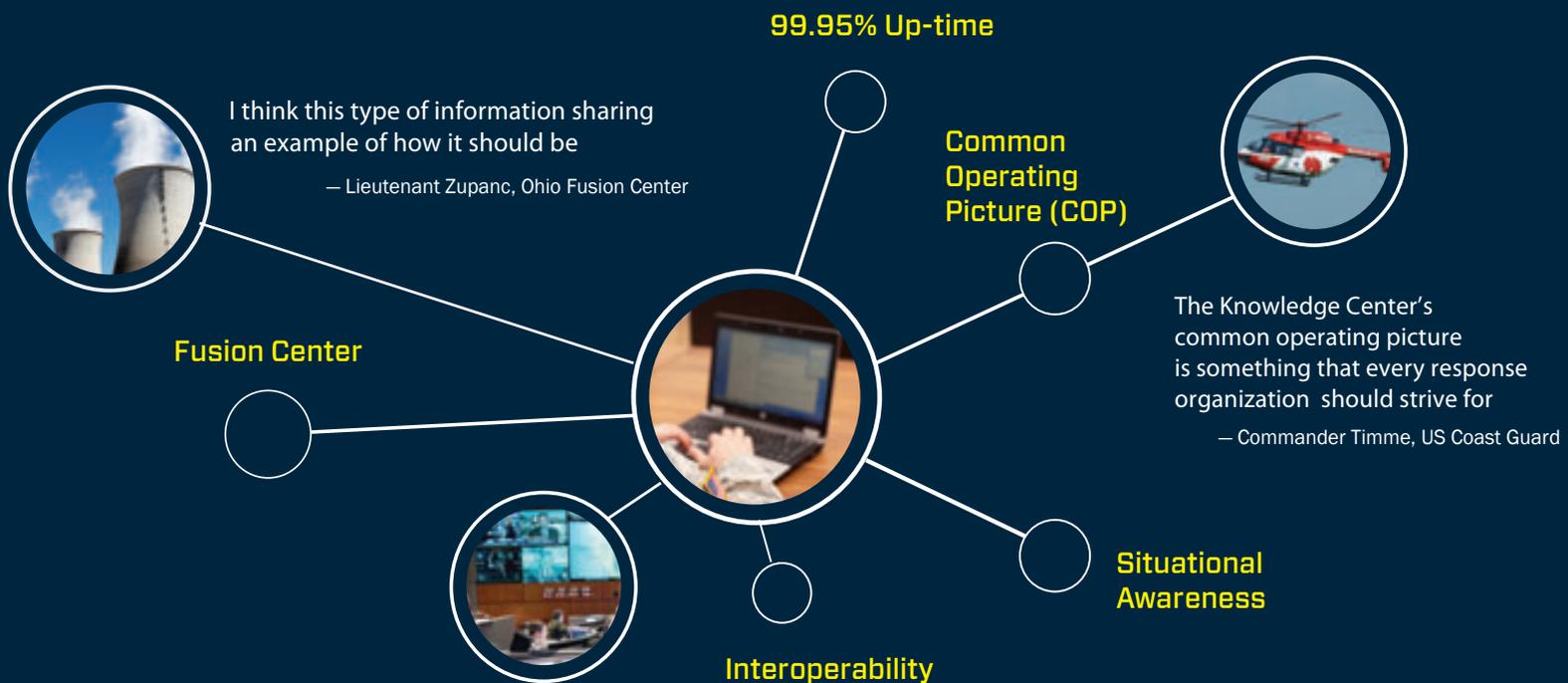


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Congratulations on a great article. It is apparent from the comments that you struck a nerve. After 25 years in emergency management, I'm happy to see the discipline receiving some positive attention.

Unfortunately there is so much to say when talking about a one-person emergency management shop that a great deal of the information just can't make it into an article such as yours. Might be subject matter for a follow-up piece?

One thing that I didn't mention during our interview and didn't see any reference to in your article is the absolute need for a trusting and professional relationship with the emergency management administration, whether commissioners, mayors or department heads. Without buy-in from the top, not much will happen. Additionally, a public-private partnership is an absolute, although easier said than done.

Doug McGillivray — in response to *The One-Person Shop* in the January/February issue



I am one of those 25 percent with emergency management degrees and nine years of emergency management experience with FEMA. I have been looking for a full-time career in the emergency management field for many years. Even with my experience with FEMA, people do not want someone without true emergency management experience. I



JIMM KAY / EDITOR

THE CONTEMPORARY GUARD

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

would like to know where the other 75 percent of graduates are getting their jobs.

Benjamin Caske — in response to *The One-Person Shop* in the January/February issue

Tip of the iceberg, folks. For those who haven't been paying attention: There was National Guard support in the 9/11 cleanup, Katrina response, etc. Bottom line: Emergency managers need to know every tool available in the toolbox. There are many resources out there.

John in DC — in response to *The Contemporary Guard* in the March/April issue

I second your feeling! Now that you talked about it, [the National Guard] was actually there going door to door to search and evacuate victims. They also guarded properties from looters. If we continue to cut emergency funds for disaster, how do we expect emergency managers to be effective without funds and tools? We should allocate enough funds for home-based disasters too, and not just for war reparations.

Blessing Orage — in response to *The Contemporary Guard* in the March/April issue

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By Jim McKay

Paradox of Change

It may seem like a paradox that we have a feature on drought and another on floods in the same issue, but in the realm of a warming climate, it's quite appropriate.

The trends suggest that the climate is warming, and whether you believe it's happening because of man's carbon footprint or naturally, the response should be one of preparing for the worst.

In our cover story, *Fixing Flood Insurance*, we deliver the latest on the troubled National Flood Insurance Program (NFIP) and the problems that plague it, namely an accumulated debt of nearly \$25 billion.

We switch gears in *The Creeping Disaster* and talk about devastating drought and how Texas dealt with it in 2011 and 2012. We also try to explain some of the weather phenomena in the discussion with Mathias Collins, a hydrologist with the National Oceanic and Atmospheric Administration.

Collins, our *Major Player*, studied stream gauges from the last 100 years in the Northeast and found a trend toward more frequent floods of greater magnitude. It was an interesting discussion about future models and climate change, all of which is to say, we're not sure what will happen in the future but according to the models, we have more flooding to look forward to.

And drought too. A warming climate means more flooding and also more drought — and not necessarily in different regions. That's because warmer winters and springs tend to produce more flash floods in the spring, and without means to reduce runoff and capture water, that could mean drier summers.

A study by a World Bank economist projected costs of flooding to grow from \$6 billion to \$1 trillion by 2050. That doesn't bode well for the NFIP unless it is reformed, which is the subject of *Fixing Flood Insurance*.

The Biggert-Waters Flood Insurance Reform Act of 2012 attempted to do what's needed: make flood insurance costs reflect risk. But the results

A WARMING CLIMATE MEANS MORE FLOODING AND ALSO MORE DROUGHT — AND NOT NECESSARILY IN DIFFERENT REGIONS.

proved too drastic and legislators backtracked and instead came up with the Homeowner Flood Insurance Affordability Act of 2013, which President Barack Obama signed in March.

The new law gives FEMA a chance to work on affordability and buys some time, although true reform is probably still far in the offing.

The Creeping Disaster outlines the various communications and actions that take place before and during a long-term drought. You see all the different entities involved when it comes to addressing such a scenario, and the various hazards that can spring from drought. We hope we provided some lessons learned in this article and the others as well.

It is not enough to prepare for what we think may happen as evidenced by recent storms. Emergency managers know they have to go beyond that, and some of that means taking a changing climate into account. +

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Residents along State Route 530 in Snohomish County, Wash., awoke to screams the morning of March 22 and to a nightmare that had just begun. More than a week later, first responders were still uncovering debris and hoping for miracles after a horrific mudslide killed at least 41 people. The mudslide, one of the deadliest in U.S. history, hit 55 miles northeast of Seattle. First responders and others searching for survivors faced a host of challenges — including more rain, household chemicals and sewage — in trying to navigate the massive layers of mud and debris.

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Hospital Preparedness Budget Cuts Impact Emergency Response

On Jan. 17, President Obama signed into law a federal spending bill that included a cut of more than \$100 million to the Health and Human Services' Hospital Preparedness Program (HPP). That equals nearly a 30 percent reduction in a program aimed at strengthening preparedness for public health emergencies. These cuts could have dire consequences on the ability of communities to respond when disaster strikes.

Hospitals, other health-care facilities and local health departments will have limited capacity to plan for and respond to emergencies like Superstorm Sandy, which required the coordinated evacuation of patients and the assistance of public health emergency response teams. While Sandy may have required the largest regionally coordinated response, there's no shortage of recent examples that should provide motivation

for continued funding in support of HPP. For example, the mass shooting at the movie theater in Aurora, Colo., required seven hospitals to meet the surge of victims, and the lauded quick triage of the injured following the Boston Marathon bombings was made possible because of the coordination of hospital response through training and planning supported through HPP. — NATIONAL ASSOCIATION OF COUNTY AND CITY HEALTH OFFICIALS



SANDY REPOSE SLOWED BY NETWORK OVERLOAD

New York's emergency response to Superstorm Sandy was hindered because the Division of Homeland Security and Emergency Service's computer network could not handle all the applications running, according to a new report from a New York company that works for the agency.

The report reveals that the division's ability to access computer data was stalled for a few days in the fall of 2012 because its system was saturated with data requests, requiring IT professionals to disconnect a Google Maps program that was causing the logjam and make other adjustments.

The "after-action" reports, which the state hasn't publicly released, were obtained by the Albany, N.Y., *Times Union* and published in February 2014. The reports were supposed to help the state learn what worked and what didn't during its emergency response effort. — MCCLATCHY NEWS

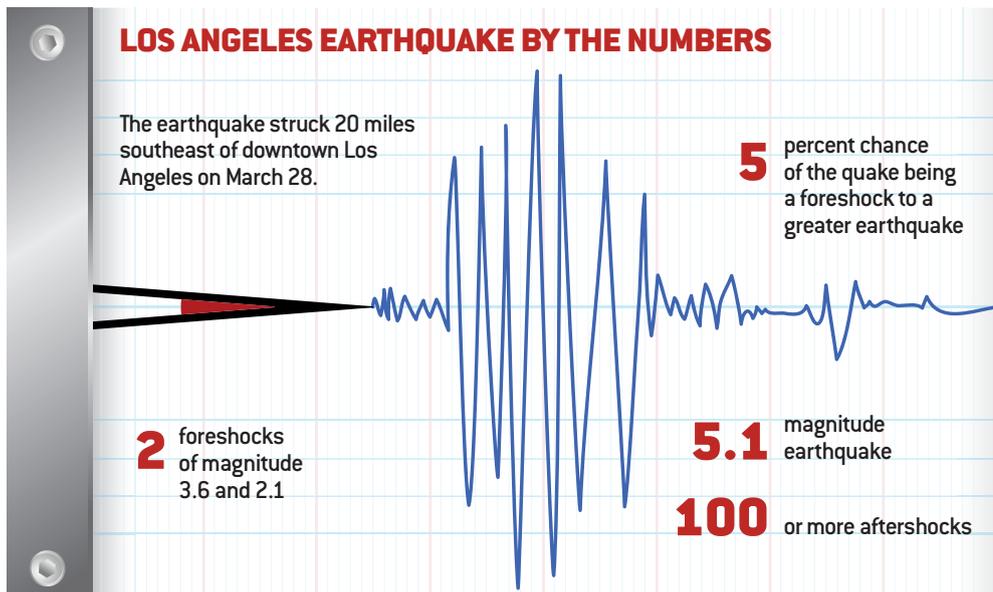
NEW APP CALLS 911 AND NOTIFIES FAMILY IN TWO TAPS

If Minh Tran were asked about the impetus behind his new 911 emergency app, 2013 could be reason enough. The year brought his family a run-in with two near-fatal heart attacks, one suffered by an uncle and the other by an aunt.

The incidents prompted Tran, an independent mobile app developer in Virginia, to launch an app in January that calls 911 while simultaneously notifying family members through text messages that include Google Maps GPS coordinates. The 911 Help app is aimed to be a free, simple solution to emergency situations and possibly lifesaving with its simple quick-dial button.

"Sometimes you have family members nearby, and if it's a 911 situation you'll definitely want your family members to know," Tran said.

Time to relay information to 911 dispatchers is critical, and there are incidents, he said, where there's no guarantee that victims will be conscious long enough to complete calls to 911 or anyone else.





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Taxpayers have been subsidizing risky development for years.



FIXING FLOOD INSURANCE

CONGRESS TRIES AGAIN TO
BUOY THE TROUBLED NATIONAL
FLOOD INSURANCE PROGRAM.

By JIM MCKAY | EDITOR

W

WHEN RESEARCHERS from the National Oceanic and Atmospheric Administration recently studied stream gauge records in the Northeast United States from the past 100 years, they discovered what many researchers have found in different parts of the country and world: an upward trend in the frequency and magnitude of floods. That was the case in the Northeast even with increased reforestation, which generally decreases flooding.

The researchers found that there has been a “wet mode” caused by North Atlantic Oscillation, the circulation of air currents along the North Atlantic Ocean, since 1970, resulting in an extra flood per year and that the trend will likely continue.

A study led by a World Bank economist and published in *Nature Climate Change* warned that the annual costs from flooding in the world’s largest coastal cities could grow from about \$6 billion to \$1 trillion by 2050. Among the top cities listed were New York, New Orleans, Miami, Boston and Tampa Bay, Fla. But the study also said that some cities not on the list now will face increased risk in the future. And a 2013 FEMA report said areas in the U.S. at risk for floods would increase 45 percent by 2100, which could double the number of flood-prone properties.

That all adds up to more costs, which have already been increasing to the point that the National Flood Insurance Program (NFIP) can’t keep up without major changes. The program is \$24 billion in debt and that deficit won’t be erased without reform. It also means that increased investment in mitigation efforts prior to an event is necessary before the costs of disaster become overwhelming.

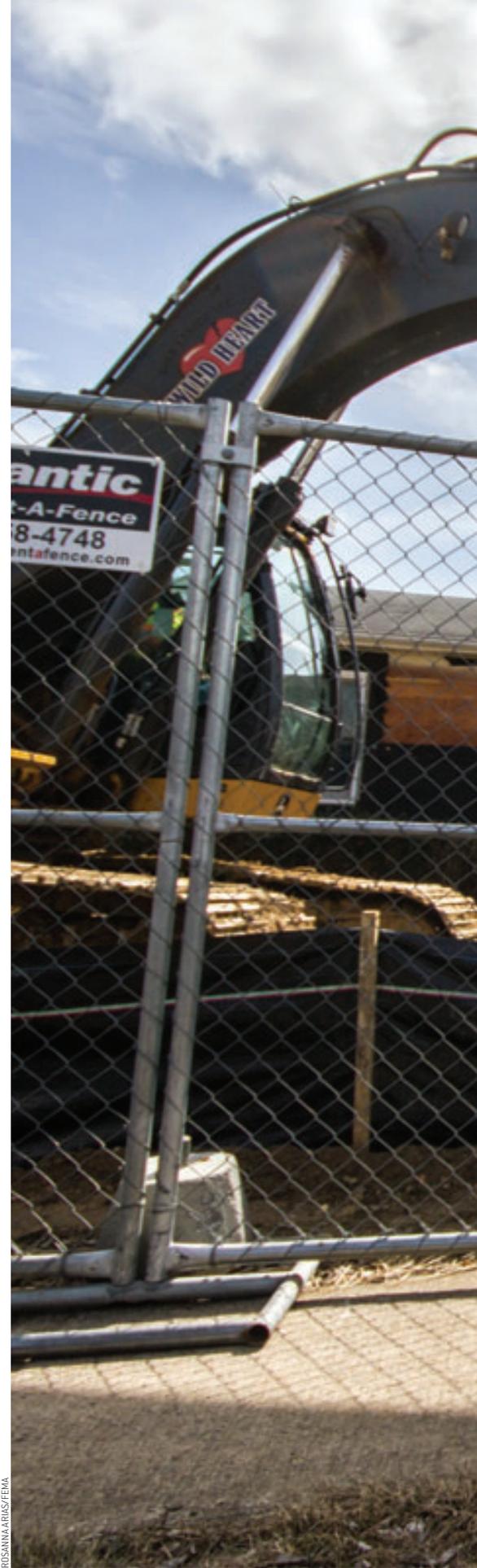
The NFIP, it’s been pointed out, wasn’t necessarily set up with actuarial soundness in mind, but to encourage people to buy flood insurance. But in so doing, it has inadvertently encouraged development that is too

“I’M TALKING ABOUT WHEN I BUY A HOUSE OR JOE SIXPACK BUYS A HOUSE, HE OUGHT TO KNOW WHAT THE RISK IS.”

close to water. The Consumer Federation of America (CFA) has said you can’t lower prices by ignoring the risk of flooding and that real reform requires honesty about the risks of living in a flood zone. CFA called the National Flood Insurance Program an unwise and untargeted program that “encourages people to live in high-risk flood plains, unnecessarily risking people’s lives and possessions.”

Change initially came in the form of the Biggert-Waters Flood Insurance Reform Act of 2012, which attempted to eliminate federally subsidized insurance rates for properties with repetitive losses in flood zones, those that have been protected from risk-based rates by grandfathering and secondary homes, by moving toward risk-based pricing. It also sought to improve the accuracy of flood-plain maps, among other things, to preserve the NFIP and shift more of the cost away from taxpayers and to property owners.

The CFA supported Biggert-Waters because it attempted to bring risk in line with flood insurance premiums. But the legislation had unintended consequences, namely boosting some premiums dramatically, which caught many homeowners by surprise. What the legislation failed to do was protect some



ROSANNA RUISS/FEMA

Homeowners should know the risks involved when purchasing a home and flood insurance.



of the poorer homeowners whose flood insurance would be skyrocketing. There are some real “horror stories,” according to J. Robert Hunter, the CFA’s director of insurance and former administrator of NFIP.

One example is a Florida man whose insurance on a \$150,000 house went from \$2,000 to slightly more than \$20,000. “He is a laborer,” Hunter said. “He said he bought the house in good faith. He was told what the premiums were but had no idea this was coming.”

Hunter said he’s worried about “Joe Sixpack,” such as the man in Florida, who had already purchased the home, and not the person in a “zillion-dollar mansion.” He said somebody like the Florida man should get a subsidy and that the risk for new homebuyers should be known. “I’m talking about when I buy a house or Joe Sixpack buys a house, he ought to know what the risk is.”

Such horror stories led to the Homeowner Flood Insurance Affordability Act of 2013, signed into law by President Barack Obama in March, which delays implementation and addresses affordability. Lawmakers say the new legislation is intended to fix Biggert-Waters while also supporting its intent.

“I think there are solutions, but Congress has to figure out a way to take care of people who are really hurting but not slow down the movement toward soundness,” Hunter said. “Target subsidies to help the people who really need it.”

Chad Berginnis, executive director of the Association of State Floodplain Managers, lamented the “hysteria” surrounding Biggert-Waters and said there was a small percentage of policies that increased significantly. He would liked to have seen a more targeted legislative approach than what the House did with the new legislation, which was to undo a lot of the insurance part of the Biggert-Waters reforms.

“The one trigger that was causing the most pain across the country was the trigger to full-risk rates upon the sale of a home or a new policy,” Berginnis said. He added that there should be targeted relief, such as vouchers for lower-income people or a low-interest mitigation loan program that doesn’t require payment until the home is sold. Also, eliminating the full-risk trigger and putting policies on a longer implementation schedule would decrease the pain.

The Homeowner Flood Insurance Affordability Act of 2013 lowers the rate increases



“ [FEMA HAS] TO MAKE SURE THAT SOMETHING IS BUSINESS VALIDATED BEFORE THEY INTEGRATE IT INTO THEIR PROCESSES.”

on some policies and prevents increases on other policies, according to FEMA’s website.

The act also repeals some rate increases that had already gone into effect and refunds those policyholders. In addition, it authorizes more resources for the National Academy of Sciences to do an affordability study and requires FEMA, which administers NFIP, to prepare an affordability framework.

The new law also calls for gradual increases in rates on properties that now have artificially low rates instead of the immediate full-risk increases that were seen under Biggert-Waters. Premiums for most properties will not be allowed to increase more than 18 percent per year. The exceptions include older business properties, older non-primary residences and repetitive loss properties.

FEMA was in the process of developing plans for implementation at press time, but Dave Miller, FEMA’s associate administrator for the Federal Insurance and Mitigation Administration, said the first step is to restore the subsidized rates for renewal and new policies. That will avoid the huge rate increases seen under Biggert-Waters as no increase will be more than 18 and a half percent under the new law. “We’ve started the process of stopping those huge rate increases that went from zero to the full risk rate,” Miller said. The next step will be to refund those whose had the higher premiums, he said.

“Congress still wants us to talk about risk and what that dollar statement of risk will

be, and that’s a look at the actuarial tables,” Miller said. “We’re going to relook at actuarial tables because it has to do with what rate we charge, the methodology.” Miller said homeowners will understand their full risk so that they and the community can take steps to mitigate those risks over time. “They’ll see the full actuarial rate and the increase. It’s important they know what their full risk is.”

Another factor in the reform of the NFIP is that the older floodplain maps underestimated risk and some of the newer maps missed their mark in terms of accuracy, according to some.

Fingers were pointed at FEMA for a flawed implementation after the unintended consequences of Biggert-Waters because the flood maps were said to be inaccurate. Hunter said legislators knew that or should have known there were problems with the maps when they passed the bill.

Rep. Maxine Waters, one of those blaming FEMA for a flawed implementation of Biggert-Waters, said the mapping was inaccurate and the information incomplete. FEMA Administrator Craig Fugate has said his agency is consistently releasing new data and updating the maps to help communities make better decisions about flood risk.

“For at least a decade, I’ve been testifying that the maps are a mess,” Hunter said. “They



Communities should undertake flood mitigation strategies to lower risk.

SHUTTERSTOCK.COM

with new maps, found themselves in a floodplain when they weren't before.

Berginnis said Congress was smart to recognize the need for a national flood mapping program but needs to fund it. "Luckily the backtracking was done only on the insurance side of it and the flood mapping program was pretty well left alone," he said. "Unfortunately that very same Congress hasn't been willing to appropriate that kind of funding subsequent to Biggert-Waters."

Berginnis said there is a misperception about an inherent inaccuracy in flood maps. He said that with today's standards and technology, you can map a given area for \$10,000 or \$100,000 and buy a more precise map. For instance, lidar adds cost to the process but makes for a more precise map. "It doesn't mean that something cheaper will get you a bad map, but if you want to go down to a very specific parcel level, you have to invest more money to get that better granularity."

He said FEMA and states have to decide what level of precision they can afford. "And so what we're faced with nationally is a flood mapping program that is chronically underfunded, and it's our biggest hazard."

Berginnis would like Congress to forgive the NFIP's \$24 billion of debt. He said interest rates are at historically low levels and when they go up, NFIP will be spending all its money on interest payments instead of paying claims and running mapping and insurance programs.

When North Carolina set out to update its flood maps in 2000, it found that more than half of the maps (55 percent) were at least 10 years old and 75 percent were at least 5 years old. The state wanted to make sure the new maps were accurate for both floodplain management purposes and for flood insurance rates and thus chose to do its own mapping, according to John Dorman, program director for the state's Floodplain Mapping Program.

North Carolina is a Cooperating Technical State, part of FEMA's Cooperating Technical Partner program, which is an effort that allows local communities to participate in the mapping to help take some pressure off FEMA. The program allows the locals to choose how specific to get with the mapping and invest in newer technology, such as lidar.

"At the time, FEMA would not have done lidar. They would have used the existing elevation data," Dorman said. "Lidar was new at the time, and FEMA is typically behind on new innovations. They've got to make sure that something is business validated before they integrate it into their processes."

Miller said states can benefit by doing their own mapping. "There's a great chance they have more granular data on information than we do," he said.

In collecting the data, North Carolina realized that other agencies might benefit from the data and developed partnerships, which saves the state money in the long run. For example, the U.S. Geological Survey and other federal agencies are seeking new elevation data across the country for a project, called Elevation for a Nation, but are having difficulty finding funding so they've developed a partnership with North Carolina.

"Our cost of doing this new-quality level-two elevation project is about \$19 million to \$20 million to go across the state," Dorman said. "We've already gotten commitments from other agencies with other processes and dollars to get the data."

The new data offers a more in-depth look at risk and what the damages would be for different flood risk frequencies. For instance, the data can show the risk for a particular building for 10-year, 25-year, 50-year, 100-year and 500-year floods, how much water would be involved and how much it would cost to rebuild. North Carolina, along with FEMA and others, is working on a study that examines revising insurance rates based on whether the flooding was a 10-year or 50-year event and so on.

That would be one way to revise rates. Another would be to have mitigation as a component of every insurance policy. The Homeowner Flood Insurance Affordability Act of 2013 added a surcharge for every flood policy to pay for the existing subsidies. The surcharge would be put in reserve.

Berginnis suggested that instead of putting money away for future claims, why not collect the money and use it for mitigation to avoid future claims. "Congress is doing nothing about mitigation," he said. "You can elevate homes and businesses; you can flood-proof them to lower costs and reduce rates." +

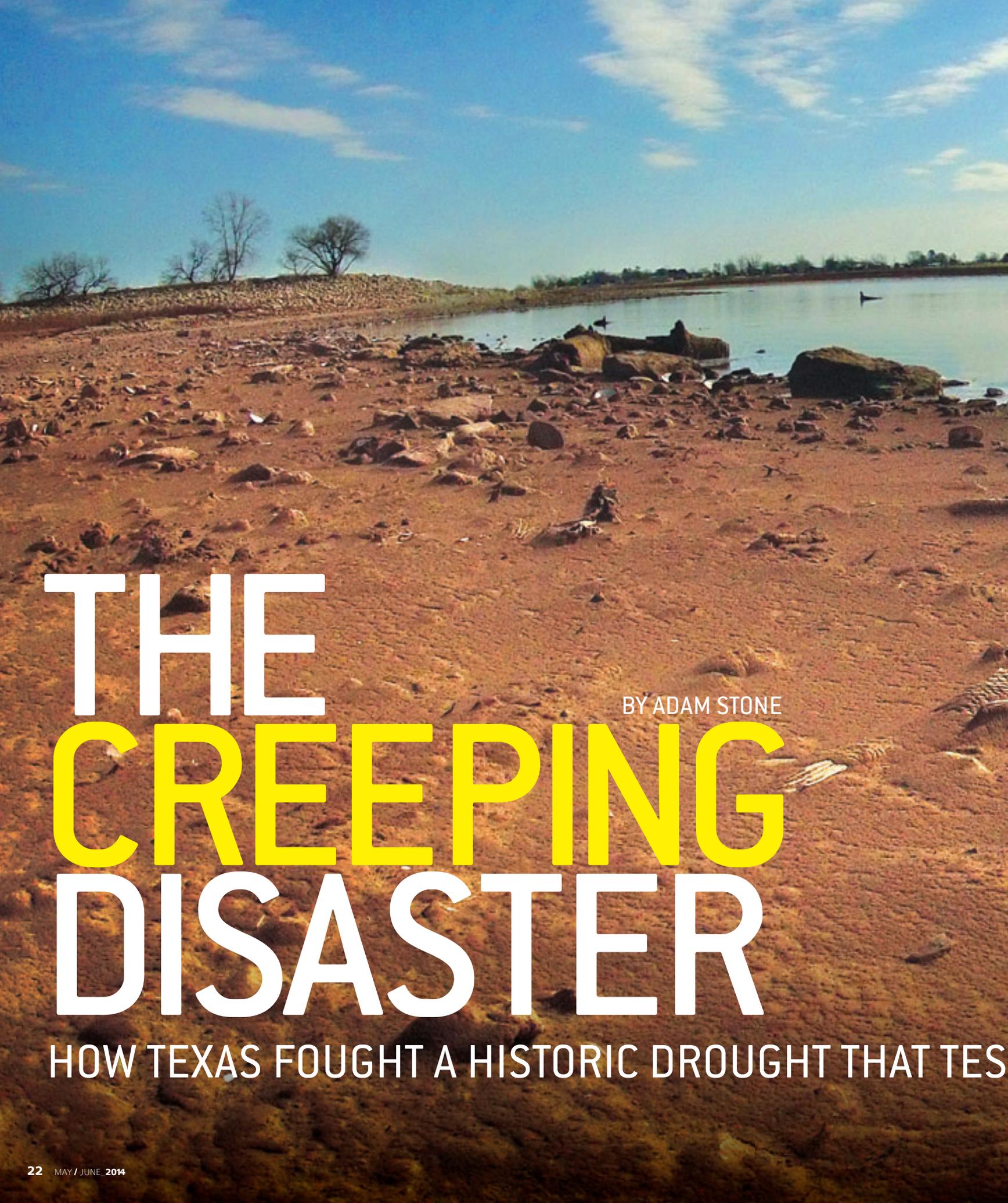
knew that the maps were being fixed and that would cause large jumps in premiums." That's because floodplains change and elevations go up with development. When you develop and make parking lots and houses, there is nowhere for the water to go. "Think of it as a bathtub," Hunter said. "You sit down in it and the water goes up. You put houses in a floodplain and the water goes up."

Hunter cited studies in Jackson County, Miss., where the average map was 20 years old. He said the average elevation on the maps was 10 feet too low and developers were building homes they thought were safe. "People who thought they were five feet above the 100-year flood were actually five feet below, and they didn't buy insurance. The program encourages unwise construction through maps that are inaccurate and always biased low."

The NFIP was initially set up to encourage people to buy flood insurance, and to do that, it had to be affordable. "The other side of that," Berginnis said, "is that people need to recognize and understand that if you build in high-risk areas, you will probably be the one who is supported by the NFIP more so than somebody in a less risky area."

The Biggert-Waters legislation sought to make flood insurance rates commensurate with risk and also kept rates in line with mapping changes. In other words, if a new map shows increased risk, the insurance would go up. It phased out grandfathering. That raised the ire of some, who

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THE
BY ADAM STONE
CREEPING
DISASTER

HOW TEXAS FOUGHT A HISTORIC DROUGHT THAT TES



Dead fish in the dry silt of Lake Arrowhead, a prime water source, illustrated the drought's impact in Texas.

ATED EMERGENCY MANAGERS ON SEVERAL FRONTS.



Boat docks rest on a dry lake bed at Texas' Lake Travis in 2011.



In 2011, Texas struggled with some of the worst impacts of a historic one-year drought that crippled the state's lakes, agriculture and water supplies.

When historic droughts threatened Texas in 2011 and 2012, Chief Daniel Kistner of the McKinney Fire Department knew he didn't want to go it alone. He relied on a strong team to back him up. It's understandable that Texas fire chiefs and other emergency responders would be looking for all the support they could muster for this historic drought. Kistner didn't want to be operating from behind on a lengthy and evolving situation, so he turned to subject-matter experts to help plan for what was called a "creeping disaster."

"As a fire chief, I don't have a lot of time to go take all these classes," Kistner said. "So I do a lot of reading and when I feel like I don't know enough, I rely heavily on subject-matter experts here in the department for things like planning and mitigation. I am the general, but I have some very good specialists to do the detailed work."

The scope of this dry spell was daunting, but the lessons learned are valuable for any emergency manager facing the prospect of very hot, very dry weeks and months.

THE SYMPTOMS

The Texas droughts brought with them a range of ills, including sporadic power outages, a common symptom of drought. In Spicewood with a population of about 7,600, the wells literally ran dry: The lakes that fed the town water supply ran too low, and the Lower Colorado River Authority had to truck in water.

But the worst of it were the fires, foremost among them the Bastrop County Complex fire, the most destructive wildfire in Texas history. Fanned by strong winds, three separate fires combined to form a furnace, killing two people, destroying 1,673 homes and causing \$325 million in damage, according to news reports. Officials blamed the blaze on sparks from electrical power lines.

The 80,000-acre Rockhouse fire blasted through Fort Davis, Texas, burning 21 miles of prairie. In Stonewall, King and Knox counties, at least 71,000 acres burned, while Midland County saw 16,500 acres on fire.

"I went to a drought meeting in Houston and as I was leaving there was a forest fire in one of the city parks, because

everything was so dry," said Robert E. Mace, deputy executive administrator of water science and conservation at the Texas Water Development Board.

With reservoirs less than 40 percent full, trees were dying, Mace said. "We went down to once-a-week watering of landscapes. People were having issues with their foundations in the parts of Austin that are built on clay. There were power outages because there was so much dust on electrical lines that if you had a dewy morning, it would short out the electrical lines."

Given the severity of the situation, emergency managers found themselves in the unusual situation of fighting back in slow motion. When a hurricane is coming, people know, and they look to the disaster community for guidance. Less so, when the wells run dry.

"People describe droughts as a creeping disaster," Mace said. "It's not dramatic like a tornado or a flood coming into town. It's more like the frog in the proverbial pot of water that's slowly getting hotter and hotter. Eventually the community realizes it is going



Why the Lights go Out

Some of the effects of drought seem obvious enough. Crisp kindling burns from a lightning flash or a power-line spark. Wells and reservoirs run low or dry out, leaving lawns parched and sometimes shutting down civic water supplies. Other fallout may be less readily anticipated, in particular the brownouts and blackouts that often accompany a prolonged dry spell. Why does it happen?

A little known fact: Nearly half of the nation's water goes to cool coal, nuclear and gas-fired power plants. Hydroelectric plants are, by definition, highly dependent on the flow of water. In times of drought, the functioning of these facilities is imperiled. Faced with the prospect of overheating, operators may have little choice but to shut down their facilities or at least reduce output.

In addition, dry conditions can disable power transport. "When dust and other contaminants coat insulators on power lines and get damp, they can conduct electricity and cause failures resulting in blackouts," according to the American Planning Association's Planning and Drought report.

Power outages are not inevitable in a drought, but they are a real possibility, and one that emergency managers must take into account as they develop contingency plans.

to be out of water in short order. That's when there needs to be an emergency response."

But what response? In Texas it went something like this.

ALL ABOARD

To begin with, efforts to address the drought began with establishing working ties between many civic entities, coordinated in part by the Texas Division of Emergency Management.

The Emergency Drinking Water Task Force met weekly to strategize solutions and coordinate resources. The State Drought Preparedness Council published monthly status reports. The Texas Water Development Board makes loans to local governments for water supply projects. That agency also assists with agricultural water conservation, supports regional water planning and administers the Texas Water Bank, which facilitates the transfer, sale or lease of water and water rights throughout the state.

Leading the response effort was the Texas Commission on Environmental Quality (TCEQ), which held monthly training meet-

ings to review water rules and regulations, along with hands-on training for stream-flow measurements, agency procedures and water right investigations. A TCEQ hotline drew about 450 calls on regulatory requirements, authorizations, contingency plans and water conservation resources.

For the public, TCEQ updates its Web page weekly with the governor's latest disaster proclamations, meteorological maps, systems restricting water use, water rights information and conservation tips.

Even with all of these synchronized efforts, the drought tested emergency managers' efforts to coordinate resources.

The Texas Living Waters Project described one scenario. During 2011, Houston imposed drought restrictions on homeowners buying water directly from the city. At the same time, those who got their water from another supplier were exempt from the restriction, even if that supplier also got its water from the city, according to the organization.

Such situations only serve to highlight the complexity of a crisis (albeit a slow-moving

one) that cuts across all strata of society and falls under the jurisdiction of so many disparate bodies. The governor's office may declare a crisis. Water authorities and public and private entities must at once respond to and enforce regulations. Agricultural groups face unique needs. Universities seek to drive policy.

GATHERING RESOURCES

For emergency managers, response begins with a local assessment. Despite the sometimes broad regional or even statewide nature of the crisis, the first line of defense is on the home front.

"The first question an emergency manager has to ask is: What is going to happen to my community?" said Frances Edwards, a professor teaching emergency management in the College of Social Sciences at San Jose State University. "It's a specialized threat analysis. It's a very local question once you understand that you are going to run out of drinking water."

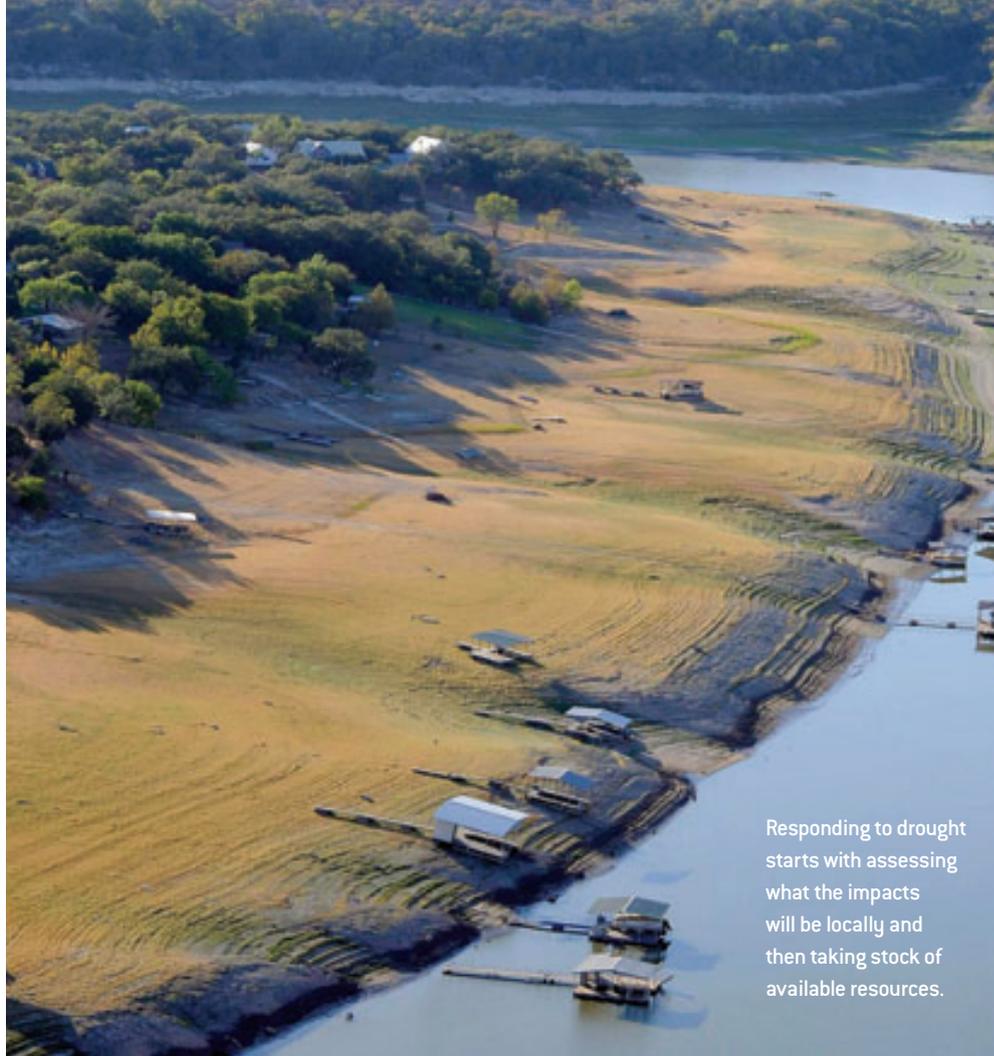
Once they have determined the magnitude of the local threat, emergency managers then need to take stock of available resources. This may go deeper than tapping into a nearby reservoir. Especially in drought-prone areas, control of water can be highly political and its transport highly regulated. It will likely be necessary to determine who has the legal authority to dole it out. State, county and city authorities may hold different pieces of the puzzle.

When the time comes to move into action, emergency managers will likely need to reach far beyond the usual round of supporting resources.

Certainly fire is an issue: For Kistner, response began with those whose needs were most pressing. "The forgotten contributors are the residents," he said. "They need to be brought to the table, first to be made aware of what is going on but also to be made aware of how to mitigate a hazard, and what steps they can take to avoid becoming part of the problem."

There should be a multitude of venues — email, Facebook, fliers, door hangers — and constant feedback. That produces a calming effect and trust factor with the public.

Although fire is the most visible hazard of drought, it's just a starting point when it comes to mitigation, Edwards said. For example, one partner for emergency managers is the National Weather Service. Both as a



Responding to drought starts with assessing what the impacts will be locally and then taking stock of available resources.

FELICITY/TEXAS PARKS AND WILDLIFE

predictor and as a source of ongoing status reports, the weather service can be an invaluable aid to planning and response.

The police are a traditional partner, of course, but first responders must tap into their services in unusual ways. Security may be needed to keep scarce water resources locked down tight during crises, for example. Police may also have to keep the peace at water distribution points.

In addition, public health officials must be in the loop to assist with community education efforts. "What do we tell people about the water in their swimming pools or in the irrigation canals? Here we are telling them to conserve drinking water, and there's all this water just sitting there," Edwards said. "We need a partner who will understand how to manage community expectations."

Maybe call the state highway patrol while you're at it. Water is heavy at 8.3 pounds to the gallon, and you'll need overweight permits to truck the stuff in. You'll also need support in charting a safe route for loads of that weight.

All the elements must be coordinated in the short term, as a drought unfolds and

crises begin to break out in the form of power outages and fires. At the same time, any emergency manager in a drought-prone area ought to be looking ahead. These things tend to be cyclical: Another drought is potentially waiting in the wings.

In this regard, university researchers can be a powerful ally. They can calm fears and also help to generate realistic expectations.

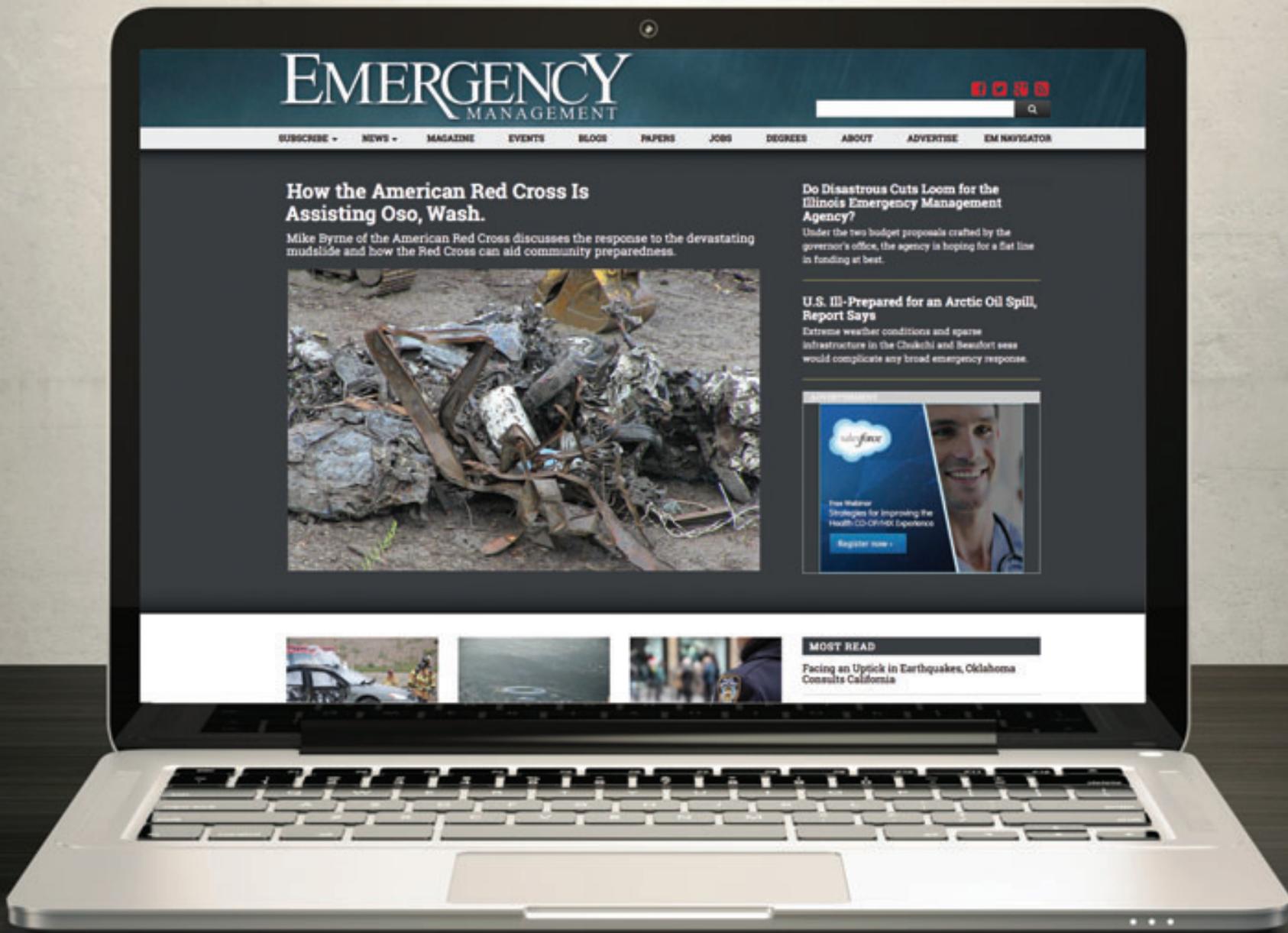
"Often we talk about things qualitatively — 'drought increases electricity demands' — but if you don't know how much, it is difficult to gauge the importance of that data," said Bridget Scanlon, a senior research scientist at the University of Texas at Austin in the Bureau of Economic Geology.

Hard numbers can make a big difference in long-term planning. "You have economics, you have regulations, there are all sorts of drivers," Scanlon said. "But I think this research information helps people to put things in context and then hopefully make better decisions based on that." ✚

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BY MARGARET STEEN

TWO STEPS BACK

FUNDING CUTS THREATEN PUBLIC HEALTH AND WORRY OFFICIALS.

HUGE ADVANCES in controlling infectious diseases, tracking foodborne illnesses and purifying the water supply have vastly improved public health over the past century. More recently, closer communication between emergency managers and public health officials has created the possibility of more coordinated responses to public health emergencies — as well as better prevention.

However, there is much work to be done in all of these areas and recent cuts to public health funding may be jeopardizing the progress.

A report, called *Outbreaks: Protecting Americans from Infectious Diseases*, released in December 2013 by Trust for America's Health and the Robert Wood Johnson Foundation identified numerous reasons for concern. Among them:

- Just one-quarter of states vaccinated at least half of their population against the seasonal flu, even though the U.S. Centers for Disease Control and Prevention recommends the vaccine for all Americans 6 months and older.

- Only Connecticut, Delaware and Washington, D.C., met the federal government's goal of vaccinating 90 percent of preschoolers against whooping cough.
- About half of public health laboratories did not test their emergency plans through either a drill or a real event in the previous year.
- Two-thirds of states cut funding for public health from 2011-12 to 2012-13.

The budget cuts are a particular cause for concern because they affect many other efforts, from tracking disease outbreaks to encouraging vaccinations.

"We found, not surprisingly, that after some pretty severe budget cuts at the state and federal levels, a majority of states had decreased public funding for public health," said Rich Hamburg, deputy director of Trust for America's Health. "There are states that have had their public health budgets cut three and four years running."

The federal government made some fairly large decreases in 2010, he said, though some of those cuts are finally being recouped this year. Public health departments that are hampered by outdated systems and limited resources can leave Americans at unnecessary risk, he said.

"Public health professionals will do anything it takes to try to protect the health of the population that they serve," Hamburg said. "It's amazing what they can do even in times of decreasing resources. But you reach a point where you have to say there are certain things you just won't be able to do."

For example, if laboratories are not adequately staffed and there is an outbreak of a foodborne illness, it could take five days to detect the outbreak instead of two. The result is that more people get sick while experts try to track down the source of the illness.

In addition to the hard economic times of the past several years — which are clearly a driving force behind the cuts — there's the issue of complacency. Public health officials see this in demand from the public for flu shots, which spikes when there's a serious outbreak and declines when the flu isn't viewed as such a big concern. But governments can act the same way when it comes to deciding how to spend money, especially when difficult choices must be made.

"The resources will be provided after an emergency," Hamburg said, often through

emergency appropriations by the government. So if an earthquake or fire damages a local water treatment plant, the government will be sure it gets fixed. It's important to provide these funds, he said, but in some cases, the outcome could have been better if there had been more money invested in prevention before the emergency. When governments have to cut their budgets, big-ticket items like preparedness are often among the first to go.

One of the costs of these funding cuts is the ability of public health officials to detect food- or water-borne illnesses and infectious diseases, which could be critical in the case of a bioterror attack.

"The role of public health in these situations is working closely with doctors and nurses and really understanding when something is unusual, when the pattern is changing or the symptoms are coming together in ways that haven't been seen before," said Paul Kuehnert, team director and senior program officer with the Robert Wood Johnson Foundation, as well as a

registered nurse who has spent his whole career in public health. "That's something that is really key not only to managing and containing these routine things like foodborne illnesses, but to biosecurity."

To make these determinations, public health officials need to: maintain relationships with local clinical care providers; receive electronic reports of illnesses and outbreaks; and be able to analyze the data quickly and work with emergency management officials if necessary. All of these tasks are made more difficult without enough staff and equipment.

"These critical services in health departments across the country are being threatened," Kuehnert said.

One of the areas where complacency is a great concern is in infectious diseases. "We are looking at huge advances that have been made over 50 years in preventing and controlling

WHERE TO GO FROM HERE

The report *Outbreaks: Protecting Americans from Infectious Diseases* recommended steps for shoring up infectious disease control and prevention in the U.S. Among them:

- ➦ Maintain an expert public health workforce and give it state-of-the-art tools. Rich Hamburg, Trust for America's Health's deputy director, said an all-hazards approach is best: "You need the resources that will help you conduct investigations to detect, control and treat disease outbreaks — whether from diseases or acts of bioterrorism."
- ➦ Improve vaccination rates, which Hamburg called the "most effective way" of reducing infectious disease.
- ➦ Modernize disease surveillance and ensure public health laboratories can test not only for

routine problems like foodborne illnesses but also for large-scale threats like bioterrorism or a pandemic. IT for the health-care field plays an important role here, Hamburg said, since it can help track disease outbreaks.

- ➦ Improve global coordination to prevent and contain emerging illnesses while still defending against longstanding threats like malaria and tuberculosis.

To reach these goals, funding needs to be adequate. "Policymakers and citizens need to understand the importance of public health protection services to a community. We have to have some way of maintaining health protection capabilities and services in all of our communities," said Paul Kuehnert of the Robert Wood Johnson Foundation.

"PUBLIC HEALTH PROFESSIONALS WILL DO ANYTHING IT TAKES TO TRY TO PROTECT THE HEALTH OF THE POPULATION THAT THEY SERVE."

infectious diseases," Hamburg said. "The majority of Americans can live longer lives."

But those gains are not guaranteed to be permanent. With most states not meeting the U.S. goals for vaccination, for example, the threat of some infectious diseases is increasing.

Certain infectious diseases are always around, though they vary from year to year in intensity. Flu is a good example, with its potential for an epidemic. HIV and tuberculosis are also among the infectious diseases that public health officials monitor and try to prevent from spreading.

"Ten years ago, measles and whooping cough wouldn't be on that list," said Jennifer B. Nuzzo, senior associate with the UPMC Center for Health Security. "They are now because people aren't vaccinating. Now we're seeing large outbreaks, which is a big drain on resources for public health departments to investigate and control them."

In addition, the U.S. is seeing some mosquito-borne illnesses, like dengue, that had not been present in the country in recent years but seem to be seeing a resurgence.

This is an ongoing concern due to climate change, Hamburg said. "Some of it is just temperatures," he said. If the temperature changes, mosquitoes, ticks and other animals that carry disease may start living in places where they didn't previously inhabit. "Weather patterns have an effect on some outbreaks."

The Centers for Disease Control and Prevention estimates that each year about 1 in 6 Americans gets sick from foodborne diseases and 3,000 die. Foodborne illnesses have been found to be transmitted by foods as diverse as frozen pizza snacks, salads, ground beef and tahini sesame paste.

The U.S. has worked hard over the last two decades to build a surveillance system that can detect foodborne illnesses, Nuzzo said. When doctors suspect a foodborne illness in a patient, genetic analysis of his or her stool samples can link the illness to what other patients are experiencing. When public health officials know where the victims are, they can more easily find the source of the illness and, if it's a food that is still being sold, get it off the shelves.

However, Nuzzo said, this system is threatened, ironically, by advances in health care. Newer, faster tests may give doctors the information they need to treat the patient, but they may not provide as much detail as public health officials need to establish links between cases. "It's good for the patient, but not necessarily good for public health, which relied on having much more detailed testing," Nuzzo said.

Budget cuts are also an issue. "Important programs have had to do more with less, but you get less with less," Nuzzo said. "It's really worrisome."

"These are mostly illnesses that can be prevented," Kuehnert said. This means that even though in most cases the illnesses are not life threatening, preventing them should be a goal. "They have a significant impact on our health-care system in terms of dollars spent and lost productivity."

A related issue is that while officials in the United States have become good at detecting outbreaks, it can still be very difficult to determine what caused them. In one salmonella outbreak, for example, officials first thought tomatoes might be the culprit, Nuzzo said. Ultimately they realized the problem was with jalapenos, which were being eaten with tomatoes. By that time, though, the outbreak was mostly over and the tomato industry had lost millions of dollars. Other cases have involved contamination of food from just one

processor, but consumers get the message that they should avoid a particular product entirely.

Although it's important to keep people from getting sick, Nuzzo said, "We don't want to cause undue economic losses or to have people lose confidence in foods that are safe."

Waterborne diseases are also a threat. Because breakdowns of the U.S. system for protecting drinking water are rare, most come from recreational water use, Nuzzo said, such as swimming pools or water parks.

"Waterborne and foodborne illnesses were a major cause of death before we got sanitation systems in place in the early 20th century," Kuehnert said. "That's particularly true of our drinking water. Today in our country, we have great infrastructure in place that protects our water supply for drinking."

There are still occasional problems with the water supply, however. Big rainstorms can wash solids into the water, for example, and intentional contamination is always a concern.

The relationship between emergency management and public health departments continues to evolve.

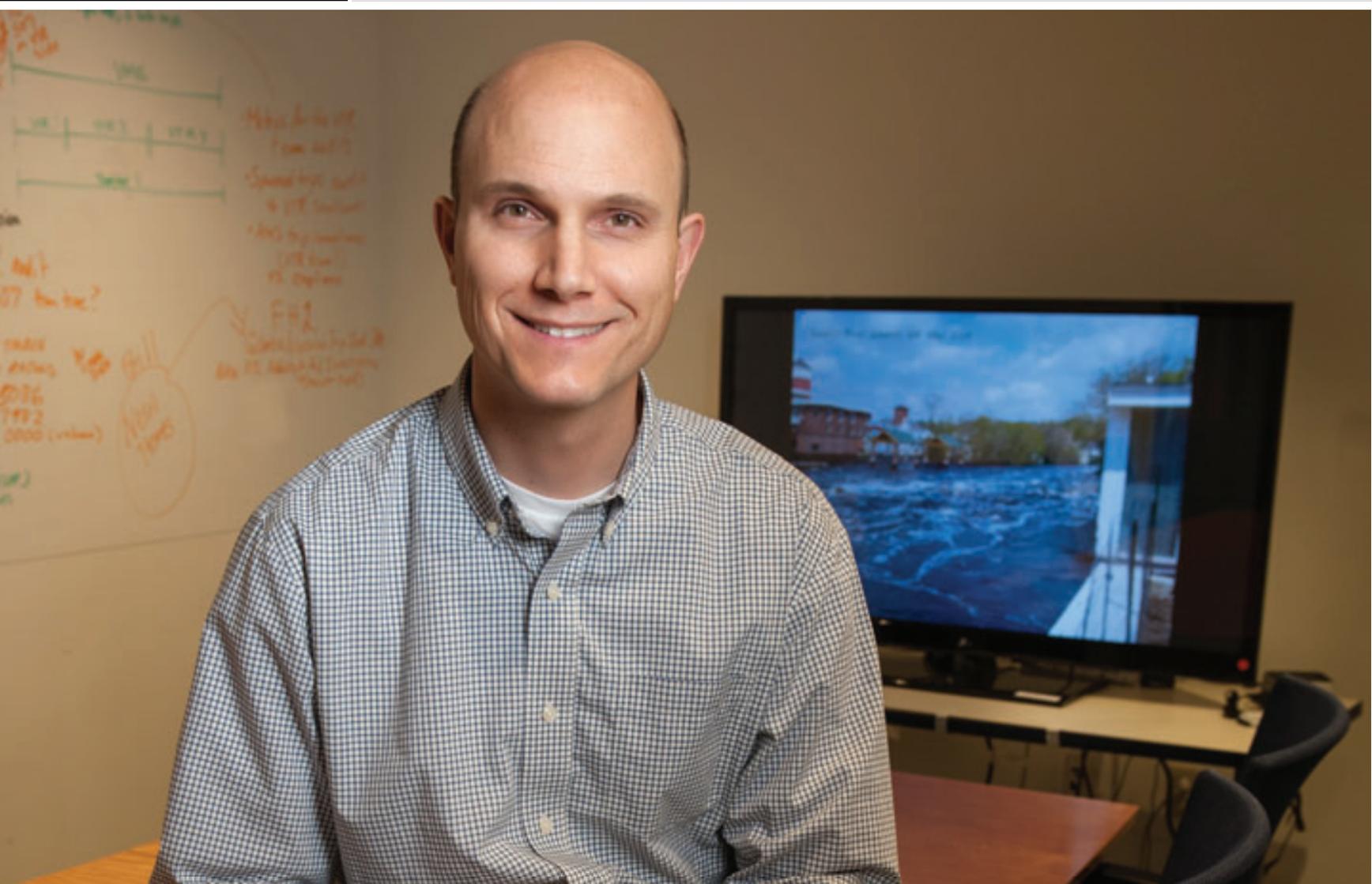
"Prior to 2001, I think that public health and emergency management were very separate from each other," Kuehnert said. "Like many public agency departments, everybody was kind of comfortable in their silos." There were a few exceptions, he said, primarily in places with frequent natural disasters.

Communication between the departments started improving in the late 1990s and picked up markedly after 2001, as the federal government increased its funding for public health emergency preparedness and response.

Public health departments have received funding in recent years to respond to disasters, such as bioterror threats, which has led to increased collaboration and cross-training between agencies.

The level of communication still varies a lot by jurisdiction, Kuehnert said, but public health is seen as one of the real resources for a jurisdiction in emergency preparedness, response and recovery and has been integrated much more into the state, county and city emergency response framework. +

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Translating the Past

NOAA's Mathias Collins talks about the science of predicting climate change and future flooding.

Mathias Collins is a hydrologist with the National Oceanic and Atmospheric Administration (NOAA). He has participated in a number of studies on flooding and climate change, including one that examined stream gauge records for the past 100 years and found a trend toward more frequent floods with a heavier magnitude. We talked to him about this study and predicting flooding and climate change in the coming decades.

By Jim McKay | Editor

➤ You studied stream gauge records of the past 100 years in the Northeast and found an upward trend in frequency and magnitude of floods. Tell me what that study told you and if it was alarming.

I would start by saying I don't consider it alarming, but what we found was interesting in light of two things.

On one hand, the result wasn't unexpected because of the precipitation trends in the region. Precipitation has been increasing in the Northeastern U.S., particularly so in the upper ends of distribution. The heavier precipitation events have been getting heavier.

So in one sense, the findings weren't surprising, but in another they were. Flooding doesn't always directly reflect changes in

precipitation. That's because the land surface modifies what happens to the precipitation that's delivered to it. Our studies were trying to get a read on if there are trends and if there is a climate signal to those trends.

We have to carefully select stream gauges to try to control for that change in land use. Urbanization also increases flooding so we want to make sure we're not measuring that. All that is to say we go through an extensive process to identify gauges that measure stream flow that's as natural as possible. That's hard to do.

There are large areas of the eastern U.S. that have been fairly dramatically reforestation over the last 100 years. So we have urbanization concentrating and at the same time less

forestry and farming. When you look at the New England landscape compared to 100 years ago, it's much more forested. That would tend to, over a 100-year record, damp flooding. Forested cover tends to do the opposite of urbanization, which is damp flooding.

That's where our findings were surprising. We didn't expect to see a direct translation of the precipitation increases into flooding increases, but we still have a fairly strong signal of flooding increases. Not at every gauge but a majority of gauges, and we have a number that are statistically significant.

⊕ It sounded like an ominous trend. But you wouldn't call it alarming?

I wouldn't, but I would say it's important to look at the work in the context of other things as well. We tried to control for urbanization, but of course much of the area where we have these findings we do see urbanization.

Where the changes get more dramatic is when you consider urbanization on top of climate impacts. If anything is alarming, that's probably where you would see it. People in those urbanizing watersheds may be seeing their flooding issues as mostly urbanization, but they're partly climate. And the other thing is the frequency aspect, because that's where we find our strongest findings. ... The strongest findings are in the numbers of floods per year; they're increasing and that's purely an atmospheric phenomenon.

And so areas where you have urbanization, you not only have the magnitude enhanced by the changes in the climate but you also have the frequency of flooding changing. Whether that's alarming or not I think is on a case-by-case basis, but certainly our work suggests people should be considering this when they're thinking about design or emergency management. Certainly frequency is increasing.

⊕ Explain what the North Atlantic Oscillation (NAO) is and how it relates to climate change.

In our work when we look for causal agents for these changes, one thing to look at are agents of cyclic climate variability. Basically in the atmospheric system, there are semi-permanent features of the atmosphere and they tend to oscillate between semi-stable states.

All of that is to say it influences storm tracks. The NAO has been known to affect whether we have wet or dry conditions over long periods, years to decades. So we explored whether there was some association between the NAO phase and flooding, and we did find some relationship although it's complicated and weak. It's not a direct relationship, but it's persistent and we believe it's impacting flooding, both in magnitude and frequency.

We also believe it's not the only thing impacting the flooding. Floods are complex phenomenon that tend to rely on a certain set of conditions [converging] at a certain time. We have to start thinking of it as a suite of things that all point toward greater magnitude and greater frequency.

So we still believe the NAO is important and is the function of cyclic climate variability as opposed to climate change. It's a natural variability. It doesn't explain everything. But when you look at some other phenomenon, those too point to a greater likelihood of flooding.

For example, a colleague did a study on how "closed low" storms have been increasing in the Northeast. A closed low is a category of storm type, a measure of the strength of the low-pressure system.

The frequency of closed lows in the Northeast and the quantity of precipitation associated with them increased significantly since the late 1940s and this is consistent with what we'd expect from human-induced increases in global mean temperature.

The conclusion is there isn't one explanation. We should be looking for a number of things that produce flooding. They're episodic phenomenon, and they require a certain number of things all happen to cause them. You need the rain; you need wet soil and antecedent. And then add the blocking phenomenon on top of that. It's a grouping of phenomenon that happen at once.

⊕ How should we mitigate these trends? Are we on the right track?

The question as I see it is that when people are designing projects on a project-by-project basis, are they taking this kind of information into account? Oftentimes these processes default to existing information, existing studies,

existing data and they don't automatically include updating recent studies.

It's almost a case-by-case thing but our design teams take it upon themselves to re-examine existing flood frequency estimates and information like that to reflect how our rivers have been flooding for the last 30 years. We document these changes as taking place over the last 30 years, like a step change starting in 1970, which is a date a lot of natural phenomenon have been identified as changing.

But even if you update to reflect the most recent decades, there still is a question of does the recent data give us a guide to what we can expect in the coming decades? We don't really know. If we believe these changes are a function of anthropogenic [human-caused] warming, which we're frequently calling climate change, is the last 30 years a good guide to the next 30 years? We don't know, but that's how design is done.

We estimate what's likely to occur in the future based on the past. And that's the fundamental nut of climate change as applied to planning. Is the past going to be a reasonable guide to the future?

⊕ That leads into my next question. Is it possible to look into the future with any kind of accuracy?

I think it's really hard. We've been wrestling with that as we take some of these findings and try to think of them in a context for design and how can we give recommendations on what to do for design.

Extrapolating into the future and assuming climate change is generally a modeling exercise, and you take model estimates from circulation models. There are a number of ways you can use those model estimates, but you can then project the future based on model estimates for precipitation and so forth, but those are fraught with problems.

It's a real difficulty because in the design world, we often feel like our best guide is experience on the waterway. What's it done in the past? And we've been saying with our research that if you're not looking at the recent past you're definitely out of date, but is even that good enough? We're not sure. ⊕

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The Cyberthreat and the Emergency Manager

Cyberincidents follow the same path as other emergency incidents, and preparing for them is necessary.

IT is a key component in delivering services like water treatment and should command more attention from emergency managers.

By Carrie Speranza | Contributing Writer

A virus has infected emergency management agencies, and it has spread like wildfire. Once it infiltrates the system, it causes an inability to effectively plan and prepare for cyberincidents. The virus: fear of the unfamiliar cyberworld.

To be fair, not everything related to cyberpreparedness and response is unknown. Agencies may have acknowledged the potential for an incident to occur in their hazard mitigation plans or their Threat and Hazard Identification and Risk Assessments, and some may have a cursory understanding of specific vulnerabilities.

Yet even with admittance, there still exists a hesitancy to move the process beyond threat identification. But there have been some successes: The Indianapolis Division of Homeland Security created a cybersecurity defense force and the Maryland Emergency Management Agency has

started the risk assessment process. These examples, however, are not replicated by the majority of jurisdictions nationwide.

Just 24 percent of state chief information security officers are confident in their state's ability to protect against cyberthreats, ranking cybersecurity as their weakest core capability in the *2013 National Preparedness Report*. Fewer than half of the country's fusion centers, often owned and operated by state or local governments, have a dedicated cyberprogram. And though local preparedness falls somewhere between the gold standard and nonexistent, the most common trend for emergency managers is to incorporate the IT department's disaster recovery plan into the emergency operations plan and resolve to being the "consequence manager" if and when an incident were to occur.

IT permeates nearly every aspect of our lives, and it is a necessary component in successfully delivering many public services, from waste management to first response to water and wastewater treatment. Such a critical element of these

programs deserves preparedness levels that rival that of floods and hurricanes.

What to Ask?

So why the lack of preparedness? It can likely be tied to the mindset and level of comfort that the emergency manager has with IT. Some are intimidated by IT issues and consciously avoid cybersecurity, and others have started down the path of preparedness by identifying the threat, but need guidance on taking their program to the next level. The latter group knows that the threat is evolving and accepts that something needs to get done. It has a disaster recovery plan, open lines of communication with its IT department and good intentions of developing a cyberincident response plan. But without access to cybersecurity experts, it does not know how to proceed or what questions to ask the experts.

Cyberincidents follow the same path as other emergency incidents, and preparing for them is a similar and familiar process as well: define, assess, plan and act.

Establish a Definition

Before the assessment and planning process can begin in earnest, it's important to establish a definition of the term "cyber" and what it means to emergency management. Modern society and pop culture have fueled a misinterpretation of the term, leading many people to believe that cybersecurity means protecting computers and servers from terrorists and foreign adversaries. But cyber is much more than computers and servers, and its infrastructure is vulnerable to both natural and human-caused hazards.

It's easiest to think of cyber as anything with a digital or analog component. GPS systems, mobile telephones, digital watches, motor vehicles and televisions are a few of the everyday things that have a cyber-component.

For emergency managers, GIS, first responder communication systems, the electrical grid, remote wireless sensors or monitoring stations, EOC systems and water

and wastewater treatment plants also fall into this category. To fully understand this new definition, list all of the public functions your jurisdiction provides and then determine which of those are supported by a digital or analog component in development, execution or delivery. The list will be far more complex than a catalog of personal computers and server locations.

Risk Assessments

Next, a thorough risk assessment should be performed focusing on cyberinfrastructure and the dependencies within governments' critical services and functions on that infrastructure. Since most agencies have conducted a basic risk assessment for emergency operations plans and hazard mitigation plans, basing one on services and functions brings the assessment to a new level, enhancing the depth of the analysis.

Conventional risk assessments are conducted by analyzing a variety of factors, but generally focus on critical infrastructure, the likelihood of a hazard occurring and population density. Enhancing this method to include a service and function focus requires that a clear distinction be made between what emergency management used to be and the role it plays today. Accepting this distinction will better ensure a more comprehensive risk assessment.

The first step is to work with agency or department heads and ask what the most critical services and functions provided to its citizens are. Start the conversation by going through each essential support function in the emergency operations plan or by critical infrastructure sector as defined by the U.S. Department of Homeland Security. Together, work to identify what is important to your constituents and how those

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services and functions are delivered. List the programs, systems and equipment used for each, noting specifically where the execution of that service or function depends on a cyber-component. Clearly identify the owner-operator associated with the service and function as well, as this will go directly into the cyberincident response plan.

Once the master list of services and functions is developed, the next step is to map out the interdependencies and relationships between those systems. Again with the agency or department heads, ask how each service or function affects the others. If one service is compromised, will it affect the delivery of another? Understanding these interdependencies is crucial. The result is a cyber-based risk map showing the relationships between the most critical cyber-based services and functions. This will help identify a priority order for which systems need to be protected before, or recovered after, an incident.

One of the last steps of the risk assessment process is to work with the IT department and other agency or department heads to identify the specific vulnerabilities within the critical cyber-based services and functions. A vulnerability can be a system that is unprotected, has no contingency plan if compromised, contains aging infrastructure or anything else the assessment team qualifies as a vulnerability. Indulge in a conversation focusing on fixing the problems that have been identified. What specific actions can be taken to protect, prevent or mitigate the impact from a cyberincident to those vulnerable systems? Create an action plan with a timeline for execution of these items.

Incident Response Plan

Cyberincident response plans should be developed to complement the disaster recovery plan and information systems contingency plan. Neither should be trumped by the other and each serves its own purpose, though recovery plans and information systems contingency plans are generally maintained by IT departments. Cyberincident response plans should be treated like any other incident-specific annex to an emergency operations plan. Primary and support agencies should be identified, roles and responsibilities clearly delineated, communication and coordination thoroughly fleshed out, and a concept of operations provided in detail.



Cyber infrastructure includes the electrical grid.

FLECK/DAVID NATIONAL LABORATORY

One of the key differences between this plan and a traditional incident-specific annex is that the list of critical systems and functions identified in the risk assessment, along with the risk map, should be prominently placed within the annex. Owners and operators of each critical cyberservice and function (along with their correlating programs, systems and equipment) should be listed with their contact information as well, including private industry partners. Also ensure that related emergency response contracts are included in the plan, with copies of the agreements included as attachments for reference.

As with any effective planning effort, cyberincident planning and the accompanying risk assessment are iterative processes. They are meant to be updated frequently and probably more often than other plans.

Cyberinfrastructure, capabilities and reliance on those capabilities is evolving, and the threats and perpetrators are changing just as rapidly, which justifies the need for frequent updates. As a general rule, when systems are upgraded, mitigated or acquired, consider making the appropriate changes to the plan and risk assessment accordingly.

Take Action

Following the completion of the risk assessment and cyberincident response plan, act on the prevention, protection and mitigation actions identified during the risk assessment process. This might include acquiring computer programs like anti-spyware, anti-virus protection, encryption programs and robust firewalls.

If your jurisdiction already has a cybersecurity team, one of its tasks should be

to conduct continuous monitoring of the jurisdiction's systems. This not only ensures that any programs, and updates to those programs, are successfully reaching the end user, but also that suspicious or malicious activity can be immediately detected.

Other actions can include hardening infrastructure, ensuring that it is physically protected from human interaction as well as environmental impacts.

Obtaining the resources to define, assess, plan and act might seem like a challenge. Emergency managers are already doing more with less. Fortunately, the federal government has placed cybersecurity as a high priority initiative, acknowledging that a serious cyberattack is coming and that it is flexible and forward thinking in its own preparedness initiatives. But the federal government can't offer assistance if it's not aware of your vulnerabilities.

Although the requirement of reporting on capability estimations and targets has been left to the Urban Areas Security Initiative and states, local jurisdictions are invited to provide their capability reports to strengthen the Threat and Hazard Identification and Risk Assessments and State Preparedness reports. These reports document the need for specific assistance to help boost capability shortfalls and can aid in grant justification in the following years. Use this opportunity to sit at the table and provide an accurate account of your vulnerabilities. +

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Addressing the Rise

A new climate change institute will help Connecticut coastal communities prepare for rising sea levels.

By **David Levine** | Contributing Writer

James O'Donnell pulls no punches. “The sea level is going to rise, that’s for sure,” said the professor of marine sciences at the University of Connecticut. “It has been rising for 10,000 years; it’s just accelerated recently. The biggest danger is that we don’t do anything.”

But Connecticut is doing something. Officials in the state, which has been bruised and battered in the past few years by storms both named — Sandy and Irene — and unnamed, announced the creation

of the Institute for Community Resiliency and Climate Adaptation in January.

It’s a collaborative effort among UConn, the state Department of Energy and Environmental Protection and the National Oceanic and Atmospheric Administration, and its goal is to create real-world solutions for the growing risks to both life and property that are being posed by climate change.

“In the U.S., many states are working to develop climate change policies, but as far

as I know, this is the only one with a joint agreement between a major university and a state department of environmental protection,” said O’Donnell, the executive director of the institute. “The development of this relationship is kind of novel.”

The institute’s mission is also novel. O’Donnell put it this way: “Over the last few years, we’ve had our share of severe storms in Connecticut, and they will become more frequent. We also have limited resources. What are we going to do?”

Areas along the Connecticut coast were impacted by Hurricane Irene. Modeling shows a trend toward rising waters and more flooding.



JOEELYN AUGUST/INDI/FERNA

That's a big blank. The institute, in simple terms, is meant to fill in that blank."

At the unveiling of the institute, which will be based at the university's Avery Point Campus, Gov. Dannel Malloy said it will be "a world-class, leading-edge center that harnesses the research and outreach capabilities of UConn and the practical regulatory expertise of Connecticut's Department of Energy and Environmental Protection.

"Our vision for this center is for people to roll up their sleeves [and] to have direct and ongoing contact with property owners and community leaders, to make sure we have the tools and knowledge and financing that they need to take the necessary steps" to prepare for rising sea levels and other consequences of climate change.

The issue of climate change may be considered controversial in other parts of

the country, but in Connecticut, both sides of the political aisle follow the science. And that's "unequivocal," said the United Nations Intergovernmental Panel on Climate Change.

According to the Connecticut Sea Grant College Program (Sea Grant is a national partnership between universities and NOAA), climate change will afflict the state with projected sea-level increases associated with a warming global climate, which will cause greater flooding, erosion and impacts from storm surges, potentially degrading wetlands and causing more property damage.

The groundwork for the institute was set two years ago. State Rep. James M. Albis,

"If the rivers flood at the same time as a coastal storm surge hits, low-level communities can be flooded, but we don't have a good model for that."

who said his district was devastated by the recent storms, is chairman of the General Assembly's Shoreline Preservation Task Force, which was formed in 2012, after Irene, to propose studying how climate change will affect the Connecticut shoreline. "We came out with recommendations in January 2013," he said, which included the formation of a think tank such as this.

"We did not expect it to come to fruition so quickly," Albis said. "That happened thanks to a \$2.5 million settlement of plea agreement the state won from Unilever Home and Personal Care USA for clean water violations. The Connecticut Sea Grant Coastal Storm Awareness program chipped in another \$610,000, and \$425,000 more comes from a federal grant to enhance coastal resilience in Connecticut. That should keep the institute humming for about three years."

According to the university, the institute has the following goals and objectives:

- Improve scientific understanding of the changing climate and its local and regional impacts on coastal and inland floodplain communities;
- Develop and deploy natural science, engineering, legal, financial and policy best practices for climate resilience;
- Undertake or oversee pilot projects designed to improve resilience

and sustainability along Connecticut's coast and inland waterways;

- Create a climate-literate public that understands its vulnerabilities to a changing climate and uses that knowledge to make scientifically informed, environmentally sound decisions;
 - Foster resilient and sustainable communities — particularly along the Connecticut coastline and inland waterways — that can adapt to the impacts and hazards of climate change;
 - Enhance the resilience of critical infrastructure; and
 - Reduce loss of life and property, ecological damage and social disruption from storms.
- "The target audience is communities,"

O'Donnell said. He expects community leaders to bring their specific problems and most pressing priorities to state and local politicians, who will then ask the institute's scientists to do applied research to come up with actionable solutions.

"One of the major problems we noticed on the task force was that municipalities are woefully underprepared for climate adaptation," Albis said. "They have so many other issues to deal with, and they don't have adequate staffing with knowledge of climate adaptation to pursue best practices. My hope is that the institute will be a source of education for municipal leaders and stakeholders about what their options are for coastal protection."

Currently it's far too early to tell how effective the institute will be, or even what its final form will be. Stakeholders have been meeting to introduce disparate research interests — engineers, political scientists, social scientists, environmental experts, economists, legal experts and others — to one another, so they could begin to collaborate on problems that touch all these issues.

"We all see the world fairly differently, from different perspectives, so the past three or four months we have come together to talk about how the institute would work and what kind of organizational chart is appropriate," said Sylvain De Guise, associate director of the institute and director of the Connecticut Sea Grant College Program. "I like to use a house analogy: If this is like building a house, we have pretty much agreed on the blueprint. We are just starting to pour the foundation."

Actual work was scheduled to begin in the spring, with two programs designed to reach out to coastal communities to get the conversation started, according to Juliana Barrett, associate extension educator for the Connecticut Sea Grant College Program. The first is called a Climate Adaptation Academy.

The Connecticut Sea Grant Program and UConn's Center for Land Use Education and Research will partner with the Connecticut Department of Energy and Environmental Protection's Office of Long Island Sound Programs. They will work with municipalities and relevant professionals on current climate issues as well as climate change adaptation and resilience.

Another workshop, The Next Coastal Storm Preparation and Response: Coordinating and Improving Preparedness with Technology, will bring together municipal officials to discuss how towns can better respond to community needs

before, during and after coastal storms by using GIS to coordinate and manage the response both locally and with the state emergency response system.

No one knows exactly how many coastal protection devices — such as seawalls, berms, breakwaters and the like — already exist along the state's coast, so the institute will take an on-site inventory. Back in the office, O'Donnell and his team will work to develop computer models that better predict the joint effect of river- and sea-level flooding.

"If the rivers flood at the same time as a coastal storm surge hits, low-level communities can be flooded, but we don't have a good model for that," said O'Donnell, who also coordinates the Long Island Sound Integrated Coastal Observing System, which collects data to create models that predict processes in the Long Island Sound.

O'Donnell expects to dedicate about 50 percent of his working time to the new institute. Although he doesn't know

just yet exactly what that work will entail over the next few years, he does know what the overall end product should be.

"We will be successful if we provide information to towns and municipalities about what is an appropriate response to climate change in different areas," O'Donnell said. "At the moment there are no clear guidelines about this. Our role isn't brokering decisions, it's providing information. Not everyone will be happy with the outcomes. But if there is clarity, then everyone will be more efficient at least."

Albis, whose district lost 25 homes to Irene, said, "Time will tell what is needed, but I am really excited for the prospects of this being able to help the community. I think the scope of the institute will be much greater than just along the coastline and will extend throughout the state. I am very excited to watch it blossom." +

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The Iowa flood of 2008 exposed flaws in emergency communications.

Breaking the Silence

A new joint radio system in Iowa is allowing neighboring emergency responders to communicate smoothly for the first time in 40 years.

By Justine Brown | Contributing Writer

WIKIPEDIA

Iowa is often called the “land between two rivers.” With the Mississippi River forming its eastern boundary and the Missouri River its western, the state is no stranger to floods. But the spring of 2008 was different. As months of snowmelt saturated the Upper Mississippi River Basin, a seemingly endless string of spring storms pounded the state. In the two-week period between May 29 and June 12, many parts of Iowa received more than 9 inches of rain (the average is 2.45 inches).

On June 8, 2008, the Cedar River crested and the city of Cedar Rapids became inundated with floodwaters. About 10 square miles of the city, including most of the downtown area, was under water. Mays Island — which included the Cedar Rapids city hall, Linn County courthouse, county jail and federal courthouse — was flooded to the second-floor level. In addition to

damaging more than 5,000 houses and 1,000 businesses, the flood caused tremendous disruption to the city’s utilities. Electricity and natural gas were cut off. Telephone and Internet service were also disrupted.

And amid the chaos, another problem became painfully obvious: Emergency responders in three key areas affected by the flood — Linn County, Cedar Rapids and Marion — could not communicate with each other because each of them operated on disparate radio systems.

“The flood exposed significant flaws in our emergency communications,” said Linn County Sheriff Brian Gardner. “It affected our efforts to evacuate neighborhoods. And the police and sheriff’s departments took a massive number of phone calls simply because officers couldn’t talk to each other on the same radio frequency.”

The Search for Solutions

The communication challenges first responders in Cedar Rapids faced during the floods germinated over a number of decades. Years ago, the police departments in Cedar Rapids, Linn County and Marion could talk to each other using low-band radio. But in the late 1970s and early 1980s, the jurisdictions went their separate ways, according to Gardner.

“The cities of Marion and Cedar Rapids moved to UHF, and Linn County went to VHF. At that point, Cedar Rapids and Marion could continue to talk to each other, but Linn County could not,” Gardner said. “Things stayed that way until around 2000 when the city of Cedar Rapids moved over to [800 MHz]. From then on out, all three of us were on separate, disparate radio systems and no one could directly communicate with each other.”

With Linn County on VHF, Cedar Rapids on 800 and Marion on UHF, communication was possible, but certainly not easy.

“You would radio to dispatch, we would call your dispatcher, they would call their officer, their officer would relay back to their dispatcher, their dispatcher would relay back to us and we would relay back to our officer,” said Joe McCarville, public safety dispatch assistant manager for Cedar Rapids.

“We were like the poster child for disparity,” said Charlie McClintock, communications director for the Joint Communications Agency of the Cedar Rapids Police Department. “We could utilize a computer tool that allowed us to patch frequencies from each of the different bands together so we could talk in an emergency, but it was just one frequency. It was very cumbersome, and if it was a larger event, having just the one frequency really didn’t work very well.”

Efforts to remedy the situation had been attempted several times over the years, but were always stalled or hit a roadblock. The floods made it painfully obvious that something had to change. So in 2009, Gardner along with then-Cedar Rapids Police Chief Greg Graham and Marion Police Chief Harry Daugherty approached the Linn County Board of Supervisors and the Cedar Rapids and Marion city councils to explain the need for a new communications system.

With an impending narrow banding mandate from the FCC and an 800 MHz system on “life support” because of the lack of available new parts, it was time to act, Gardner said. “It was the perfect time to work together and move toward one seamless radio system for all first responders.”

Gardner, Graham and Daugherty got permission from their jurisdictions’ governing bodies to hire a research firm to evaluate whether it would be fiscally responsible to invest in a joint communications system. After passing that test, an RFP was created and the project went to bid. The eventual winner was Harris Corp. of Melbourne, Fla., which proposed an 800 MHz P25IP digital trunked radio system.

In February 2014, Cedar Rapids, Marion and all of Linn County began using the new radio system, allowing for a more coordinated response to emergencies and other calls for service.

The system infrastructure costs, which totaled \$19.2 million, were split among the entities (Cedar Rapids 50 percent, Linn County 30 percent and Marion 20 percent), with each being responsible for the purchase of its own portable and mobile radios. In addition, Linn County purchased radios for nearly all other emergency responders located in the county, outside of Cedar Rapids and Marion.

About 2,000 portable and mobile radios are on the new system, which, beyond law enforcement, fire and EMS, includes the Linn County juvenile detention, health, LIFTS transportation system for elderly and disabled citizens, and the secondary roads and conservation departments.

Enabling Efficiency

Building the new system had its challenges. For example, tower sites and microwave shots were built out, but by the time they were ready to be turned on, interferences had emerged. The primary instance involved shooting through a landfill area. The landfill had long ago been closed, but in order to accommodate the massive amount of debris created by the flood damage, it was temporarily reopened and grew significantly.

“We had to go back and re-angle our antennas,” McClintock said. “It was something we didn’t see coming because the landfill was decommissioned. It’s stuff like that you never think is going to happen that can put a wrench in your plans.”

The new system also came with unexpected benefits. For example, the same Harris 800 MHz P25 digital trunked radio system is also used in Johnson County. This facilitated the creation of a Linn/Johnson County corridor radio system that enables emergency responders from both counties to smoothly communicate with each other.

“The Harris system was already in existence in Johnson County south of us, so we were able to piggyback on their system,” Gardner said. “We each have our own controllers so we can operate independently of each other, but we were able to use each other’s infrastructure.”

That creates a seamless corridor, so in theory a firefighter in extreme northwest Linn County could talk to a police officer in extreme eastern Johnson County on the same system.

“We can handle each other’s call loads more efficiently too,” said Tom Jones, executive director of the Johnson County Joint Emergency Communications Center. “If a disaster similar to the floods happened today, we’d have the capacity to pick up that load better, and the strain on resources would be much less.”

The eventual goal is to add more counties to the system to enable a multiregion system.

“The more we add, the better we’ll be able to communicate,” Jones said. “That also means shared maintenance costs, which lowers the price for everyone.”

Forty Years in the Making

The most important aspect of the new joint communications system is that it has allowed emergency responders in Linn County, Cedar Rapids and Marion to talk to each other on the same radios and same frequency for the first time in 40 years. Should another flood hit the area, emergency personnel in the region are confident they’re better prepared.

“Everybody involved should see a benefit from being able to communicate,” McCarville said. “Everybody is listening to and hearing the same thing and that speeds up response.”

In addition, the system will make it easier to communicate with outside agencies that may volunteer to help during an emergency. During the flooding in the corridor, for example, Cedar Rapids police said Minnesota was generous enough to send officers to help. Unfortunately no one could communicate with the officers by radio to direct their efforts. With the new system, outside agencies can be more easily patched in so all parties can communicate and coordinate.

Given that Iowa is the “land between two rivers,” being prepared for the next potential flood or other natural disaster is critical.

“The stars just aligned correctly to make this happen — the flood, the narrow banding mandate and the willingness among the key players to work together to enable better communications,” Gardner said. “And it’s not just for emergencies. Day-to-day, this system will make it easier for us to communicate and accomplish our missions more effectively.”

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Q&A: Communicating in a Crisis

Sprint Emergency Response Team Reconnects Responders During Hurricane Sandy

Hurricane Sandy was one of the deadliest and most destructive storms in history, affecting the entire eastern seaboard and parts of the Midwest when it hit in October 2012. The most severe damage took place in New Jersey and New York, where streets, tunnels and subway lines were flooded and power cut off to millions of residents. *Emergency Management* spoke with Rodney Cooper, north region business development manager for the Sprint Emergency Response Team (ERT), about its role in supporting the massive recovery effort by restoring critical communications.

Q: During Hurricane Sandy, emergency response efforts were hampered by the failure of a key computer network. How can the Sprint ERT lend assistance in such a situation?

RODNEY COOPER: The greatest risks to wireline and wireless networks in natural disasters come mainly from wind and water. Another concern is the network's ability to handle increased traffic when the community is trying to connect with loved ones and first responders are surging into a limited area. Networks can crash and the result is limited capability or complete failure.

Since 2002, Sprint has deployed equipment, personnel and infrastructure assets in support of government during both crisis and non-crisis events. Hurricane Sandy was the perfect storm, especially as it relates to illustrating the Sprint ERT capabilities.

During Hurricane Sandy, we deployed 17 SatCOLTs (Satellite Cell on Light Trucks), six SatIP Fly Away Kits (or VSATs), over 5,200 handsets and mobile broadband devices to help solve communications breakdowns. The Sprint ERT SatCOLT is a fully self-sustained, mobile communications platform that is designed to be deployed almost anytime and anywhere. It is capable of standing up cellular infrastructure for CDMA voice and data and LTE broadband, as well as providing high-bandwidth IP connectivity. Our VSATs are designed to rapidly deploy, and similar to the

SatCOLTs, can provide up to a 20Mbps dedicated IP circuit via our satellite links to Sprint-owned Earth stations.

Our people are also very important to our mission. The Sprint ERT employees and trained ERT reservists are an integral component to our government and commercial working relationships and how we overcome communications issues. We work closely with all levels of government to identify unmet needs during crisis events. When we receive a mission, our staff deploys, sets up and monitors our systems — a fully self-supporting effort. This allows government employees to focus on their mission — the response and recovery effort — and not on technical issues or providing logistical support.

For instance, in New York during Hurricane Sandy, a surge of response personnel were deploying and in need of additional communications support. The design of the operations center limited the amount of systems that could be utilized, but the number of personnel deployed required more systems. The situation was further complicated by degradation in the local fiber network — both congestion and complete failure were occurring simultaneously. To solve the problem, the Sprint ERT deployed one of its VSAT solutions to add 10Mbps of network capacity to the operations center.

To further illustrate the creativity, flexibility and commitment of the team, the VSAT was installed on the roof of a 50-story building. The team worked closely with the local IT staff and facility engineers to run temporary fiber down through



Rodney Cooper

NORTH REGION BUSINESS
DEVELOPMENT MANAGER,
SPRINT EMERGENCY
RESPONSE TEAM

cable chases and elevator shafts 12 stories down, where they ultimately were able to connect into the IT closet. Due to these efforts, agencies from the local, state and federal levels were able to access their systems and more rapidly begin the recovery process.

Q: How was the Sprint ERT able to help other jurisdictions during that event?

RODNEY COOPER: A part of our core mission is to make sure our customers across all industries are prepared, so our entire deployment began well before Hurricane Sandy hit. The Sprint ERT members, as well as our ERT reservist staff and account managers, communicated with customers to ensure they had equipment on hand and ready to use. Eventually, we deployed equipment, personnel and infrastructure from Virginia to Massachusetts. Services included cellular and push-to-talk for first responders and government officials, mobile data and satellite IP broadband service.

But the Sprint ERT does not stop at just solving traditional communications issues. We have the expertise from both our internal organization as well as our solution partners to solve other problems. These include adding applications that assist governments in augmenting or enhancing the entire Common Operating Picture. The Sprint ERT has the ability to layer in solutions for video, interoperability, mapping and GIS, and with a quick turnaround — in many cases less than 24 hours.

During Hurricane Sandy, availability and access to fuel were major issues. We were asked to assist in tracking 250 trucks that were moving fuel into New Jersey and New York. In less than 24 hours, we provisioned and delivered 250 handsets with cellular voice, Direct Connect® (push-to-talk) and GPS tracking so that government employees could improve the coordination of fuel delivery.

Q: How can jurisdictions protect or prepare communications systems for a weather event?

RODNEY COOPER: Programs for power hardening, installing network diversity and keeping additional equipment on hand go a long way. It's also critical to evaluate your business information continuity plan.

One of the challenges government faces is limited resources. There is a significant effort today to create public/private partnerships, which have been an ERT platform since we were initially chartered — but those relationships must happen before an event occurs. One of the most effective ways to solve this problem is simple engagement. Take part in a forum where the private sector can become a part of your overall strategy, or invite us into your drill/exercise program. The Sprint ERT has conducted over 300 field training exercises since 2002. We are in the final stages of the National Exercise Program Capstone Exercise 2014 and are preparing for eight more exercises through the end of July. This includes the CUSEC Capstone 2014 exercise, which will have participation from about 26 states, all levels of government and the private sector.

In the midst of a natural disaster, a phone call to our 24/7 Dedicated Call Center will get help on the way. If the worst happens, we're capable of rapidly deploying both data and voice networks that can support first responders and enterprise networks. We can be operational within 24 to 48 hours anywhere in the continental U.S. and usually sooner. We don't just move equipment in — we work hand in hand with you to tackle the simplest to most complex communications challenges, ultimately solving real problems.

Sprint ERT can be reached via phone at 888-639-0020 (GETS line 254-295-2220) or email at ERTRequests@sprint.com.

“The Sprint ERT has conducted over 300 field training exercises since 2002. We are in the final stages of the National Exercise Program Capstone Exercise 2014 and are preparing for eight more exercises through the end of July.”

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Climate 'Variability'

While the rest of the world has been thinking about the warming climate for some time, we in the U.S. are catching up on what we need to do about the issue.

First, it would be good to define some terminology. In some political circles and geographical areas, the terms "climate change" and "global warming" are not well received. These may be referred to as voodoo science using computer models to contort what is happening in nature. One way to avoid getting sucked into the debate about the causes of climate change is to talk about the warming climate using the term "climate variability." Many oppose the notion of the changing climate being attributable to human causes.

NO MATTER WHAT THE CAUSE, WE NEED TO DEAL WITH THE CONSEQUENCES OF A WARMING CLIMATE.

But no matter what the cause, we need to deal with the consequences of a warming climate.

In climate change terms, the word "mitigation" is about controlling carbon emissions. Cap and trade of pollution emissions is one of the tools some countries are looking at for that purpose. If you're taking steps to deal with the changing climate, the term used is "climate adaptation." For purists who are seeking to reverse global warming, the thought of focusing on climate adaptation is like surrendering to the inevitable. They fear that a move to climate adaptation will negate all the efforts at climate mitigation by reducing carbon emissions. As you can see, the topic can be a minefield of opinions and issues.

Warmer air temperatures are projected to bring a host of natural disasters, starting with

sea rise. Even the conservative estimates for the changing ocean levels will cause some significant issues around the world. While "normal" weather conditions might make things bearable for now, combining sea rise with other weather phenomenon, like hurricanes, will make those types of events much more damaging. Take Superstorm Sandy, for instance. It came ashore at high tide, making the storm surge much more destructive. Sea rise for our coastal cities may be extremely damaging, especially as people and population densities continue to increase in coastal areas.

Severe weather is predicted to become more frequent and destructive. Warmer air holds more moisture, which means that record-breaking rainfall and snowstorms will become predictive events.

Not all hazards will be directly attributable to climate variability. While you might not think of the U.S. as being an Arctic nation, Alaska borders on the Arctic. The decrease in the ice pack will allow for a true Northwest Passage, first in the summer and then eventually year-round.

This indirect impact will bring with it the potential for human-caused events like maritime accidents. With vast oil reserves in that part of the world, the pressure to explore and tap those resources to feed our need for petroleum products of all types will increase. Oil spills of one type or another are sure to follow.

Combine this with old infrastructure and the stresses and strains that nature puts on these systems, and there will likely be significant failures in these infrastructures. They may have functioned well for 50 to 60 years, but are aging and facing more extreme conditions. Watch for an increasing number of levees and dams to become unstable and experience failures.

As emergency managers, we need to be working to promote climate adaptation measures that protect our communities, and failing that we will revert to consequence management. +



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Perimeter Security

Optellios, developer of fiber-optic sensing and security systems, announced the release of the FP1400 zone-based perimeter intrusion detection system. The FP1400 uses state-of-the-art, algorithm-based distributed sensing, coupled with frequency filtering, to reject environmental sources of nuisance and false alarms, while providing intrusion detection. The FP1400 will support eight to 28 zones that are software configurable, cut immune and simple to install, with no field infrastructure required other than commercial off-the-shelf fiber-optic cable.

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Understanding our world.

By Bill Schrier

FirstNet Is in First Gear

The First Responder Network Authority, charged with building a \$7 billion nationwide network for responders and now 2 years old, moved into first gear in March.

In fairness, FirstNet was never stalled or stopped, although it appeared that way on Feb. 22, its two-year birthday. Work was going on behind the scenes, and it burst out onto the stage in March:

- A new website appeared, www.firstnet.gov, that's freed of the clunky National Telecommunications and Information Administration logo and design.
- The most detailed organizational chart to date was unveiled, which showed 40 full-time employees and another 50 or so on the way.
- Leases and office space in Boulder, Colo., and Reston, Va., are virtually complete.
- Ed Parkinson (director of government affairs), David Buchanan (state consultation) and Amanda Hilliard (outreach) unveiled a "high-level" 45-step plan for working with individual states to develop a plan and design for the construction of FirstNet in each state.
- The Strategic Planning process has a bit more detail.
- At least two FirstNet officials established Twitter accounts and followed my Twitter feed recently — and I've followed them back. This indicates a new openness and freedom in how FirstNet staff is operating. (I'm not revealing their names in order to prevent the National Telecommunications and Information Administration enforcement apparatus from crashing down onto them for violating some obscure policy.)

Overall, I'm encouraged.

As the state point of contact for Washington, I especially appreciate the additional information we received in March. About 70 officials attended a conference in Phoenix for those of us in the western states who are working to prepare

for FirstNet. Each state already has State and Local Implementation Grant Program funds for this work. But many of us were waiting for a "starting gun" to launch our outreach and education efforts. These efforts will identify every potential FirstNet-using agency in our states: law enforcement, firefighters, emergency medical, transportation, transit, public works, electric and water utilities, schools and everyone else with a public safety mission.

That starting gun is now fired, so we can proceed with that outreach.

We also know — and this is new information — that FirstNet will need to collect some additional detail about potential users: the name of each agency, a point of contact, the number of potential users, the kinds of devices, any existing use of a commercial service and, perhaps, a bit more. We don't yet know the exact nature of the information to collect, but we'll find out the details when FirstNet comes to our states for an initial meeting, probably this summer. And we expect there will be a data portal or template to standardize how the information is collected.

Everything is not, however, sweetness and light. Many toads remain sitting on FirstNet's road map to attain our vision of a nationwide public safety wireless broadband network.

The business plan is still a mystery. FirstNet officials say there are multiple paths to a viable business plan. However, the authority needs to build a network that covers a lot more geography than any commercial network.

Overall, FirstNet appears to be in first gear. Just first gear: We're not barreling down the public safety broadband highway yet by any means. You crawl before you walk and run. And it will take more staff and better plans to get into overdrive.

But at least we appear to be back on the highway. ⊕



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