

EMERGENCY

STRATEGY AND LEADERSHIP IN CRITICAL TIMES

MANAGEMENT

Summer 2017

Nightmare Scenario

A flu pandemic is
coming, but when,
and how bad will
it be?



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GLENN J. ASAKAWA, UNIVERSITY OF COLORADO BOULDER

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Department

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OFD & FOODS

By W. Craig Fugate

The Public as a Resource

Far too often, organizations consider the public a liability — something to be rescued in an emergency situation. The opposite is true. The public is one of our greatest resources in times of crisis and should be included as an important part of your resilience planning and training.

The reality of emergency management is this: The bigger the disaster, the less likely the government can provide the best response.

For smaller disasters, there are multiple organizations that can respond, from the Red Cross to the Salvation Army to our own National Guard. For larger disasters, there is so much demand for assistance that we invariably fall short. We cannot get to people fast enough. In those situations, the tendency is to tell the public to be passive and wait. That is not the best solution and increases the number of lives lost.

In the case of almost any disaster, the fastest response will be from your neighbor. There are countless examples of this:

- In tornadoes, people who are dug out from under debris within the first hour are rescued by neighbors. After the Joplin, Mo., tornado in 2011, I walked through neighborhoods with President Obama. We came upon a gentleman whose house had only the front half remaining. The president asked him what he did once the storm passed. He said, “I heard people hollering, so I started digging them out.”
- In shooting situations, high mortality rates come from victims bleeding to death. In the Aurora, Colo., shooting, one of the victims was saved by a friend applying pressure to the wound.
- During heat waves, countless people are saved because their neighbors check on

them. The government does not know who lives where and who has air conditioning; neighbors do, and can be proactive.

Changing the message

Historically, we have marginalized the public. We’ve called them victims. Yes, there will always be victims of disaster. But the ones who make it through should not be called victims. We need to change our message. Instead, we should be calling them survivors. We should be including the public — the survivors — as part of the team.

Just as important, we should broaden our definition of “the public.” The business community is part of the public and can provide critical onsite assistance at a capacity that the government cannot. For example, historically, the amount of food and water the government ships in does not meet the demand. Private businesses, however — grocery stores, fast food restaurants, etc. — are far more effective at providing amenities for entire cities’ worth of people. They can often get up and running faster than the government.

We don’t want to compete with the private sector; we want to work with the private sector as a team. As we prepare for emergency events, we should include the public and specifically private businesses with a plan that includes asking them: “What can we do to help you get up and running again?”

We should put a higher priority on getting the private sector operational after a disaster. If these businesses get up and running, it takes tremendous stress off the government and government resources.

In a nutshell, we must include giving the people back a sense of control in our preparedness planning. We need to give people the OK to help one another, and give businesses the OK — and the resources — to get back on track so they can help those people who cannot help themselves. +

An award-winning publication



W. Craig Fugate is senior advisor to the CEO at The Cadmus Group Inc. Fugate served as the administrator of FEMA from May 2008 to January 2017. Prior to his tenure at FEMA, he served as Florida’s emergency management director from 2001 through 2009. In 2016, Fugate received the National Emergency Management Association Lacy E. Suiter Award for lifetime achievements and contributions in the field of emergency management.

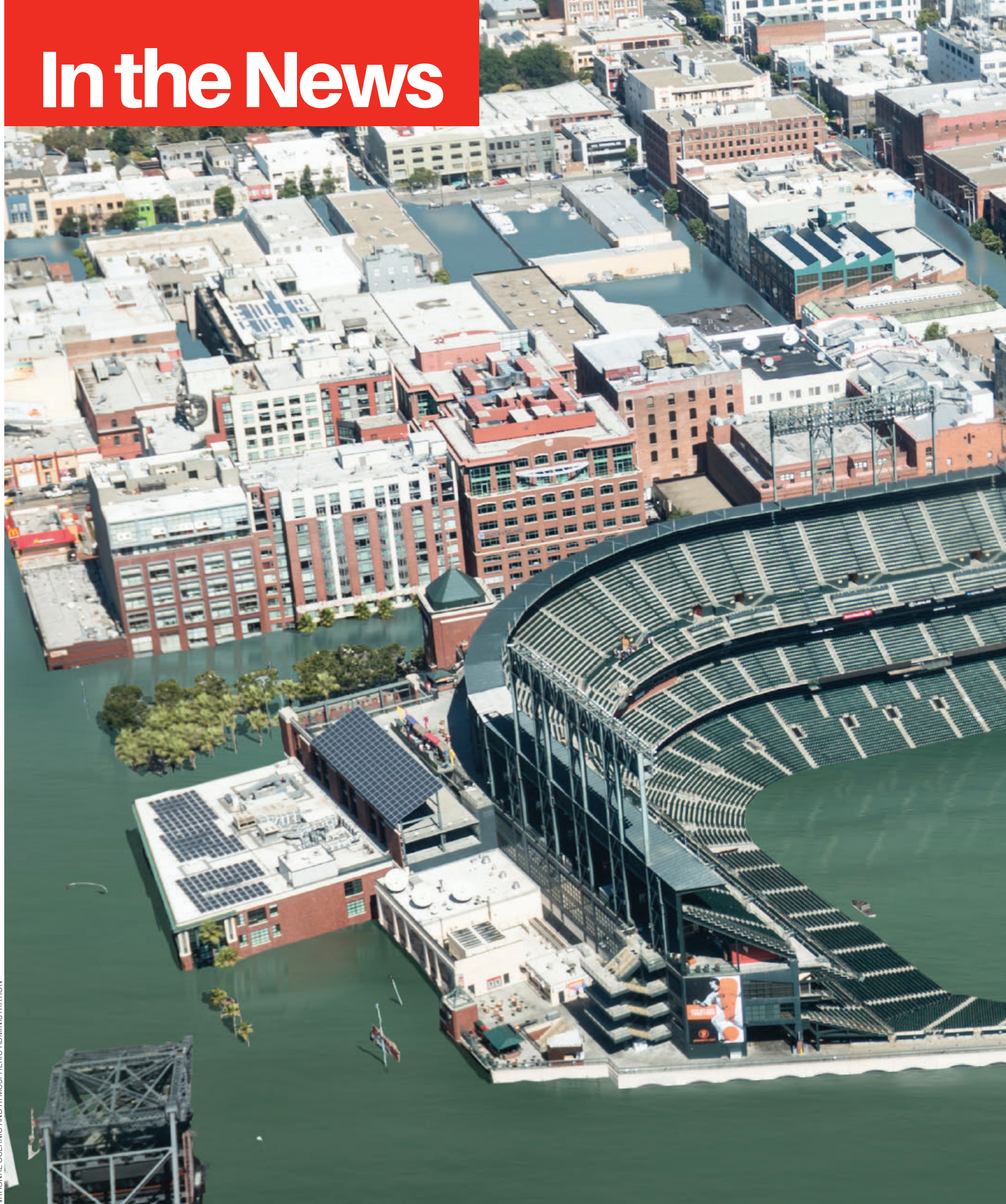
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In the News





The National Oceanic and Atmospheric Administration (NOAA) and Climate Central, a nonprofit environmental research group, demonstrated with graphics like this one of San Francisco Giants' AT&T Park what sea-level rise could look like by 2100. NOAA has forecast an extreme sea-level rise of 10 to 12 feet in the United States by 2100.

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'Mental Rehearsal' Could Save Your Life

The usual suspects, like the difficulty that law enforcement agencies still have in sharing critical homeland security data and the mistrust of some communities, along with the ease with which terror groups can recruit, continues to make stopping "low-tech" terror a difficult proposition.

A new wave of terror, a more low-tech version such as guns, knives and vehicles, has become the common threat and so

difficult to prevent. There is often no network of affiliates and the perpetrator is often acting alone, having been radicalized locally, perhaps via the Internet.

Collection of intelligence is the best way to try to prevent this type of attack, which is the most likely in the United States, but it is still fraught with difficulties, according to Bill Sullivan, assistant

professor of Homeland Security at Eastern Kentucky University and a former major with the Kentucky State Police.

He said it's true in terrorism and in law enforcement that people may be hesitant to tell on each other for cultural or other reasons, such as a fear of retaliation or just general mistrust.

There are things that can be done to protect against new threats like vehicles. Sullivan said constructing barriers, such as giant planters or trees that can protect pedestrians is a strategy.

One key is identifying what the threats are and taking the environment into consideration, he said. "What are you trying to protect against, a person with a gun or maybe someone running amok with a vehicle?"

Another point that needs to be discussed is the personal responsibility of having situational awareness. Sullivan

said hesitation or lack of awareness, such as being glued to a phone, can get people killed.

People should be aware of their surroundings, what the possible dangers could be and do a "mental rehearsal" of a plan in case of the worst-case scenario like being in a movie theater and confronting an active shooter situation.

"If I'm in a theater and a shooter comes in, where are my primary and secondary exits? If getting out of there is not an effective solution, what am I going to do? Am I willing to fight, can I seek cover somewhere?"

"Having that situational awareness and that mental plan of what my actions are going to be is going to decrease or eliminate the hesitation, and the hesitation is quite often what ends up getting you killed." — JIM MCKAY

Wyoming Preps for Solar Eclipse Crowds

Emergency response agencies in Laramie County, Wyo., are preparing for an influx of visitors who want to experience a total solar eclipse this August in central Wyoming.

The rare chance to view a total solar eclipse from the U.S. is expected to draw thousands to hundreds of thousands of people to the state.

The path of this year's eclipse will cut a wide arc across much of the U.S., moving west to east from coast to coast. The total phase of the eclipse, the path of totality, will cross the middle section of Wyoming.

The Laramie County Emergency Management Agency is coordinating local response efforts to deal with the surge of visitors expected here. It's sponsored several meetings with representatives from an ambulance service, firefighters, law enforcement agencies and other first responders. — TRIBUNE NEWS SERVICE



New 'High-Speed Internet Lane'?

Researchers at the Rochester Institute of Technology (RIT) are developing a "high-speed Internet lane" they hope will ease the flow of information during disasters and prevent the congestion that can delay transmis-

sion of key data quickly.

Multi-Node Label Routing protocol is a new network protocol that offers the ability to transport data in desperate times when current Internet protocols might get bogged down and fail.

Multi-Node Label Routing protocol boasts a failover mechanism that chooses an alternate path if a failure of a link or node is detected. The new protocol can run below existing protocols and run without disruption. — JIM MCKAY

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DIVISION OF EMERGENCY OPERATIONS COORDINATING CDC'S RESPONSE TO PUBLIC HEALTH EMERGENCIES

Oversees CDC's Emergency Management Program, which is responsible for the overall coordination of the agency's preparedness for, response to, and recovery from public health emergencies, including operating CDC's Emergency Operations Center.

RESPONSE TO PUBLIC HEALTH THREATS

BEFORE



TRAINING: CDC prepares its responders by improving their technical skills and getting them ready to deploy to the site of the emergency.



EXERCISE: practice responding to different public health threats ranging from natural disasters to pandemic emergencies.

DURING



LOGISTICS: works 24/7/365 during CDC's emergency response to a public health threat by purchasing and shipping needed supplies and equipment; shipping specimens; and making travel arrangements for CDC personnel deploying to the site of the emergency.



COMMUNICATION: CDC's emergency risk communication for all-hazards preparedness and response involves ensuring timely, consistent, targeted, and actionable information reaches the public and stakeholders during emergencies.

AFTER



AFTER ACTION REPORT: an evaluation conducted after every CDC emergency response that identifies what was done well and what can be improved.

CDC'S EMERGENCY OPERATIONS CENTER (EOC)



Established in 2003 as a state-of-the-art facility at CDC headquarters in Atlanta

Has supported CDC's response to **50+** public health threats



Can seat up to **230 people** at a time for **8-hour shifts**

Operates **24/7/365**, providing around-the-clock health monitoring and emergency response

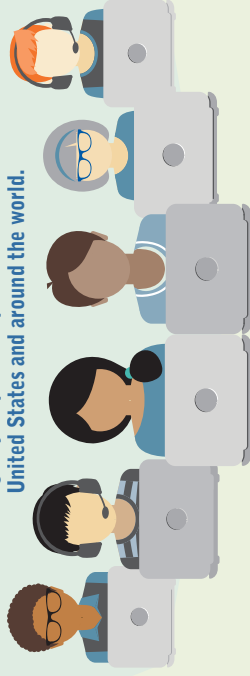


Deploys scientific experts to the site of the emergency to collaborate on a response



Coordinates delivery of supplies and equipment during an emergency

The command center for monitoring and coordinating CDC's emergency response to public health threats in the United States and around the world.



CDC WATCH DESK

Doctors, public health agencies, and the general public report public health threats to CDC through the EOC Watch Desk.

In 2015, the EOC Watch desk received:



25,188 calls



1,906 calls from city, county, or state health departments



2,883 calls from clinicians/hospitals

INCIDENT MANAGEMENT SYSTEM (IMS)

A standardized emergency response operating system used to manage CDC's response by coordinating the roles of CDC and state public health officials.

EMERGENCY RESPONSE ACTIVATION LEVELS

LEVEL
3

Lowest activation level, CDC experts on the specific type of emergency with staff from their program area lead the response with minimal assistance from the Division of Emergency Operations to address the primary needs of the response.

LEVEL
2

A mid-level response, CDC experts on the specific type of emergency with a large number of staff from their program area lead the response with significant assistance from the Division of Emergency Operations to meet the time-sensitive tasks/needs of the response beyond CDC's core business hours.

LEVEL
1

The highest level of response reserved for critical emergencies, which often require substantial agency-wide effort and response needs are beyond the lead CIO's capacity because of the magnitude of the event.



Centers for Disease Control and Prevention
Office of Public Health Preparedness and Response



Photo Credit: Martin Luftr, flickr.com/photos/23934380@N06/5475631631

Artificial Intelligence: A Game-Changer for Emergency Response

Futuristic machine learning helps emergency planners and responders save lives and boost the resiliency of communities

Imagine you're in charge of an emergency operations center when a magnitude 8 earthquake hits, and you must make split-second — and life-saving — decisions about where first responders are needed most. A flood of 911 calls are coming from the center of the city, while an outlying neighborhood has been quiet. Do you focus rescue and response operations to downtown areas where you're certain there's damage? Or do you send resources to investigate outlying neighborhoods, which may only be quiet because communications are down? Experienced emergency management (EM) professionals are all too familiar with this dilemma, when situational awareness is slow to develop in the early stages of a crisis. How can you select the best response strategy without waiting for a comprehensive survey from eyes on the ground?

The answer is to capitalize on an innovative merging of human expertise and computer intelligence that's being fueled by advances in artificial intelligence (AI). Seismic Concern, an AI platform from the Silicon Valley start-up One Concern, can analyze vast amounts of information, including population profiles, schematics of physical infrastructure, seismic data, risk assessments and formal response plans. It merges this data with onsite reports from citizens, volunteers and first responders to give command and control personnel deeper

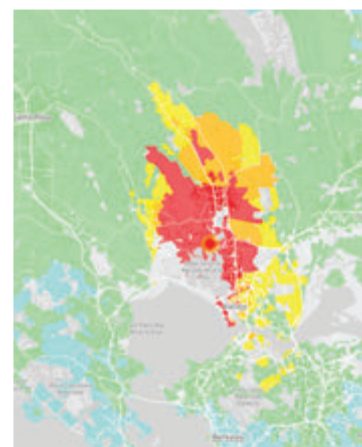
insights for making more effective decisions. Tailored for preparedness, Seismic Concern not only can save lives during an emergency, it can help government officials formulate strategies for increased safety and resiliency BEFORE a disaster strikes. The platform is part of a growing AI portfolio that also includes modules for improving resiliency to floods and fires.

THE AI/EM CONNECTION

AI combines the data-crunching prowess of today's high-speed computers with sophisticated mathematical algorithms to quickly analyze large volumes of information for valuable insights. Used to improve everything from medical diagnoses to product marketing campaigns, AI provides EM professionals more detailed situational awareness, such as comprehensive block level damage assessment within 15 minutes after an earthquake. The proprietary algorithms that underpin Seismic Concern consider the design and age of buildings, how they fared in previous earthquakes and even surrounding soil conditions that impact risk levels. The platform then analyzes other critical factors, such as population density, to create heat maps showing the most vulnerable areas. This information helps EM professionals and others who support the emergency operations

center decide how to prioritize responses and most effectively utilize scarce resources. In the hours and days after a disaster, the algorithms continuously update and improve ongoing

The AI capabilities of One Concern not only can save lives during an emergency, they can help government officials formulate strategies for increased safety and resiliency before a disaster strikes.



resource deployments as field reports, social media posts and communications from the EM ecosystem stream into the platform.

While Seismic Concern is a critical tool for when disaster strikes, it can also enhance training for future responses. By creating realistic simulations based on geophysical data for tabletop exercises and full-scale drills, Seismic Concern keeps teams sharp and helps them identify any gaps in their response plans. The scenarios also give EM professionals information they can take to local businesses, hospitals and schools to help them improve their emergency strategies and increase community safety.

Earthquake-prone jurisdictions already using the platform include the City of Los Angeles, the City of San Francisco and multiple San Mateo County cities.

A PLATFORM BUILT FOR RESILIENCY

The success of any AI platform is directly tied to the proprietary data management and analytical capabilities engineered into the underlying algorithms. But effectiveness also hinges on other key technology components for enhancing EM team success.

Because large-scale disasters can knock out communications across large areas, the platform must be designed for resiliency. Seismic Concern takes advantage of geographically dispersed data centers and other technology underpinnings, so the overall platform remains reliable even when there is localized damage. In addition, the data streams and analyses aren't just for command center staff — first responders, government officials and non-government partners can access relevant information and collaborate in real time via the resilient operations platform. The algorithms also offer options for local customizations, so EM teams can incorporate the unique needs of their communities when developing risk assessments and action plans.

A POWERFUL PARTNER

As government officials search for new resources to make their jurisdictions safer in the aftermath of a large-scale emergency, a growing number of executives are considering AI platforms. They enhance public safety and EM effectiveness with advanced technology that helps EM professionals better utilize precious resources while disasters unfold. Leading platforms like Seismic Concern also help government officials better prepare for future disasters. By investigating the potential of AI, agencies can take an important step to reduce casualties, mitigate physical damages and increase their community's overall resiliency to risk.

A Mission to Save Lives

One Concern was founded by Stanford-educated scientists and engineers with the aim of making our homes and cities safer. Since its inception in May 2015, One Concern has attracted a growing team of EM, public policy and technology experts:



Liz Dalton joined One Concern after serving as a Senior Executive at the U.S. Department of Energy (DOE). While at the DOE, she managed the daily operations for two technical organizations and advised the Secretary of Energy on priority issues, including nuclear energy, electric grid modernization and emergency response operations. Dalton also served as the Senior Emergency Response Official during energy-related emergencies, such as Hurricane Matthew.

Greg Brunelle has more than 20 years of emergency management experience. He served as the Director of the New York Office of Fire and Emergency Management, Jefferson County. He also served as the Acting Director for the New York State Office of Emergency Management.



Brunelle led the state Emergency Operations Center and coordinated multi-jurisdictional response operations to dozens of major events and local and regional emergencies, as well as 13 presidentially declared disasters, including Hurricane Irene and Hurricane Sandy.



Ray Mueller is the Vice President of Government Relations and Business Development for One Concern. Prior to joining One Concern, Mueller served as Chief of Staff to a County Supervisor and has been a County Emergency Services Councilmember, Mayor and City Councilmember to a California city.

From Kabul to Geneva to Palo Alto, *Joel K. Myhre* has been honored over his two decades of public policy and advanced ICT experience to help bring humanitarian technology innovations to civil society actors across the Pacific Rim, Europe, North America, Africa and Central Asia. He has worked with a broad swath of U.S. law enforcement, counter-terrorism, humanitarian and disaster response entities, in addition to UN and U.S. DoD engagements throughout the Pacific Rim and Europe.



As Senior Director at One Concern, *James Waterman* is responsible for global engagement. In this capacity, Waterman facilitates engagement with client leadership, legal, IT, training and field resources to develop effective discovery, statement of work, contract and solution deployment strategies. A 30-year industry veteran, Waterman joined One Concern from Google wherein he pioneered the Google Government Innovation Lab model to deliver “10X Moonshots” across complex ecosystems.

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The Power of Artificial Intelligence When it Matters the Most.
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Nightmare Scenario



o?

**A flu
pandemic
is coming,
but when,
and how
bad will
it be? By Margaret Steen**

Imagine closed schools, overwhelmed hospitals and people dying by the thousands — or even millions. That's the nightmare scenario for a flu pandemic.

But how likely is a pandemic to happen — and if it does, to develop into this worst-case scenario?

Pandemics are “like earthquakes: You know it's coming, but you're not quite sure exactly when,” said Joshy Jacob, associate professor of microbiology and immunology at Emory University. “The seasonal flu appears predictably annually. Pandemics happen unpredictably and often catch you by surprise.”

There are reasons both for alarm and for optimism, experts say. Medical research could lead to breakthroughs that would mitigate a flu pandemic. And government and private entities can make preparations to help them get through a bad pandemic if it occurs. But there is much work to be done.

People tend to hear the phrase “flu pandemic” and envision a situation like the 1918 flu, which killed millions worldwide. But a pandemic actually just means an illness that is easily spread from person to person in a susceptible population.

Flu pandemics occur when the typical mutations in the influenza virus are more significant than usual — often involving viruses that affect birds.

“You get this monster virus that is half human, half bird, and when it infects you, you are totally unprepared because it has changed so drastically,” Jacob said. “When you get such big changes, that's when you get pandemics.”

“On average, we see pandemics every 20 or 30 years or so, and they vary in terms of their intensity,” said Michelle Barron, medical director of infection prevention at the University of Colorado Hospital. There was in fact a flu pandemic in 2009, which had a devastating impact on some of those infected but ultimately did not spread as much as feared, likely because many older people had been exposed decades ago to a similar virus and had some immunity.

One of the reasons authorities are currently worried about the possibility of a flu pandemic is the increasing amount of interaction between human flu and bird flu, Barron said. A virulent bird flu is now being monitored in hopes that it will not take on the ability to spread person to person.



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That doesn't mean, however, that a repeat of the 1918 pandemic is inevitable. There are a number of differences between then and now.

“At that time, one didn't even know that this was a virus — they thought it was bacterial,” said Peter Palese, Horace W. Goldsmith Professor and chair of the department of microbiology at the Icahn School of Medicine at Mount Sinai. “They didn't have vaccines available, and there were no specific antiviral drugs like we have now.” The lack of antibiotics was also critical, since the virus was sometimes followed by a bacterial infection.

“In many ways, we are much better prepared than we were 100 years ago,” Palese said. “Having said that, no one can really predict what a new pandemic would look like, when it would occur and whether it would be remotely as devastating as 1918 was.”

One risk factor is the increase in the population overall.

“We have many more people, and we have many more chickens than we had 100 years ago — overall, we have

many more animals now living in close quarters with humans,” Palese said.

A range of scenarios

What would a pandemic mean? There is a range of possibilities.

A lot of variables go into the statistical modeling that predicts how bad an outbreak will be: How easily does the virus spread? Does it take time for symptoms to show up, so people may spread the virus before knowing they're sick? Does it kill victims so quickly that they have no time to spread it?

“You always have to have the worst- and best-case scenarios,” Barron said. A best-case scenario might involve doctors' offices having to open extra clinics or bring in extra staff for the emergency room. In the worst case, school systems might shut down, affecting the ability of parents to go to work.

Different organizations would face different types of challenges depending on



**On average,
we see
pandemics
every 20 or
30 years or
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vary in terms
of their intensity.**

how bad the pandemic was. If schools are ordered to close, for example, some workers would need to find people to take care of their children.

“Let’s assume 20 percent of the workforce is sick and another 20 percent are caring for people” such as children, Barron said. This poses a challenge for health care officials, who will likely need more workers during a pandemic. Where would they find replacement workers and ensure they were properly credentialed? “If day care is going to shut down, do we open our own day care? If people need to work extra shifts, who is going to let out their dogs?”

This is the type of scenario that emergency managers and others planning to handle a crisis need to think about. Plans should include supplies, such as water, antibiotics and generators, as well as people. “If people don’t have access to the things they normally need, that’s going to cause disruption,” Barron said.

In an extreme case, there could be disruptions to travel or even trash pickup.

Businesses, too, should identify the essential functions of their business and assess how they might be affected if large numbers of employees were sick or had to take care of family members. Scott Teel, vice president of marketing for Agility Recovery, which works with businesses to respond to business interruptions, recommends that businesses consider the following issues:

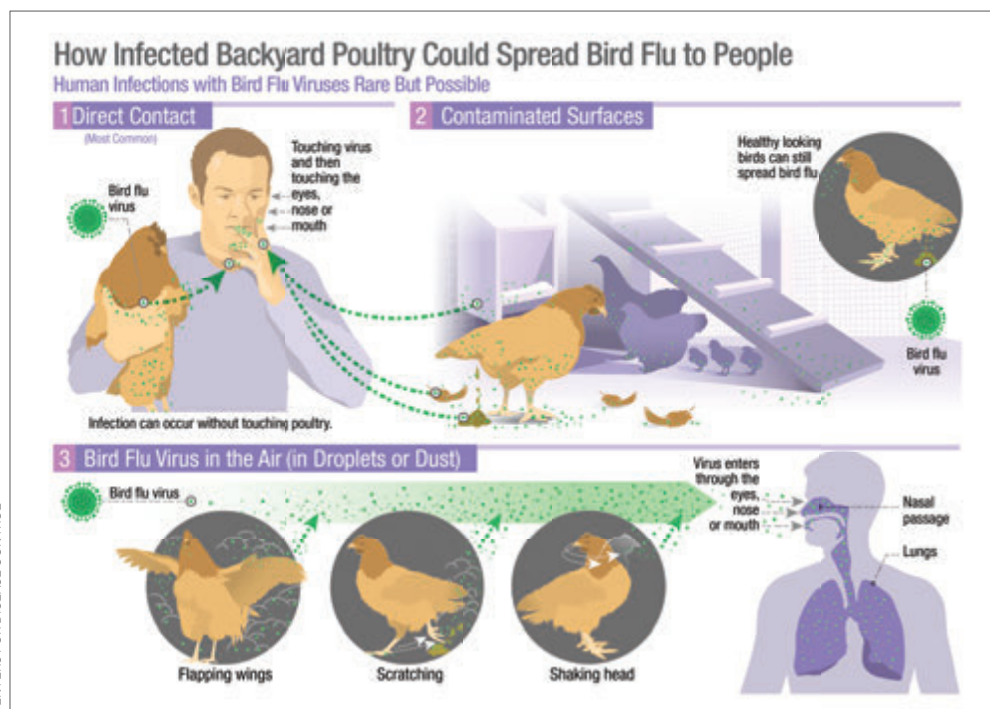
Communication plan. Businesses need to be able to communicate not only with employees and customers, but also with suppliers.

“If there is a flu epidemic in your state and your employees are getting sick, what would you do on Day 1?” Teel said. “Do you know who to contact, and what the best method is to communicate your situation to customers, employees and vendors?”

Policy adjustments. Businesses may want to increase sick leave or make telecommuting possible for more employees to keep people who are sick from coming to work. They may also want to change the frequency or type of meetings to minimize face-to-face contact among employees.

Infection control. Help employees keep the virus from spreading by increasing the number of hand sanitizer or hand-washing stations, for example. It may be helpful to have more frequent office cleaning to disinfect commonly used areas. But remember, Teel said, that “there are perception issues that you’re going to face” with some of the more visible measures, such as having employees wear masks.

“If everybody in a restaurant is wearing gloves and masks, people are going to think, ‘Maybe I don’t want to eat there,’” Teel said. This is why communication planning is critical. “If you communicate



in advance that you're proactively taking this measure, people will respect that."

Planning and prevention

Governments and medical researchers have a number of avenues for preventing or mitigating a flu pandemic:

Surveillance. "It's critical to have global surveillance so that as quickly as possible, one could identify a new virus that is emerging," said Walter Orenstein, professor of medicine at Emory University School of Medicine. The surveillance efforts need to detect illness in humans and also in animals.

This surveillance must be done in cooperation with other countries. "The likelihood that the pandemic will arise in the U.S. is pretty small," Orenstein said. "We are a global community. Surveillance has to be global. It's critical that we invest in building and supporting surveillance capacity around the world."

Assessment. A good surveillance system will detect a lot of new viruses. The key to preventing or mitigating a pandemic is to focus vaccine development efforts on those most likely to become a threat. The Centers for Disease Control and Prevention uses an assessment tool that looks at factors including

how easily the virus is transmitted, whether some portion of the population is already immune to it, how severe the disease is and whether there are good treatment options.

"This is used to judge the likelihood that this virus will actually emerge and be transmitted and potentially cause a severe pandemic," Orenstein said. "For viruses that rank high in that assessment as an emerging threat, it would be important to try to develop and stockpile vaccines as an insurance policy."

Why not just wait until it's clear a virus is causing a pandemic? "The influenza virus spreads so fast that if you wait until the pandemic to develop the vaccine, you probably will not be able to prevent much disease," Orenstein said. "One of the issues which government officials have to weigh is the risk of throwing money away by developing a vaccine we don't need, versus not having a vaccine when we need it."

This assessment should also include whether current antiviral drugs will work against this flu strain, and if so, how they can be made available if necessary.

Continued research. New and better antiviral drugs, along with a longer-lasting flu vaccine, could ultimately be the most effective protections against a pandemic.

Universal flu vaccine. The flu virus has two parts: one that changes and one that stays the same. Traditional flu vaccines target the part that changes, which is why there is a new seasonal flu vaccine each year. Pandemics develop too quickly for researchers to develop a vaccine in time to keep the virus from spreading, Jacob said.

Researchers are working, however, on a vaccine that would target the part that doesn't change.

"We are hoping to make a vaccine that would last 10 years, 20 years," Palese said. He emphasized that there is still a lot of work to do on this type of vaccine — and it



will face intense scrutiny from the FDA since it could replace current flu vaccines, which have been shown to be safe and effective.

Flu treatment. Jacob is working on one possible treatment: peptides from frogs that could help cure flu once people get it. Better treatments could keep the flu from killing as many people and also slow its spread — possibly allowing time for a vaccine to be developed.

Policy choices

Those planning for a potential pandemic also have to consider various policy issues and their implications.

“When the pandemic strikes, decisions need to be made about quarantines, about travel,” Orenstein said. “The problem obviously is that it can be very hard to enforce those regulations, and how effective they will be is unclear. But if there’s nothing else — if you don’t have a vaccine or drugs — then those kinds of things would be important.”

We have many more people, and we have many more chickens than we had 100 years ago — overall, we have many more animals now living in close quarters with humans.

Authorities might consider closing schools. Businesses might have their employees work from home or close altogether. Hospitals, in addition to making sure they have emergency supplies of ventilators, will need plans that will minimize transmission among patients and their workers.

“Once a pandemic emerges, the major transmission is human to human,” Orenstein said. “If you can limit human-to-human contact, you may be able to limit transmission.”

Another issue: If a vaccine or antiviral drugs exist but supplies are limited, who should get them? Authorities must plan for how they would decide.

“The two factors you have to consider

are who is most at risk from complications of the disease, and who are the people most likely to transmit the disease,” Orenstein said. Authorities might give top priority to health-care workers and even security forces, for example, if they were needed to maintain order. Which populations are most at risk will vary depending on the specific flu virus.

In 2009, for example, older people were more likely to have immunity, so vaccinating younger people was a higher priority. Most seasonal flu viruses, on the other hand, are a greater danger for the elderly.

“Pandemics are not all the same,” Orenstein said. +

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SURVIVING THE TSUNAMI

A tsunami striking the U.S. mainland might seem far-fetched, but scientists say preparation is crucial because it will happen — it's just a matter of when. **By Katie Pyzyk**



An ocean wave pulls away from the shore and then, as expected, it moves toward land again. But it keeps moving farther and farther inland. The water pushes over unsuspecting beachgoers, backyards and entire cities with startling speed. It leaves a wake of destruction in Indonesia that includes an estimated 230,000 deaths.

Several years later, a similar scene unfolds in Japan when ocean water flows onto land to submerge cars, homes and even a nuclear power plant that never again will return to functionality. That time, the flood waters claim approximately 16,000 lives.

The mind-boggling force of a tsunami is a horrifying spectacle, as the world witnessed in 2004 and 2011. Those disasters ingrained heart-wrenching images of

A distant tsunami only involves a water event, but most models for local tsunamis first show a catastrophic earthquake capable of reverberating nearly all of the coast for many minutes. “If we have the 9.0 for up to five to 10 minutes, we’re talking about infrastructure not standing in almost any scenario,” said Oregon Office of Emergency Management Deputy Director Matt Marheine. It requires “a mass evacuation to get people off the coast and to a place where we can take care of them.”

The earthquake alone will take down structures from buildings to bridges, and the tsunami that follows can topple additional structures. Regardless of whether the tsunami is distant or local, the rushing water packs a punch. “Tsunami currents are a lot stronger than a typical ocean wave. That’s what really does a lot of damage to a lot of structures,” said U.S. Geological Survey Research Geophysicist Eric Geist. “A wave as low as ... one-and-a-half feet could knock somebody down.”

tsunami in recent years, but that potential exists. Scientists note that the East Coast sometimes experiences “mini-tsunamis” from these earthquakes, but the waves are so small they don’t garner much attention outside the research sphere.

“If there was a very strong earthquake off of northern Puerto Rico ... it would not be impossible that you could have a tsunami that would run from there to the southeastern United States,” said John Ebel, senior research scientist at Boston College’s Weston Observatory. However, the more probable East Coast tsunami scenario lies farther north because “we have more offshore earthquakes off the northeastern part of country than we do off the southeast,” he said.

Researchers also note an increase in the Northeast’s seismic activity. “From the middle of New Jersey due east into the Atlantic Ocean to the edge of continental shelf ... [up] to the Northeast, we have had much more quake

“A wave as low as ... one-and-a-half

water-borne tragedy into people’s minds around the world. For many Americans, though, such images depict a rare occurrence in far-off countries and not a phenomenon in the continental United States. But the reality is that a tsunami could happen here, and it would be equally devastating.

In fact, disaster researchers say preparation is essential because a tsunami will strike a U.S. coast — it’s just a matter of when.

Generally speaking, the formation of a highly damaging tsunami relies on an earthquake occurring along the ocean floor, with that earthquake reaching at least magnitude 7, but more likely magnitude 8 or 9. Other triggers include a massive landslide or a meteor strike.

Many factors play into a tsunami’s severity, but scientists study models for two main kinds of events: distant and local. A distant tsunami originates from a source that’s at least 620 miles — or more than three tsunami travel hours — away. Local tsunamis affect land within 62 miles of the trigger point and take less than an hour to reach shore.

Tsunamis typically involve multiple long waves coming ashore. They can remain relatively shallow or form a towering tidal wave higher than 50 feet tall. The waves are capable of washing miles past the coastline if terrain conditions are right.

But each disaster is different. Not all tsunamis exhibit a tidal wave and “sometimes the first wave isn’t the most damaging,” said Ryan Arba, earthquake and tsunami program branch chief at the California Governor’s Office of Emergency Services. The level of uncertainty with tsunamis means emergency managers should anticipate additional response planning compared to more predictable emergencies.

Just because a certain type of natural disaster traditionally doesn’t occur often in a particular area doesn’t equate to immunity. Tsunamis are quite rare, but not unprecedented, in the Atlantic Ocean.

Consider that Puerto Rico frequently experiences earthquakes. They’re relatively weak and have not produced a devastating

activity over last 40 years than we have in the past,” Ebel said. “On that basis alone, we would estimate there’s more probability of a tsunami due to a local earthquake.”

An earthquake or landslide near Africa or Europe also could cause a distant East Coast tsunami. That’s what happened in 1755 with an estimated magnitude 8.5 to 9 earthquake that originated in Lisbon, Portugal. But according to Geist, “What we really worry about are the big landslides off the U.S. East Coast that might generate a large tsunami. ... That’s a very low probability, but a high-impact type of event.”

Although the East Coast stands to face significant losses in a tsunami, the West Coast threat receives more attention due to its higher probability. The West Coast and the Pacific Ocean experience frequent, strong seismic activity that could trigger a tsunami.

Researchers watch the Cascadia subduction zone particularly closely. The 620-mile ocean fault off the West Coast stretches from Northern California to Vancouver Island in Canada. Many scientists believe the region’s tectonic plates’ convergence and movement will cause an earthquake so strong it produces a local tsunami.



feet could knock somebody down.”

"This [Cascadia event] will be a big deal," said Patrick Corcoran, coastal natural hazards specialist at Oregon State University.

Emergency managers consistently face the challenge that people aren't interested in devoting significant time and effort to planning for rare events. Such is the case with devising tsunami plans in the United States. The inability to prevent or predict tsunamis turns emergency managers' focus solely to disaster mitigation.

Local, state and federal offices often work collaboratively to assess an area's tsunami risk, draw up a response plan and then educate the public about what to do during a tsunami warning. One notable collaboration is the National Weather Service's TsunamiReady, a voluntary community recognition program promoting preparedness and collaboration.

NOAA's National Tsunami Hazard Mitigation Program cooperates with U.S. communities of all sizes to assist with emergency management activities to reduce the impact of tsunamis, such as probabilistic modeling, educating the public and monitoring conditions following a tsunami. The program also provides funding for community response plans.

Education campaigns include efforts to inform schools, businesses and hotels about evacuation routes and procedures. Many municipalities' leaders walk evacuation routes to ensure evacuation route signs are in place and clear, and to note any areas for improvement. Some California beaches are among those that installed tsunami kiosks with extensive information about evacuating inundation zones, which especially helps visiting tourists. But despite all the measures already in place, "We can always do more and reach more people," Arba said. "We continue to support and expand wherever possible."

According to Norfolk, Va.'s Director of Emergency Preparedness and Response, Jim Redick, tsunami responses are "all about how we're able to alert and notify the community."

Some communities incorporate sirens as part of their tsunami notification plan, but that is falling somewhat out of favor in the United States, as it is with certain municipalities that use tornado sirens. Part of the problem is the cost of siren installation and maintenance, but there's more to the issue. "The second thing is confusion," Redick said.

A blaring siren indicates different things to different populations and isn't necessarily specific enough to prompt people to take immediate, appropriate action. Norfolk, a TsunamiReady community, houses the world's largest U.S. naval station, and nearby residents therefore might believe a siren indicates a military emergency. But in another part of the city a siren signals an incident at the nuclear power plant. "Rather than trying to continuously educate the community about what [a siren] means, it's just easier to contact them directly and tell them what the threat is," Redick said.

Modern communication eases that direct contact through means including notification emails or texts sent to system subscribers. Another tactic involves pushing wireless emergency alerts to every mobile device within range of a regional cell tower. "That allows us to reach people we never would have been able to before," such as tourists who haven't signed up for a community's emergency alerts, Redick said.

Even though the United States has not experienced a devastating tsunami in modern times and therefore doesn't have experiences to draw from, emergency managers can learn from other countries' successes rather than starting from scratch.

Oregon communities have instituted the Tsunami Blue Line program, an idea borrowed from a similar project in New Zealand that involves painting blue lines on the pavement to indicate the minimum point citizens should evacuate past during a tsunami warning. It's a visible, easily understood reminder to residents: "Don't slow down until you pass this line because a 50-foot wave will make it here," Marheine said.

Japanese communities instruct residents to be self-reliant and to immediately execute personal evacuation plans during a tsunami warning, instead of relying on instructions from government officials, Corcoran said. "In Japan, although 16,000 tragically died [in 2011], there were 200,000 in the inundation zones at the time. So 90 percent of the Japanese evacuated effectively," he said. "People can do this."

Citizens must understand the importance of staying at higher ground until authorities issue the all-clear. "People in the past have had injuries or loss of life because the first wave comes in and people go back [home],

and then another wave comes," Arba said.

Assessing and communicating the ongoing threat takes cooperation among all levels of government, but "we encourage the public to listen to their local officials," Arba said. "They are the ones who would have the [best information], through working with [state officials] and the National Weather Service."

Emergency managers need to anticipate the worst after a tsunami, Arba said, meaning they should plan for infrastructure assessments, re-establishing ingress and egress, "power outages, logistical needs, food and shelter, all of those things we would plan for in a large event." Those are all short-term issues that don't consider factors like long-term sheltering.

Self-reliance is necessary during water disasters more than some other emergencies because floods render useless traditional tactics for aiding citizens in crisis. For example, floods prevent first responders from being able to drive vehicles to a rescue scene.

The Oregon Office of Emergency Management instructs people to plan for two weeks of isolation and self-sufficiency following a tsunami. "We're going to be on our own," Corcoran said. "The bigger it is, the longer and more isolated we're going to be."

That's concerning considering "the number of people needing emergency services is going to be extremely high," Marheine said. "First, figure out a way to get fuel and capability back into the system because most of the lifelines into those communities will be destroyed." After that, establish "points of distribution and triage. ... Set up these lily pads of resources that can help as many people as possible, and then start branching out from there."

As is the case with other disaster and emergency situations, mitigating a tsunami's effects primarily centers on advance preparation and getting resident buy-in through continuous engagement. "Public education is a great challenge, to try to reach everyone," Marheine said. "We're proud of our efforts to not only develop an understanding of [tsunamis], but also that the citizens are taking a role in preparedness." ✚

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BE READY! FLOODS

DURING

Unplug appliances to prevent electrical shock when power comes back on.

Do NOT drive or walk across flooded roads. Cars and people can be swept away.

Gather emergency supplies and follow local radio or TV updates.

WEATHER ALERT!

RECOGNIZE FLOOD RISK



- Identify flood-prone or landslide-prone areas near you.

- Know your community's warning signals, evacuation routes, and emergency shelter locations.
- Know flood evacuation routes near you.

When power lines are down, water is in your home, or before you evacuate, **TURN OFF** gas, power, and water.

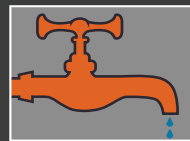
Tie down or bring outdoor items inside.

Throw away items that cannot be disinfected, like wall coverings, cloth, rugs, and drywall.

PRACTICE SAFE HYGIENE



Wash hands with soap and water to help prevent germs.



Listen for information from your local officials on how to safely use water to drink, cook, or clean.

AFTER

Use fans, air conditioning units, and dehumidifiers for drying.

For cleanup, wear rubber boots and plastic gloves.

Clean walls, hard floors, and other surfaces with soap and water. Use a mixture of 1 cup bleach and 1 gallon water to disinfect.

Caution! Flood water may contain trash.



For more information visit
<http://emergency.cdc.gov/disasters/floods/>

The background of the page is a collage of vertical strips of US Treasury bonds. The strips are light green and feature various details: the letters 'IB 3' and 'B2' in green, the text 'FOR ALL DEBTS, PUBLIC AND', the signature of Andrew B. Gensler, and the words 'TREASURY OF THE UNITED STATES'. The strips are arranged in a slightly overlapping, horizontal pattern.

Undermining Homeland Security

By Adam Stone



Proposed budget cuts
would hurt security and
could curb mitigation efforts.





When President Trump unveiled his fiscal year 2018 Budget Blueprint this spring, the emergency management community shuddered.

The administration has proposed \$667 million in cuts to state and local grant funding for FEMA efforts, including the Pre-Disaster Mitigation Grant Program. It also calls for a 25 percent non-federal cost match for FEMA grant awards that currently require no cost match.

The cuts would have a profound negative impact on states' abilities to prevent and respond to disasters, according to leading professionals from across the emergency management community. Already-thin staffs would have to be pared back even further. Preparedness would take a back seat to more immediate needs, leaving communities vulnerable.

On the upside, this draft budget is only an opening salvo. Members of Congress will no doubt have their own ideas for how to best fund the nation's emergency response and national security infrastructures, and many will be leery of stripping down programs that directly aid their communities. Nonetheless, emergency management leaders from around the nation are sounding an early alarm that these cuts, if enacted, could have a potentially crippling effect.

As director of the Oregon Office of Emergency Management, Andrew Phelps is flummoxed by the prospect of paying for these potential cuts.

"As a profession, we in emergency management never see things that we can stop doing. We just get more creative in how we use our limited funds," he said. "We will probably have to work with our state and local authorities to see how we can offset some of those losses, but here in Oregon we are facing a \$1.6 billion budget deficit, so coming up with additional funds to offset federal losses is going to be problematic."

The hurt would come across the board.

Take the Homeland Security Grant Program, a \$3.8 million item in Oregon last year that helps to pay for equipment and training. The president wants a 25 percent cut and a new 25 percent match. "That money goes quite a long way for us," Phelps said. "We have a geographically diverse state where communication can be an issue, and a lot of this money goes to fund more robust communications infrastructure. We all know

that being able to talk during a disaster is key."

The state also could take a hit to its \$5.2 million Emergency Management Performance Grant funding, money that goes to support local and tribal emergency managers' salary and benefits. "We would be talking about pretty significant staff cuts. Just in my office that would be a reduction of six or seven full-time employees. For the local and tribal partners it would be 25 percent of their workforce that ends up not being funded."

Especially hurtful would be cuts to the state's share of the national \$100 million Pre-Disaster Mitigation Grant pool of funding. "Mitigation is not sexy," he said. "There are no flashing lights, it doesn't make the 11 o'clock news, but that's where emergency managers earn their paychecks: by effectively mitigating hazards."

The mitigation grants help localities keep their hazard mitigation plans current. Without a current plan, a municipality cannot tap additional hazard mitigation funding, so the loss of pre-disaster grant monies could potentially have a ripple effect. "Then we start to see a cycle of escalating costs," Phelps said.

While mitigation may not be glamorous, it is effective. Phelps recalls catastrophic

flooding events in 1996 and 2006, which led to significant mitigation investments. That planning money paid off in 2015 when historic heavy rains caused almost no negative effect. "With the amount of rain they got they should have been underwater, but they saw no impact at all, and that was directly due to that mitigation work that was done."

At the California Office of Emergency Services, Director Mark Ghilarducci says the Trump proposals would deal a crippling blow to security. "If it were to be implemented the way it is outlined, it would have draconian and dramatic effects," he said. "The White House wants to cut state and local grants that are the foundation of national security. These cuts would literally cripple these activities."

He finds the new "match" requirement especially irksome. It isn't that states do not want to help shoulder the load: It's that they already are. "They talk about a match," he said. "When you look at the work state and local governments are doing, we are already committing a tremendous amount of resources. That position resonates with all the state homeland security directors."

The Homeland Security Grant Program supplied California with \$60 million last year in support of counterterrorism training. The proposed reductions "would decimate those programs and would make us more vulnerable to a terrorist attack," Ghilarducci said. "Where does homegrown extremism take place? At the local level. So if we want to see more Orlando shooters and San Bernadino shooters, then sure, let's cut what we are doing at the local level."

Last year the state drew \$27.8 million in Emergency Management Performance Grants, money that supports headcount that is desperately needed at a time when most of the 58 counties are under federal disaster declarations after six years of drought. "There's a lot going on around here. Which part do you want me to not deal with? Should I cut off my right arm, or my left?" he said.

Like many in the emergency management community, Ghilarducci is especially baffled by calls to pare back the Pre-Disaster Mitigation Grant program. He points to well established data showing that for every dollar invested in mitigation, communities save \$7 in response.

"Isn't it intuitive that if you go out and build resiliency and harden your community to lessen the impact of a disaster, then overall when a disaster hits, the impact will be much less?" he said.

It isn't just the money that worries him, it's the potential impact on national security, an integral element in any disaster response consideration. "This is not just about natural disasters. It's homeland security, it's hardening critical infrastructure," he said. "Imagine a catastrophic disaster in Los Angeles. The state would be hurt, the ports of L.A. and Long Beach would be hurt, and the damage from that would have a ripple effect across the country and across the world."

Ending north toward the Arctic Circle, the proposed cuts are having an equally chilling effect. Alaska's budget has been pummeled by low oil prices, and the emergency community there already has been digging deep to meet its obligations during tough financial times.

"We as state government need to look at where we can reduce our costs. We look at it all the time. How can we do better business? How can we bring down the cost of responding to disasters?" said Mike O'Hare, Alaska's director of the division of homeland security and emergency management. Deep cuts on the federal side now will only make a bad situation worse.

The mitigation money in particular would be difficult to replace. "People will come up with money when it's for people running into harm's way to save lives, and they don't see mitigation that way," he said. "In tight fiscal times it's tough to invest in proactive stuff. It's a hard sell."

Cuts to the Homeland Security Grant Program would likely leave some communities out in the cold when it comes to critical equipment including search-and-rescue gear and communications upgrades.

In Alaska, communities write individual applications for this money, and a peer-review committee doles out the funds. If the budget stands as presented, "the process stays the same but not every application will get funded," O'Hare said. "We might have to piece together funding over a number of years, or there just may not be enough money for some things. We may have to execute on just the top two or

three applications and let the others go."

On the other hand, maybe it won't be anywhere near that bad. Nothing is set in stone yet, and O'Hare has seen federal emergency money on the block before. Typically, nothing ever comes of these threats. "All these proposals happen every budget cycle, and in our experience there has been flat funding with no increases," he said.

It's a point well worth considering, as the emergency management community attempts to align its resources. The president's budget brief is just an opening gambit. Congress ultimately has the power of the purse. That said: What is the political prognosis? Will these reductions ever see the light of day?

It's worth noting that the budget brief drew a less-than-enthusiastic reception from congressional leaders on both sides of the aisle upon its initial release.

"Inexplicably, the president's budget slashes proven FEMA antiterrorism grant programs and leaves high-risk surface transportation infrastructure vulnerable by imposing cuts to TSA [Transportation Safety Administration] and law enforcement support programs," said Rep. Bennie G. Thompson, D.-Miss., ranking member of the House Homeland Security Committee. "The president needs to go back to the drawing board before submitting his final budget request and return to Congress with a plan that is realistic, actually keeps us safe and doesn't decimate the government," Thompson added.

The ranking member of the House Homeland Security Committee's emergency preparedness, response and communications subcommittee, Rep. Donald M. Payne Jr., D.-N.J., derided the proposal.

"President Trump's ill-conceived proposal to cut hundreds of millions of dollars in FEMA state and local grant funding is further proof that the president has no idea of what it takes to protect this nation," he said "These grants have been crucial to developing effective emergency preparedness and response plans for terrorist attacks and natural disasters. Cutting them to this extent will undo the progress we've made and leave our infrastructure, and our communities, vulnerable."

Republicans for their part showed little eagerness to defend the budget.

The proposals are "just the beginning of the negotiation process with Congress," said House Homeland Security Committee Chairman Michael McCaul, R.-Texas. Likewise, Rep. Dan Donovan, R.-N.Y., chairman of the emergency preparedness subcommittee, called the budget blueprint "step one in the negotiating process."

In light of this lukewarm reception, even by the president's own party, "we shouldn't panic," said Wendy Smith-Reeve, director of the Arizona Division of Emergency Management. Rather, emergency management professionals should be speaking up to try to influence the political deliberations, a view shared by other state-level leaders.

"It's incumbent upon the emergency management community do a better job of articulating where we were 10 years ago, where these grant dollars have gotten us, and where we are going to be in 10 years if we have this money available to help protect against these threats and hazards," Oregon's Phelps said. "We do a good job of that at the local and the state level, but it is a little more difficult to do that at the national level."

He encourages emergency management professionals to engage directly with key lawmakers as the budget process unfolds. "Every conversation we can have hopefully helps to build that case a little bit," he said.

Others are laying the groundwork for Plan B, considering what steps they might take if these or similar cuts do come to pass.

"Here in Alaska the private sector knows how to get things here quickly. They are experts in logistics, which is a skill we need in emergency management," O'Hare said. "It doesn't cost much to get those folks to the table to explore how we can work together. It's mostly just a matter of time and some coffee."

Time and coffee alone won't likely be enough to close the gap, if actual funding levels end up looking anything like the initial draft issued this spring.

But some doubt it will come to that. Ghilarducci, for instance, declared the budget "dead on arrival" and predicted a major congressional overhaul. Still, the mere threat of such sweeping cuts should put the emergency management community on notice that nothing is guaranteed under this new administration. +

DWINDLING FORCE

The search for solutions as volunteer firefighter recruitment sputters and 911 calls soar. **By Madeline Bodin**



Every year an average of 10 volunteer firefighters quit the West Barnstable, Mass., Fire Department, about 27 percent of the department's total. Fire Chief Joseph Maruca never finds out why half of those department members leave, but does know that about one-third of his crew leaves for career firefighting positions at larger, nearby fire departments, typically after serving in West Barnstable fewer than four years.

West Barnstable, with its white clapboard church and saltbox houses on the shores of Cape Cod Bay, is a classic New England village with a population of 3,500, popular with retirees.

Constantly recruiting new firefighters is a strain on the department, and on Maruca. The situation got bad enough that officials looked into staffing the department only with career firefighters. Maruca found that not only would that cost taxpayers more, it would also reduce the number of firefighters responding to each call.

Nationwide, volunteer fire departments save municipalities, and taxpayers, \$139.8 billion per year in firefighting costs, according to a 2014 report from the National Fire Protection Association (NFPA). About 70 percent of America's firefighters are volunteers, and 85 percent of the nation's fire departments are all or mostly volunteer, according to NFPA. The smallest communities — those with fewer than 10,000 residents — are almost always served by volunteer departments, also, according to NFPA.

Across the country, small, rural fire departments like West Barnstable's are struggling to recruit and retain volunteer firefighters. But even where the number of volunteer firefighters is holding steady, the number of calls is exploding. The nationwide tally of the calls departments respond to each year has tripled in the last 30 years, according to NFPA. These numbers influence a community's ability to deal with emergencies, both large and small.

"Career and volunteer firefighter and emergency services are the infantry in every community when disaster strikes," said Denis Onieal, acting U.S. Fire Administrator. "There is no force at the state level or at the federal level, with the exception of the National

Guard, that can provide a community with rescue, mitigation and recovery services like the fire and emergency services community.”

Communities like West Barnstable illustrate why some departments are struggling to recruit and retain volunteer firefighters. “Small towns like ours are losing our young adult populations,” Maruca said. They are moving to where there are more jobs and a lower cost of living.

Unfortunately, though, the cities these young people move to don’t necessarily see the benefit of more, young volunteers, says Kimberly Quiros, chief of communications for the National Volunteer Fire Council (NVFC). “People who are transplants to new areas may not have that community tie that makes them want to volunteer with the fire department. And people may not even be aware that their community needs volunteers.”

Volunteer fire departments once depended on local employers who offered full-time jobs with benefits to their volunteers and were willing to have employees leave work to fight fires. Today a typical job is as a per-hour worker with unpredictable shifts for a national or international company with no ties to community. The nation’s top employer is Walmart. Second on the list: McDonald’s, according to stock market information analyzed by 24/7 Wall St. and reported in *USA Today*.

According to an analysis of Federal Reserve data by the nonprofit group Young Invincibles, reported in *USA Today*, millennials (born from 1982 to 2004) earn 20 percent less than baby boomers did at the same age, and millennials have more student loan debt.

Because the number of volunteer firefighters nationwide has declined 15 percent between its all-time high in 1984 and its all-time low in 2011 and, because over that same period, the number of calls has increased nearly 300 percent, existing firefighters are suffering from burnout. (Most of that increase is in medical calls, Quiros said.)

Fighting fires as a volunteer requires the same training career firefighters receive. The training requires a significant time investment. “Even as people have less time to volunteer, the training required to volunteer has become more intensive, taking more time,” Quiros said.

Training is not the only burden that volunteers carry along with career firefighters. Certain cancers, sudden cardiac death and trauma-

induced mental health issues are additional health burdens carried by all firefighters. Insurance coverage for these health issues varies by state and fire department.

Last October, the National Fallen Firefighters Memorial included, for the first time, the names of 24 firefighters who died of cancer on its plaque honoring those who died in the line of duty the previous year, *The Washington Post* reported. It was an acknowledgment of a 2015 Centers for Disease Control and Prevention (CDC) study that found that certain types of cancer — not limited to lung cancer — are linked to firefighting. (New York state recognizes 23 types.)

After 9/11, national attention was drawn to the cancer risk after the untimely deaths of rescue and recovery workers at Ground Zero. But the risk is shared by everyone who spends time in or around burning buildings, and may have increased over the decades. “Buildings and furniture are more toxic now,” Quiros said.

Cancer risks can be reduced by wearing personal protective equipment, especially self-contained breathing apparatus (SCBA), not only during the fire, but also during cleanup, said Quiros. Gear should be cleaned right away. Soot-smudged gear is a badge of honor in some departments, but it is also a cancer hazard. Dirty gear should never be brought home.

Post-traumatic stress disorder (PTSD) and substance abuse are other long-overlooked health risks of firefighting. Nearly 100 firefighters commit suicide each year, Quiros said. That’s more than die annually in the line of duty, she says. The NVFC’s Share the Load Program provides a 24-hour hotline answered by firefighters who are trained counselors who can direct callers to additional resources for dealing with addiction, depression, anxiety, PTSD and other issues.

Since the early 1990s, about half of all firefighters who die in the line of duty died of sudden cardiac death. This is likely because — with the heat, the climbing, the heavy gear and smoke exposure — fighting fires puts much more stress on the heart than is experienced by the average person, Quiros said.

“The fire department saved my life,”

said Kevin D. Quinn, wringing out every ounce of paradox from that statement, as a volunteer firefighter for 41 years and current chair of NVFC. Well aware of the heart health risks for firefighters, Quinn never smoked, didn’t drink, ate well and does 22 push-ups a day as a reminder of the 22 veterans who commit suicide each day. He had frequent check-ups, and had never been diagnosed with a heart condition.

When a fire chief in North Carolina invited him to raise awareness of special physical exams for firefighters by visiting the North Carolina department and having an exam along with the fire crew, Quinn resisted at first. He travels a lot in his position, but eventually he relented and joined the department for the exam. Afterward, he was told he had a serious heart condition. A second opinion back home led to surgery.

Three months after the surgery, Quinn was back on duty for his fire department. He waited that long because it was a requirement of his commercial driver’s license. He wasn’t aware of feeling unwell, but now he feels better than he has in years.

Quinn recommends that every firefighter get a physical that complies with the NFPA 1582 standard. This is much more specific to the health risks faced by firefighters than a typical well-patient checkup.

What can fire departments and communities do to recruit more firefighters? Some departments have had success with programs created by NVFC.

Spring Lake Park-Blaine-Mounds View (SBM) Fire Department in Minnesota, which serves 45 square miles and 80,000 residents, was doing a great job with its fire prevention program, said Shannon Ryder, division chief. Fire calls are way down. The number of department members in this mixed career-





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volunteer department was holding steady, she says, but the heavy schedule of fire prevention programs was wearing its firefighters down.

When she heard about NVFC's Fire Corps program about 10 years ago, Ryder was skeptical. The nationwide program began in 2004 to engage community volunteers to help their fire departments in non-emergency roles, including fundraising, cleaning equipment and trucks, bookkeeping and other paperwork, and education programs.

"When it came across my desk in 2008," Ryder said, "I wondered who in the world would sign up to help with all this random stuff for nothing but a T-shirt?" Still, it seemed like just the help her department needed, so she gave it a try. Not only did people sign up, they stayed. The SBM Fire Department will soon have 21 Fire Corps members who have been with the department for 10 years.

Fire Corps members can get to work with very little training. Because a fire department invests less in each Fire Corps member, it doesn't need as big of a commitment from them in return. Less strength is required, so elderly or disabled people easily find a role. But Fire Corps members can participate in additional training to help their fire departments in all sorts of ways, from driving a truck to serving as a first responder.

Fire Corps is a partner program under the Citizen Corps initiative and is funded through FEMA. That makes it a companion

to the Community Emergency Response Team (CERT) program, and the two complement each other. While CERT provides operational or emergency support during times of disaster, Fire Corps provides non-operational support every day.

Ryder says that many of the Fire Corps members in her department are also CERT volunteers. She thinks participating in Fire Corps keeps them involved in helping the community in a way being a CERT member alone can't.

"Not everybody wants to ride the big, red truck," said Ryder, who now believes in the program so fully that she is the Fire Corps state coordinator for Minnesota. "There are more people who want to give back to the community than you would think."

For Maruca, the solution to his recruiting problem is an NVFC program called Make Me a Firefighter and a lot of effort. Make Me a Firefighter provides marketing materials that Maruca can adapt to his own needs. His first effort was advertisements on Facebook that targeted users in his region by age. (Because of state law, firefighters in Massachusetts need to be between 18 and 65 years old.)

The ad provided a link to the Make Me a Firefighter national website, where potential recruits can search for fire departments in their area. Quiros said that more than 25 percent of departments nationwide have signed up to be in the program's database.

When Maruca received emails generated by the national database, he replied immediately, asking the potential recruits to stop by and learn more about the department. Then, once a week, simply because the response was so overwhelming, he sent out a welcome email to all the new contacts that included an application. If he didn't hear back, he would email again a month later, with another invitation and application.

One of the things he most appreciates about the program is that the people who responded were a more diverse group than he sees through traditional word-of-mouth recruiting. "If your fire service is made up of community members, it reflects the community," Maruca said. That can mean increasing a department's racial or ethnic diversity, but it also means loosening the grip of the clique of families that seem to fill every small-town fire department. And that may be more difficult.

In his town, Maruca sees women as his biggest untapped pool of recruits. Women make up half of almost every community, he says, yet they are only 10 percent of his recruits. Departments across the country have similar numbers. "No matter where you are in the country, this is your biggest area for growth," he said.

Through the program and the Facebook ads, the department received 62 inquiries. Ten of those people applied, Maruca said. That was more recruits than he had spaces to fill in the next training class, so some recruits are waiting to attend the next.

It's a hopeful sign, Maruca said, but the new normal is constant attention to recruiting and more flexibility in assigning deployments. "It's a very dynamic process to keep us functioning."

All of these challenges don't mean that emergency managers should give up on using their traditional infantry of volunteer firefighters, Quiros said. A stronger volunteer fire department means a stronger community response to just about any emergency. Instead, she suggests, emergency managers should advocate for their fire department as they would for any true partner in their mission. When volunteer firefighters have the resources they need, she said, the whole community benefits. +

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Stepping Up

PSAPs are moving ahead with next-generation 911 as carriers lag.

By Adam Stone | Contributing Writer

For years a stalemate prevailed between emergency call center authorities and telecommunications carriers. Both needed to upgrade their systems to get to the state known as next-generation 911, or NG911.

Upgrading to an IP-capable infrastructure would cost millions, and neither wanted to make the first move. That landscape is shifting, with state and municipal emergency leaders revamping their legacy technology to support NG911 capabilities. Now they want the carriers to step up. “We built the super-highway, but no one is sending the cars yet,” said Maine E911 Director Maria Jacques.

Emergency call centers have seen big benefits from their upgrades. Operating costs are down and they have powerful new capabilities. But until the carriers step up to the plate, they say, NG911 will remain more theory than fact.

Coming up short

NG911 promises to replace existing narrow-band, circuit-switched networks with more robust digital architectures, expanding beyond voice to more readily deliver data including photo and video information. Such a system would be able to layer on location and other data for more efficient call routing and handling.

Proponents across the emergency community say NG911 will save lives. Improved call routing will speed responders to the scene. Multimedia overlays could give dispatchers a clearer understanding of an emergency and would help them to better organize the response.

Officials with the North Central Texas Council of Governments want to acquire these capabilities. They have built an NG-ready infrastructure, and they have a procurement in the works to improve

the user interface for call handlers. Even having come this far, though, officials say they cannot actually cross the threshold to put the enhanced capabilities into play.

“We have been putting in the infrastructure to support this, but the service providers are not able to support these things,” said 911 Technology Manager Clay Dilday. “It always goes back to the wireless providers, the telcos, and how they give us the information. If they are not structured to give us the NG911 functionality, then just having the platform doesn’t give you any new capabilities.”

Officials tell a similar story in Maine, where a 2014 upgrade brought all systems up to NG911 capability. It was a massive project, with a \$32 million price tag that included five years of support, and it delivered some immediate benefits. The IP-enabled network costs about \$1 million less per year to operate, as compared to the legacy system.

But it hasn't delivered multimedia, and officials don't know if or when that is going to happen. "It isn't like flipping a switch. People think as soon as you become next-gen you get pictures, you get videos, but there are no providers knocking at the door to send us video," Jacques said. "Ultimately, the wireless carriers will have to deliver that, but we are not there yet and those things are not under the control of the PSAP."

These aren't isolated cases: Public safety answering points (PSAPs) around the nation are moving ahead on NG911. The San Francisco Department of Emergency Management recently initiated a next-gen upgrade for its 911 center, which receives more than 3,000 calls a day. Philadelphia launched a next-gen upgrade effort last summer. Yet in many cases, the PSAPs are outpacing the carriers.

The Valencia Regional Emergency Communications Center, in Los Lunas, N.M., is spending \$3.2 million on a new call center facility that is slated to include radio upgrades, a new dispatch system and NG-ready 911 capabilities. "This is going to be a huge enhancement for all our users," said Aaron Chavez, administrative services director. He's eager to get hold of the next-gen bells and whistles, but said the local carrier infrastructure isn't ready to deliver. "We will have those capabilities once they are ready to go there."

It raises the question: Why the disconnect?

Market drivers?

Frustrated emergency management professionals say the carriers simply have no good reason to invest the money to upgrade their own networks. There's not a massive commercial demand for NG911, which is rather a niche market, and as a regulated industry, telecom doesn't much feel like doing anything unless regulators tell it to.

"It always goes back to legislation," Dilday said. "If the providers aren't mandated to support these things, they don't do it."

Vendors in the space echo these sentiments. "The carriers can put up all sorts of technical reasons why things can't be done," said John Rennie, general manager for public safety at telecom solutions provider NICE, which is working on the San Francisco upgrade. "But then you pull up your smartphone and it has maps, and it knows where you are, and it delivers video."

If carriers aren't bringing these same IP-driven enhancements to the PSAP, "it's because there is no driver coming from government, and there is no commercial driver to connect it to 911," Rennie said. "There are no insurmountable technical barriers. It is more the commercial and political barriers to making it happen."

At the same time, there are some who take a more generous view of the situation. Even some staunch advocates of NG911 adoption offer a less stinging rebuke.

The National Emergency Number Association (NENA) is developing the technical standards that support NG911. The group also is part of Next Generation 911 Now, a coalition that is pressing for more rapid adoption of the new technology. Yet NENA's director of government affairs, Trey Forgety, is prone to be a little more sympathetic in describing the apparent lag between PSAP upgrades and carrier capabilities.

"The carriers have a tremendous economic incentive. They want to get off of this terribly expensive, difficult-to-maintain legacy stuff. If you look at their announced plans, they are doing that," he said. "The thing that gets lost is just the scale of this undertaking. We are looking at hundreds of millions of wire-line connections and all of this legacy infrastructure. The scale of the undertaking is enormous."

Others say the PSAPs themselves may be overstating their own readiness. Virtually all emergency call systems in Tennessee are technologically ready for NG911, said Jamison Peevyhouse, director of 911 and emergency management in Weakley County. But that doesn't mean they could pull the trigger tomorrow if the carriers suddenly stepped up.

"We absolutely can do this, but have I updated my policies locally? Have I trained my people for that reality? Have I trained them to see a video of an incident while they are simultaneously coordinating a response?" Peevyhouse said. "Imagine having to do CPR instructions over text to 911. It is excruciatingly slow."

Early wins

Carriers for their part say they are moving in the right direction.

In early 2016 AT&T announced ESInet, calling it "a state-of-the-art, robust and

flexible network with call routing services for 911 agencies." It's text-ready, and the company says it will support photos and videos some time in the future, and will simplify the transition to next-gen public safety across a 21-state footprint. Verizon has likewise been putting out press releases promoting its next-gen efforts since at least 2011.

While the PSAP operators wait for these promises to come to fruition, those who have upgraded their systems say they are already seeing benefits, even in the absence of full NG911 capabilities.

Having an IP-based infrastructure has improved call handling in Maine. In the past, wireless calls had to be manually routed. "You had to know who the PSAP was and look in your contact list," Jacques said. "So one immediate benefit of next-gen 911 is when that call comes in, it autopopulates those transfer buttons even with a wireless call. That provides for a much more immediate response."

Upgrades have expanded the call-taker's range of options, adding new providers to the menu of available options on a given call. The new system also delivers something an analog call center never could access: analytics.

"If you have a major storm and calls flood the system, you want to see how those calls are routed," Jacques said. "With NG911 you have more extensive policies, so, for example, if there are no call-takers available, that call will route to a different PSAP and it will keep routing based on policy instructions until that call is answered. Then after the event we can review in detail what happened with any given call that came in."

In fact, emergency planners in Maine have made changes to the system's routing instructions specifically based on post-storm analytics.

The Maine experience demonstrates what many in the emergency community believe to be true: that NG-911 is going to dramatically enhance the delivery of emergency services. When will that happen? After years of back-and-forth over who would take the first step, emergency managers say the ball is now in the court of the telecom providers, whose systems need to be appropriately upgraded and enhanced in order to make good on the promise of the new technologies. 🚀

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GLENN J. ASAKAWA, UNIVERSITY OF COLORADO BOULDER

The Modern Emergency Manager

Thinking at the intersection
of many different forces.

Lori Peek started in January as director of the Natural Hazards Center, Institute of Behavioral Science at the University of Colorado in Boulder. Peek has been at the fore of researching how disasters affect populations, especially children. She co-wrote *Children of Katrina*, which received the 2016 Best Book Award from the American Sociological Association Section on Children and Youth Distinguished Scholarly Research Award.

We asked Peek about the future of emergency management as it pertains to evolving social issues and about her favorite subject, children.

✚ **You just became the director of the Natural Hazards Center; how has that gone so far and what prepared you for this challenge?**

It's been a busy few months settling into the position, and really exciting.

There have been five directors in the history of this hazards center. The founding director was the wonderful Gilbert White, the esteemed geographer; followed by Bill Travis and Dennis Mileti, the sociologist; and then Kathleen Tierney. Dennis was actually my adviser and was a student of Gilbert's. In some ways, it's as if Gilbert was my academic grandfather and Dennis was my academic father; it's like coming back home in some ways.

I went to grad school here at the University of Colorado and did my Ph.D. in sociology. I feel really fortunate to have known all four of the previous directors of the center. That, along having had the opportunity to work here as a graduate student, was so instru-

By Jim McKay | Editor

mental in my understanding of the history, mission and vision of the center. That connection and my enduring respect for all that the center stands for in terms of its mission within the broader hazards and disaster community has really helped facilitate the transition.

➤ **What do you see as the biggest challenges for emergency managers in the coming decades?**

As a sociologist, a lot of times we're thinking about the big social and economic challenges, but we also might see them as opportunities. For example, rising social inequality — the increasing number of people who are living insecure lives in this nation of opportunity and affluence. We have more children living in poverty, more people in food-insecure households. As those social and economic challenges increase, the jobs of emergency managers get more difficult because getting someone who doesn't know where their next meal is coming from to focus on putting together their emergency evacuation plan or their hurricane go-kit, for example, those challenges are really amplified.

I also think something that is both a challenge and opportunity is what's happening in this nation with demographic change. As we are becoming not just racially and ethnically diverse, but also religiously more diverse and diverse on a whole range of indicators, that's a challenge for emergency managers. How do you serve what some sociologists say is the most racially and ethnically diverse country in the world?

It's a challenge but also an opportunity when I think about workforce development and bringing new voices and perspectives into emergency management because we know that these diverse people living in the most populous and most vibrant cities in the United States continue to draw immigrants as they did 100 years ago, and those are also the places that are the real disaster hot spots. So how do we get these new generations in Los Angeles and New York City and Miami and San Francisco interested in emergency planning? It is a real challenge, but also a real opportunity.

➤ **Can you elaborate on that? How do we reach these diverse populations?**

Are you aware of the Bill [William Averette] Anderson Fund that is entirely dedicated

to diversifying the emergency management practice and disaster research? He was a sociologist who unfortunately suffered an untimely death, but he was a leading researcher. He had long been this voice in the disaster research community saying we need more women, more people of color, both in research and practice, because those are the communities we're studying and serving, but the research and practice aren't reflective of those communities. When Bill passed away, his wife started the fund, which is in its third year, where there are Bill Anderson Fund fellows who are master's and doctoral students, and the fund is dedicated to changing

“The 21st-century emergency manager has to be thinking at the intersection of all the different phenomena that are unfolding in people's lives.”

the face of emergency management.

We need more programs, scholarships and mentoring space in emergency management and in higher education to really bring into the fold these diverse people and perspectives, but I also think there are other opportunities that open up, like FEMA's Youth Preparedness Council. I look at that and think those teenagers are reflective of the diversity of the United States today. We know youth are more diverse than older cohorts.

I also think emergency managers are out in the community all the time giving lectures, working with community groups trying to get people engaged. If they can be intentional and aware, and think, “I'm going to X, Y and Z organizations, but what if I went to A, B and C organizations? I'm going to extend my reach into new and different communities.” So being intentional and talking about it as an opportunity to get new people engaged is really important.

We know that if people do not see themselves reflected in materials, if you go to a website and all you see are people that are of a different race and ethnicity, a different age demographic, different gender, you say, “Oh, this isn't for me.” But if we can be intentional

with our materials and with the ways we are speaking, those things speak volumes.

➤ **How do you see emergency managers and their jobs evolving in the coming decades?**

It's sort of like how teachers today say, “Wow, my job has evolved. I am no longer an educator from 8 a.m. to 3 p.m. delivering curriculum through the textbook. I'm also caregiver and a social worker.” This ties back to what I was saying about rising inequality, rising insecurity within our families. I know this is a sociology-biased answer, but I think that emergency managers can no longer think in that way that “you need to get a family reunification plan and your emergency supplies in place.” Emergency managers know that when they go in to give those talks, people look at them wide-eyed, saying, “I don't know where my next meal is coming from, I'm not even in secure housing. I don't know where my family is. I'm an immigrant, and

we've been separated.” The complexity of the job expands, and it's going to test emergency management to develop new partnerships.

Emergency managers are going to have to partner with not just the local police department, but also social workers and the schools, because when something unfolds, parents are going to go to the schools. The 21st-century emergency manager has to be aware of the changing social demographics of rising inequality because all of those things are influencing their ability to do their jobs and do it to their capacity.

It's a challenge and a real opportunity to think in more complex and holistic ways. Not only are we facing social and economic changes, but we're doing all this in the context of real environmental change, the speeding up of disaster losses. In Louisiana, they are still dealing with three disasters back, where people haven't recovered from three disasters ago and then they get hit by another flood or tornado.

It's the intersection of all these forces. The 21st-century emergency manager has to be thinking at the intersection of all the different phenomena that are unfolding in people's lives.

By Eric Holdeman

Civil Defense Reincarnated

If history repeats itself, we may be about to turn the corner and head back to having at least some focus on civil defense. Emergency management is, after all, a product of the civil defense era. What I think is perhaps pushing us in that direction is the threat from North Korea.

First, let's review how we got to where we are now. Civil defense came out of World War II and into the Cold War era. Once the Soviet Union had nuclear weapons and a delivery system for those weapons, there was an immediate focus on how to protect major metropolitan areas from the impacts of thermonuclear war.

Large cities had anti-missile defenses installed in and around these cities in the hope that they might be able to shoot down an incoming intercontinental ballistic missile launched from somewhere in the Caucasus region of Russia.

State and local officials had three primary responsibilities:

1. Prepare citywide evacuation plans for what the estimated blast zone was determined to be based on the kiloton size of the bomb blast, the idea being to get everyone out of the city before, or potentially after, a nuclear attack.
2. Establish civil defense shelters in the basements of downtown brick or concrete office buildings that were estimated to be the best locations for potentially surviving a nuclear attack. These shelters were then stocked with civil defense supplies furnished by the federal government.
3. Last, distribute different types of radiation detectors to public agencies like fire and police departments. Some were personal radiacmeters that showed the total dose an individual had received, and others looked more like geiger counters that were used to monitor people and their clothing, vehicles and the like to avoid contaminating other areas with radiation. The question now is, when and if we

are going to resurrect these or modified versions of these plans, how do we do something that looks or at least feels like we are working to protect the general public?

Today, North Korea is not a direct threat to the continental U.S. However, there are scenarios where they could, in a few short years, have nuclear weapons and delivery systems that could reach the West Coast.

Certainly any new efforts in this direction would include the following elements:

- Warning systems from a variety of sources, logically in the 21st century using digital messaging to mobile devices.
- Evacuation planning that includes monitoring for radiation contamination and elements that include where people will be sent following the evacuation order.
- Civil-military planning that includes government, the National Guard and active duty forces.
- The fielding of a new generation of radiation detection and monitoring instruments, which might even include a smartphone app that allows everyone to have that personal capability.
- A public education program that provides plans and guidance on how to build your own civil defense shelter or use what materials you have available to provide for household protection from nuclear fallout.
- Finally, our "drop, cover and hold on" earthquake drills will be an element that has a retro feel for anyone who grew up doing these classroom nuke exercises in the 1950s and '60s.

Some may think that we'll never go back to these types of programs. However, I'm guessing that if the feds provide the funding to implement these program areas, we will all have a collective déjà vu feel to what we focus our work on. +



Eric Holdeman is the former director of the King County, Wash., Office of Emergency Management. his blog is located at www.disaster-zone.com.

IP-ENABLED OUTDOOR SPEAKER

Federal Signal's Informer product line now includes an IP-enabled high-powered outdoor speaker. The Informer100 Speaker can be used as a notification device using tones and/or voice. Pair this model with a Federal Signal Commander system for additional capabilities; for instance, it can be equipped with up to four local alarm initiation devices to activate the unit locally and to activate the Commander controller for mass notification communications.

The Informer100 Speaker has an internal 100-watt amplifier and driver to deliver intelligible voice messages from pre-recorded files or from the Federal Signal Commander VOIP network system. Ambient Level Monitor enables speaker to automatically adjust speaker volume in relationship to ambient noise level. It also has remote volume control for optimizing sound levels across your alerting area.

Notifications and alerts can be live voice, text-to-speech, pre-recorded messages and/or tone files. When used with optional notification software, alert messages initiated from the Informer100 Speaker can be sent to emergency personnel via email, SMS, handheld radios; and can also be used to activate other Informer units and sirens.

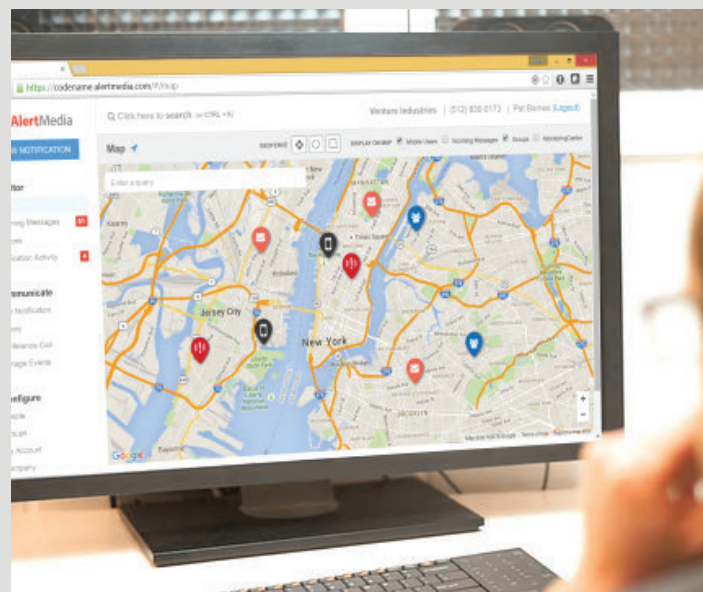
www.fedsig.com



Weather forecasting tool

Baron, a leading provider of critical weather solutions, announces its Baron Threat Net suite of products, an active weather monitoring and forecasting tool for public safety, featuring operations center, mobile and web-based accessibility. Baron Threat Net allows users to monitor weather and safety for situational awareness by location and includes simple custom alerts including Baron exclusive location-based Pinpoint Alerting and standard alerts from the National Weather Service (NWS). These alerts can be delivered via in-app notifications, push or text notifications, and e-mail. Baron's technology is designed to be user friendly and accessible to a wide range of customers who might not have any meteorological background. Its weather intelligence and dynamic viewing platforms provide acute situational awareness which aids in smart decision making. Threat Net is an ideal product for use in a variety of public safety settings such as hospitals, government agencies, public schools, outdoor venues and stadiums.

www.baronweather.com



Greyhound deploys notification tech

Greyhound Lines has deployed AlertMedia's notification technology to enhance and improve communications with its employees. Greyhound is using the AlertMedia platform to enhance and improve communications with approximately 1,000 employees. According to Greyhound, the platform's ease of use and ability to communicate across multiple channels were large factors in their decision to deploy AlertMedia.

www.alertmedia.com

Ahead of Schedule

The FirstNet nationwide broadband network for public safety agencies, announced plans for rapid state deployment.

By Theo Douglas | Staff Writer

The First Responder Network Authority (FirstNet), which earlier this year partnered with AT&T to build out its nationwide network for public safety officials over the next five years, announced the early rollout of individual plans to rapidly deploy that system to 56 U.S. states and territories.

These plans, which can be personalized to states and territories, aren't the last word from FirstNet or AT&T, which will deepen its collaboration and continually update and improve the network during the 25-year contract.

But the June 19 announcement comes three months ahead of schedule for FirstNet — which had six months to deliver state plans from the time it partnered with AT&T in late March — and is a milestone likely to evoke a response from states that haven't yet decided to join.

Governors should begin receiving their plans shortly and can join the network after reading them, FirstNet Senior Adviser Bill Schrier said. Otherwise, they'll have until early August to review and return them with comments.

AT&T is expected to make any revisions and issue a final plan for each state in September. At that point, governors will have 90 days — until sometime in December — to decide whether their state or territory will opt in or out of FirstNet.

"With this step, we're ready to deliver the first nationwide network for public safety, by public safety," FirstNet CEO Mike Poth said in a statement. "This network will drive innovation, security and interoperability for public safety across the country. It's what EMS, fire and law enforcement spent years fighting for and need right now."

In good times and bad, Schrier said, existing cellphone and Internet service options frequently put first responders — law enforcement agencies, fire-

fighters and EMS personnel — on par with citizens and businesspeople.

Cell sites can typically handle up to 1,000 people at once without becoming overloaded — but in times of stress, traffic backs up, slowing or stopping.

"One thing I often talk about is when the Seattle Seahawks won the Super Bowl in 2014, we had a victory parade in downtown Seattle and the cellular networks were overloaded. This will fix that," said Schrier, who also is the former CIO of the Seattle Police Department.

States that join FirstNet will receive AT&T's quickest LTE broadband service where it's available. Areas where it's not available will receive its fastest-available service, either 3G or 4G — though the company plans to upgrade its entire nationwide network to LTE over the next five years.

But they'll also get priority over citizens and businesses — and, sometime in 2017, will have "pre-emption" authority allowing them to "bump" residents and commercial users off the network during emergencies.

"I don't expect that to happen very often. You'd have to have a very congested network," Schrier said.

Other planned upgrades include an evolved packet core due around March 2018 that will give first responders end-to-end encryption of their messages, and the ability for incident commanders to prioritize their own first-responder users during a disaster.

FirstNet users, who already have a dedicated AT&T help desk, will later receive their own dedicated operations center, as well as Identity Credentialing and Access Management, which will uniquely identify first responders and allow them to use the devices of others during a disaster.

FirstNet, created in 2012 to build, deploy and operate a nationwide broadband network for public safety agencies, is an independent authority within the

U.S. Department of Commerce. Its investment, funded by Congress, is \$6.5 billion; AT&T is expected to spend about \$40 billion over the life of the contract.

The network rollout has had issues. Also in March, the agency announced resolution of litigation brought by Rivada Mercury, a partnership of companies created specifically for the FirstNet project, alleging that it was unfairly dismissed from the procurement process.

At least five states — Alabama, Arizona, Colorado, Michigan and New Hampshire — have issued RFPs to explore opting out of FirstNet. New Hampshire selected Rivada Networks as its vendor in 2016.

Brian Shepherd, point of contact in Colorado, which issued its RFP on March 24, called for "creativity and innovation" from potential bidders.

"We believe the full benefit of this network lies not only in providing a solution for first responders, but in enabling a comprehensive statewide critical communications infrastructure that can support multiple services," Shepherd said at the time.

FirstNet proponents understandably see things differently. Former Pennsylvania Governor and Homeland Security Secretary Tom Ridge called joining the network "one of the most economical and technologically advanced decisions a leader can make."

"The network will help transform how the nation's fire, law enforcement and EMS personnel communicate. First responders will be able to coordinate and respond more quickly and effectively during emergencies and everyday situations," Ridge said in the June 19 statement.

Schrier said that issuing their own RFPs could help states gain a better understanding of the process, and the cost involved in opting out and creating their own high-speed broadband plans for first responders.

"An RFP can actually be a good thing for some states because it allows them to explore other options," he said. "The options are fairly onerous. AT&T will do this at no charge." +

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By Andy Altizer

Know Your Environment

See Something, Say Something. Report suspicious behavior. What, or perhaps who, doesn't belong? Great advice, but it's not quite that simple. The solution takes a little more work, but can be summed up by understanding the environment based on baseline, situational awareness, demeanor and understanding the threat. Each is closely related, and usually takes boots on the ground and eyes on the target to establish an action plan that goes beyond words on paper. Understanding the importance of baseline, situational awareness, demeanor and understanding the threat is not difficult; applying them to individual, and possibly unique, areas of responsibility can be more challenging.

Baseline

What's normal for a community, population, event, etc.? Think of it from a scientific perspective. Before deploying radiation detectors, you must establish the baseline, or normal, amount of radiation, for that area. Once this is established, it can be determined when there's been a deviation.

Establishing a baseline takes experience, and often a historical background. Setting a baseline for various areas and activities takes work, and often is different within larger components of a community, especially as it relates to special events.

Situational Awareness

Similar to baseline, situational awareness is important to fully grasp what is going on, including additional factors that may complicate the threat picture. A large outdoor sporting event that includes an honor guard with military equipment and weapons, unexpected protestors, VIPs in attendance or a nearby festival with thousands of people dressed in costumes may cause added concern, especially if any of these activities was not included in the original incident action plan. Imagine that the night before a football game at the stadium, there was a concert

that included fireworks, and the effects that it might have on the next morning's sterility sweep. Situational awareness helps avoid surprises and unexpected consequences.

Demeanor

Do the atmosphere and people's actions match the environment? Demeanor, too, fits in with baseline and situational awareness. How should someone be acting, or reacting, in a particular environment? We all know that a person walking through a parking lot looking into car windows may be getting ready to break into a car. But what about a student walking in a hallway, a person attending a concert or fan at a basketball game? How should they be acting? The fan attending a conference championship game will likely be excited, attending with friends and perhaps be quite animated; what about the person at that same game who comes alone, doesn't watch the action on the court and spends significant time walking around in various different locations?

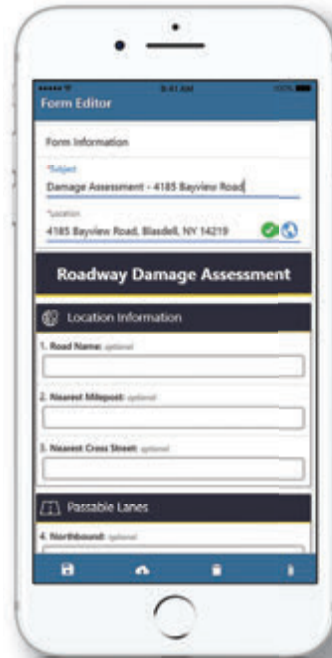
Understanding the Threat

Threats often differ depending on the target, environment, event, time of year, opportunity (soft versus hard) and "call to action." Situational awareness helps public safety officials know both their area of responsibility, and how the greater threat may apply. Those charged with providing security know the importance of understanding the threat picture, when a threat becomes credible and knowing when the threat becomes localized based on the current situation. Federal, state and local agencies continue to provide detailed, and often specific, threat bulletins that provide both indicators and suggested protective measures. Area-specific security measures, threat assessments, vulnerability assessments and threat-based exercises provide additional information related to gaps and resource needs. +



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