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SANDY REPORT: CONSIDER TRENDS IN STORM INTENSITY

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I think this type of information sharing an example of how it should be
— Lieutenant Zupanc, Ohio Fusion Center

The Knowledge Center’s common operating picture is something that every response organization should strive for
— Commander Timme, US Coast Guard

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16 **ON THE COVER**

**Rebuilding Blueprint**
It’s easy to fall into the trap of rebuilding for today, instead of rebuilding for the next generation.

**Sandy Review**
The rebuilding task force issues report on recommendations for long-term recovery.

**Elected and Unprepared**
Mayors and other elected officials are rarely trained or schooled for what they may face.
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Public safety always comes first. Working with AT&T, the County of San Diego created a custom mobile application to reach residents and visitors in the event of a disaster. This means that critical and accurate information gets to the right people, at the right time — ensuring everyone is up to date before, during and after emergencies. AT&T has the platform to create custom mobile applications that work across multiple systems and mobile devices to help you connect with your community in the event of a disaster.

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In addition to the points that you made, another area that will make a difference in the very near future is the California earthquake warning system. Seismic Warning Systems Inc. of Scotts Valley, Calif., has the fastest, most accurate earthquake warning system in the world. SWS is currently working very closely with the Governor’s Office of Emergency Services and has several demonstration projects and active warning stations throughout California. SWS and its product is worthy of your personal investigation. I was a customer of SWS for more than six years, and their technology worked perfectly in two earthquakes that impacted my organization.

— Rocky Saunders in response to What’s Changed? in the September/October issue

Hooray! Finally someone is talking about the storm surge and not just the hurricane damage. I have seen substantial damage to properties caused by storm surge. For example, I visited a property after Irene hit and although it felt the effects of flooding, it was nowhere as severe as what Sandy caused. A seawall on the property was not affected during Irene but was turned to rubble during Sandy.

— John in response to Overlooked Storm Threat in the September/October issue

The issue I see is the SLOSH [sea, lake and overland surges from hurricanes] is an older program and the graphical output is currently very limited. I have had models run for various threat locations, and the graphical output can’t be imported into Google Earth or any other GIS platform. I would hope that with all the effort put forward to provide these warnings, the data could be fed to a Common Operational Picture platform like ArcGIS and be useful to a larger audience.

— JR Wendell in response to Overlooked Storm Threat in the September/October issue

I’m encouraged by the acknowledgment that CISD [critical incident stress debriefing] may not be effective and, in fact, may even be harmful. This is an important issue, and I wrote about it in the May 2013 issue of the IAEM [International Association of Emergency Managers] Bulletin. This article does a pretty decent job of summarizing some potential solutions, but it’s just a start. There is still more work to be done on this issue.

— Brian Crisan in response to Beyond Debriefing in the September/October issue

My concern becomes that of privacy issues. While the FBI talked with the Boston bomber, what obligation do they have to share that information? Outside of that, would having shared that information with local departments put the person under scrutiny that would violate his rights? I understand that the event was horrific, but up until the moment he set the timers and placed the pressure cookers, he had not committed any real crime other than to assemble an IED.

— Chris Robinson in response to Dirty Bomb in the September/October issue

Emergency Management Summits

Each summit will address the man-made and natural hazards — fires, floods, earthquakes, terror events — facing the area, as well as best practices in preparing for and mitigating these crises.

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More Costly Floods

You get plenty of flood coverage in this edition of Emergency Management, including how to rebuild after one. The next issue will be no different as we prepare an article on how Boulder, Colo., mitigated a devastating flood in September.

According to experts, this topic will be with us for a while and will continue to cost us billions of dollars. According to a study done by the folks at the World Bank in Washington, the cost of floods to the world’s major coastal cities could be $3 trillion a year by 2030. And 40 percent of that cost will be incurred by just four cities: New Orleans, Miami, New York and Guangzhou, China.

The risks are rising, researchers say, and will continue to do so as global warming produces extreme weather in the form of heat waves, windstorms and rain, which all lead to floods. Communities should be planning ahead to mitigate these occurrences. Those efforts should include early warning systems, more resilient infrastructure, evacuation planning and more financial support for rebuilding. New York City, for example, is reviewing its building and zoning codes to help in future storms. That will help, but as you’ll read in this issue, it may not be enough.

As experts say, we continue to do the same things over and over, often offering little in the way of mitigation of future storms. As the World Bank noted, New York has already undergone catastrophic flooding this century and the risks are increasing. The same can be said of New Orleans, and that was predicted.

The problem now, experts say, is that flood defense has been designed for past conditions, and continuing the trend will be catastrophic. Even with better protection, losses will increase by 50 percent, according to one of the researchers, Stephane Hallegatte. Another alarming find was that flood risk may be growing in areas that aren’t vulnerable today.

Emergency Management had early access to a report on the long-term rebuilding strategy for the states most affected by Hurricane Sandy. Much of the recommendations echo what has been said here but there are many more, as you’ll see from the article in this issue. Preparing for a warming climate and more extreme storms is key.

You will glean much information too in our feature on rebuilding, both on how some communities have prepared for the future and on some that continue to make the same mistakes over and over — an all too common occurrence.
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In the News

Floods are the No. 1 natural disaster in the United States. From 2008 to 2012, the average claim was more than $34,000. From 2003 to 2012, total flood insurance claims averaged more than $3 billion a year.

Here are the top three claim payments to states in 2012, according to the National Flood Insurance Program:

- Louisiana: $436,253,603
- New Jersey: $288,950,075
- New York: $272,790,020

From 2008 to 2012, the average claim was more than $34,000.

Get everything you need to help you prepare, respond and recover from a disaster. Grainger has thousands of products from the names you trust so you can count on us when others are counting on you.
Traffic congestion could soon be a distant memory for fire and rescue personnel in Palm Beach County, Fla. An intelligent traffic signal system is being installed that will adjust traffic light cycles to favor the routes being driven by first responders.

Called Emergency.now, the technology connects Palm Beach County Fire Rescue’s computer-aided dispatch system with the county’s traffic control system. When an emergency call is placed, a route is generated and transmitted to each responding vehicle. The software then adjusts the traffic lights along the route to stay green for longer stretches of time. The major difference between Emergency.now and other emergency traffic signal systems is that it doesn’t pre-empt traffic flow by setting up blinking yellow lights or completely stop one direction of traffic. The software adjusts the existing traffic cycle to meet an emergency responder’s needs and goes back to its normal timing quickly thereafter.

Twitter is rolling out a new feature that will allow users to get emergency information directly from vetted, credible organizations. The system, called Twitter Alerts, will deliver tweets marked as an alert by approved organizations through the traditional timeline feed and via SMS to a user’s cellphone. In addition, users who have the Twitter app for iPhone or Android will receive a push notification with the alert information.

The new system was announced on Sept. 25, and mimics a similar feature that helps Japanese users find emergency Twitter accounts during times of crisis. The alerts feature is to be used for “warnings for imminent dangers, preventive instructions, evacuation directions, urgent safety alerts, information on access to essential resources, information on critical transit and utility outages, and crowd and misinformation management.”

Twitter Alerts will be indicated by an orange bell, and approved accounts show the bell alongside the text: “In times of crisis, this account helps share critical information with Twitter Alerts. Be prepared.”
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COVER STORY

The state-of-the-art transit facility in Far Rockaway shows a forward-thinking rebuilding effort.
BY JIM McKAY

IT’S EASY TO FALL INTO THE TRAP OF REBUILDING FOR TODAY,

INSTEAD OF REBUILDING FOR THE NEXT GENERATION.
When parts of the Northeast finish rebuilding after Sandy, it will look and feel a bit different — but not different enough for some.

Watching communities rebuild after such devastation is often perplexing for educated observers who say mistakes are repeated and lead to more devastation, and that an approach that considers the likelihood of more severe storms and reduces risk should be taken.

“That is a start happening often enough, and even as parts of the Northeast pick up the pieces and promise more resilient communities, there is hand wringing among those who say opportunities are being missed. Again.

‘I think there are many windows that have already been closed,’ said Robert Young, director of the Program for the Study of Developed Shorelines at Western Carolina University. ‘The vast majority of the rebuilding planning has been done, and for the most part, the writing is on the wall.’

That writing says adaptations like elevating structures and improving storm engineering building are the actions being taken. ‘There’s no doubt we can do a better job of storm engineering building,’ Young said, ‘but that doesn’t stop the shorelines from eroding.’

Sand dunes are also being built and will help, but not forever, and that’s the point of some of the criticism. Rebuilding in the same area as before is for more than the same, even with elevated, stronger structures.

‘In other words,’ said Young, ‘if the river is flooding, rather than step out of the river, roll up your pant legs.’

Ken Mitchell, professor of geography at Rutgers, is researching on rebuilding after Sandy for the National Science Foundation. He said elevating structures, which has been emphasized by the federal government, will only help so much. It may not help against the worst floods, and in some cases, it doesn’t protect the infrastructure serving the buildings.

And he said, in focusing on this solution, communities are missing other more viable, long-term ones.

Sand dunes are effective too, but again only to a certain extent. The dune system can be established to withstand extreme storms with proper maintenance, said Stewart Farrell, director of the Richard Stockton College Coastal Research Center. But the effect won’t last forever.

‘Since we run out of sand eventually, run out of cash or run out of the will to fight storms combined with sea level rise at some point.’

These have traditionally been the primary approaches, but other tactics should be considered more often, including relocating structures from the riskiest areas. One roadblock, though, sources say is an “incentive” by the federal government to rebuild as before.

A Moral Hazard

There are a number of federal subsidies that encourage rebuilding in the same spot, according to Young. ‘In Hurricane Sandy, we had a $60 billion emergency appropriation bill that goes back into these communities and puts the roads and the power grid back and infrastructure in place.’

Young said the appropriations money is helping rebuild boardwalks, beaches and investment properties right back where they were. ‘Why wouldn’t any of these people rebuild right where they are if they know the federal taxpayers have their backs and are assuming all the risks?’ Young asked. ‘The federal government has created a moral hazard.’

Young said it’s well known where the problem spots are and that emergency managers are tasked with responding to those areas every time there is an even little wind blowing and a little storm.

Young advocates rebuilding in areas that are known to be more protected.

Mitchell was less direct about the government because I think it’s moving in the right direction with reforming the flood insurance program, but there are a lot of things we don’t think about.

He said he hopes that flood insurance adjustments will help and that there’s evidence the program can work, but more so in river flood situations than coastal ones. ‘In the past, they were undercharged,’” Mitchell said. ‘It’s going to help, but on the downside it’s going to force some people, like elderly people who suffered damage to houses they inherited, out of the marketplace because they won’t be able to rebuild.’

Mitchell advocates a holistic approach to recovery and rebuilding, one that considers the local economy, physical environment and social networks that people inhabit.

He said we’re a long way off from that and closer to the one-size-fits-all approach.

He pointed to New Zealand, which he said has recently taken the approach that recovery isn’t just about reconstructing buildings but also about blending the aforementioned aspects of community. He said the recent development of the federal...
National Disaster Recovery Framework is a step in the right direction but a work in progress. “A lot of that grew out of the experiences in New Orleans after Katrina,” Mitchell said. “The problem is, New York City is not New Orleans and New Jersey is not New Orleans. There are very different combinations of risks and vulnerabilities, and what you got from Katrina doesn’t always transfer to other places.”

But there can be lessons learned from what communities have done in the past, and those shouldn’t be forgotten. Too often communities look at the more recent past and don’t go back far enough. There are lessons decades old that can be of value today.

“If you go back into the 18th century in New Jersey, you find many cases of relocation of homes in flood-prone areas where they took the structure and literally jacked it up and moved it somewhere else,” Mitchell said. Historical records reveal good examples of adjustments to future risks, he said, but you have to go back farther than most do. Mitchell also said that the same is true of looking into the future—we generally don’t look far enough ahead.

“Municipalities generally look back to World War II, don’t really use the full historic record and then tend to focus on the bad things, not the positive things we’ve done in the past. When you turn the telescope around and look into the future, the tendency is to plan five, 10 years ahead.”

Another systematic mistake municipalities make during rebuilding is assuming the same development decisions and institutions, planning and zoning decisions will work just as well after a disaster as they did before.

In non-emergency settings, those decisions are made with a leisure that allows boards and agencies to stop the process, get feedback and make decisions without haste. “None of that stuff is really well adjusted to handling the kinds of decisions you need to make during disasters,” Mitchell said. A lot of improvisation must occur after a disaster, and municipalities have to entertain ideas that were not thought of before. It can’t be business as usual, when the tendency is to rebuild as things were.

Mitchell sees promise and limitations to the U.S. Department of Housing and Urban Development's Rebuild by Design program. It’s a competition to promote scalable solutions that increase resilience in areas affected by Sandy and sets aside block grant funding for implementation of the winning projects.

Mitchell said the projects are “wonderful in theory,” but care should be taken to assure that local communities are involved. “Those projects often have local partners, but it seems to me they’ve dominated by the international, engineering or landscape architect firms.”

Know Your Community

It’s crucial to involve the whole community in the rebuilding process. “One of the rules of resilience,” Mitchell said, “is to know your community.” He said it’s important for outsiders, the federal government included, to understand that.

An example of involving the whole community came from Greensburg, Kan., after
a tornado wiped away 95 percent of the city in May 2007; killing it. Although a very small city (a population of 777 according to the 2010 census), it literally came together and rebuilt, developing into a modern, wind-powered one.

After the tornado, there was no place to meet except under FEMA tents. There the community members gathered and discussed the future, said Stephen Hardy, chief community builder of MindMixer, a startup that helps communities garner ideas from citizens. “We were able to shift the way people thought of the community as not something they were going to rebuild for themselves, but something they were building for a future generation.”

He remembers several times when young people stood up in the tent and voiced a position that was counter to what the community thought. “As soon as a storm hits, there’s this immediate tension between trying to put everything back exactly the way it was as fast as possible; on the other hand, is the real task kind of sets in and people get depressed and you have some real issues.”

The key was not to let short-term thinking creep back into the conversation when things got tense but to continue to look far into the future. “The way to do that is to involve multiple stakeholders and build a consensus as soon as a storm hits, there’s this immediate tension between trying to put everything back exactly the way it was as fast as possible; on the other hand, is the real task kind of sets in and people get depressed and you have some real issues.”

The key to getting past that in Greensburg, according to Mabry, was to shift the thinking ahead to rebuilding for the next generation. “In the homeowner assistance program, for example, if you’ve got a grant to provide you with funds for uncompensated losses, we put a covenant on your property. If you rebuild, you’re required to give back to the more stringent standards and maintain flood and property insurance.”

Mabry said using the CDBG funds allows municipalities to sidestep some of the “federalization” that occurs when only FEMA money is used. “FEMA funds allow you only to build back the way it was,” he said. “The supplemental funds, the CDBG grant money, allow you to take the money, combine it with FEMA money and build back stronger, bigger and better.”

Mabry said if he had to do it over, he’d have more loan money available for rebuilding. After Katrina, the Development Authority created a small fund of about $50 million with a local bank and made approximately 1,200 loans, ranging from $15,000 to $200,000, available for small businesses. “That money is revolving now, being used to rebuild, to allow subject to the expensive tasks that go along with federal dollars,” Mabry said. The key to all this is sitting down with locals, discussing the future look of the community and handing out planning loans to help develop the proper plans. “You don’t want to come up with some unrealistic plan that’s just put on a shelf. And who knows better than the local communities about how they want their communities to be shaped?”

“Thats an example of a project where local leaders came together outside of the public elected officials, formed a group and said, ‘This is what we think we need.’”

There was no road map for this type of rebuilding. Mabry said, so they developed programs for housing assistance, including elderly housing, public housing, how to address homeownership and workforce housing, as well as homes for troubled youth.

As a common and critical element to rebuilding in Bay St. Louis that every program was required to have, as per Gov. Haley Barbour, storm mitigation. The programs offered Community Development Block Grant (CDBG) funds for rebuilding but incentivized responsibility, according to Mabry.

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The rebuilding task force issues report on recommendations for long-term recovery.

BY CLAIRE RUBIN | CONTRIBUTING WRITER

SANDY REVIEW

The rebuilding task force issues report on recommendations for long-term recovery.
In October 2012, shortly after Hurricane Sandy caused devastation to several states along the Eastern Seaboard, President Barack Obama created a high-level federal team representing 24 agencies to consider a long-term recovery strategy for the states most affected. The Hurricane Sandy Rebuilding Task Force was charged with preparing a report with recommendations on its findings with specific instructions to think ahead and consider long-term needs for the vulnerable Atlantic Coast states. And to recommend ways to reduce not only the devastation but also the high costs likely with respect to future disaster events.

After working for roughly six months, the Task Force issued its report in August 2013 and also made plans to track the implementation actions by agencies and to work on ways to reduce the future federal outlays for future major weather events. Among the special features of this endeavor is the first-time use of an executive order to require 24 federal agencies to consider the long-term recovery process; the task force effort was linked with ongoing White House directives to deal with climate change and to foster more resilient communities; and follow-up processes were included to implement the recommendations provided by the report. Given all of these special characteristics of the task force and its report, the results should be of interest to emergency management personnel. Of particular interest are: have the art and science of disaster recovery been highlighted and enhanced, and are the recommendations likely to result in progress in recovery from and resilience to disasters? Is this just another federal report or are there some unique and compelling new directions and directives in the works? The preparation of this report was unique in several respects:

• The president issued Executive Order 13632 in December 2012 to initiate the involvement of high-level representatives from 24 federal agencies to consider long-term recovery from the damage caused by Hurricane Sandy.

• The National Disaster Recovery Framework, issued in September 2011, was fully implemented on a large scale for the first time in the aftermath of Hurricane Sandy.

• Housing and Urban Development (HUD) Secretary Shaun Donovan was selected as chair, rather than someone from the Department of Homeland Security.

• The report links disaster recovery with climate change, in particular the president’s Climate Action Plan, and it links recovery with resilience, particularly the White House Initiative on Resilience. The task force report makes operational the mission of these initiatives.

• It is primarily a document written for action by and for federal agencies involved in disaster recovery and does not call for legislative actions. Also, it does not extend to state and local governments or organizations in the private or nonprofit sectors.

• It called for “Giving governments and residents the best available data and information on current and future risks to facilitate good decision-making for recovery and planning.”
The Reach of Hurricane Sandy

The destructive impacts of Hurricane Sandy were huge, making it the second costliest natural disaster in U.S. history, after Hurricane Katrina. The enormous cost of the disaster is one of the reasons for federal action, since no one wants to see or pay for another similar disaster.

One interesting fact was that Sandy affected 24 states across the northeastern and Mid-Atlantic U.S., although most of the destruction was centered on the dense population and infrastructure of the coastal areas of New Jersey and New York. The greatest ratio of damage occurred in housing and in public transit systems. Also of great significance is that the area impacted was an economically important and vulnerable part of the country, with many essential industries and dense population centers.

Sandy’s aftermath differs from that of hurricanes Katrina, Rita, and Wilma, in that the region’s relatively expensive and unusually low-availability housing market raised special challenges. “Affordable temporary housing units close to Sandy-affected neighborhoods were in short supply. This forced federal, state and local authorities to employ an array of policy tools to provide displaced individuals with places to stay,” according to the report. Also, the density of housing, zoning, and land use patterns precluded the use of mobile homes for temporary housing.

The Report’s Recommendations

The report makes 69 policy recommendations across several policy areas. They are designed to “align funding with local rebuilding priorities, eliminate barriers to recovery while ensuring effectiveness and accountability, coordinate across levels of government, facilitate a regionwide approach to rebuilding, and promote resilient rebuilding so that the region will be better able to withstand the impacts of existing risks and future climate change,” according to the report.

Among the key recommendations:

• Facilitate the incorporation of future risk assessment, such as sea level rise, into rebuilding efforts with the development of a sea level risk tool.
• Create a design competition to develop innovative resilient solutions that address the Sandy-affected region’s most pressing vulnerabilities.
• Mitigate future impacts to the liquid fuel supply chain like those experienced during the Sandy recovery.
• Encourage federal and state cooperation to improve electric grid policies and standards.
• Develop a resilient power strategy for wireless and data communications infrastructure and consumer equipment.
• Consider green infrastructure options in all Sandy infrastructure investments.
• Support efforts to reduce consumer confusion regarding risk and insurance coverage while working to increase hazards preparedness.
• Improve National Flood Insurance Program policyholder awareness of factors that affect flood risk and insurance rating decisions.
• Encourage hazard mitigation activities, including elevation, in order to protect property against future losses.
• Implement and support regional rebuilding initiatives in both New York and New Jersey that promote multijurisdictional approaches to problems/issues that are shared by communities with similar demographics, geography, infrastructure and social concerns.

Some Key Indicators of the Damage Sustained:

- 8.5M customers were out of service
- 159 fatalities caused by the storm
- 25% of cell sites were out of service
- 65 billion in damages and economic loss
- 650K homes were damaged or destroyed
Also flagged was the need to act on well documented changes to the National Flood Insurance Program. The report acknowledges deficiencies by saying, “Since FEMA has not updated flood maps of New Jersey and New York City in more than 25 years, it was difficult for local planners to effectively understand and address current and future risks posed by climate change, urbanization, and other factors.

Consequently FEMA issued updated Advisory Base Flood Elevation maps in the immediate aftermath of the storm and the administration released a sea level risk tool designed to provide communities in the Sandy-affected region with timely information on how various scenarios of sea level risk would be expected to impact them.

What Will Happen Next?

Several major professional and trade organizations watched with great interest as the task force conducted its work, and some were asked to participate in an advisory capacity by the federal agencies. Predictably organizations concerned with various aspects of the damage — such as floodplain management, insurance and infrastructure — are interested not only in the report findings and recommendations, but also will watch with interest as implementation occurs.

While the sharing of science-based data strengthens the technical aspects of risk reduction, the ability of local governments to incorporate and use this information in their land use decisions is still in question.

The consensus is that many of the 69 recommendations could have and, in fact, have been made in previous hurricane after-action reports. No mention is made in the task force report about the findings and recommendation of the many federal government reports issued after Katrina, which presently holds the record for the most costly disaster in our nation’s history.

The lead role of HUD’s Donovan was understandable in that he had housing experience in New York City prior to his current position, and HUD is responsible for disbursing the largest single agency portion of the multi-billion dollar supplemental funds package voted for Sandy recovery.

So, will this be a milestone report, particularly in terms of achieving implementation of its recommendations? How well will the required follow-up by the task force members proceed, since it is an unprecedented effort? And will this task force process be a model for future catastrophic events or is it a one-time prototype? It will probably be a few years until the answer to that question is clear.

As noted in the NJ Spotlight, since the task force was created by a presidential executive order, the report is nonbinding and unenforceable at the state and local level. There are no mechanisms in place to enact penalties if New Jersey or other states were to violate any of the findings.

Furthermore, the federal agencies may not be able to implement many of the recommendations addressed to them if the sequester currently in place continues into 2014 and beyond.

Nevertheless, the same article noted that Donovan said many of the recommendations will be carried out on the federal level, with or without the participation or cooperation of state and local officials. Donovan also said various mechanisms are in place to guarantee that all of the findings are put into practice, including detailed action plans for each one and quarterly meetings of the cabinet to provide oversight.

Full and effective implementation of the recommendations will be expensive, since it requires federal outlays for buyouts and environmental compliance measures. Watching the implementation phase unfold in the coming years will reveal whether this report truly matters.

Claire Rubin heads the small firm Claire B. Rubin & Associates in Arlington, Va. She is the editor at Emergency Management: The American Experience, 1900-2010 and blogs at RecoveryDiva.com
Q&A: Geospatial Technologies Help Government Prepare for and Respond to Natural Disasters

During disasters, first responders used to be at the mercy of paper maps, phone calls and the knowledge of locals when finding their way to stricken areas. An advantage of the digital age is the ability to create ongoing records about the land — complex geospatial data that is layered and shared among emergency responders working to save lives and property. Mladen Stojic, Intergraph’s vice president of geospatial, talks to Emergency Management about state-of-the-art products and solutions that help government respond effectively to natural disasters today — and plan well for those in the future.

**Q: Why are geospatial technologies important to the planning, response and recovery efforts of disaster management?**

**MLADEN STOJIC:** Geospatial technologies help emergency responders understand the landscape as things change in a disaster. Intergraph’s solutions swiftly capture, analyze, organize, and distribute data and information that responders use to take action in the field, giving critical situational awareness in a context-specific form. That information is vital to the evacuation, staging, deployment and movement of emergency response vehicles.

**Q: What are some of Intergraph’s geospatial solutions for government?**

**MLADEN STOJIC:** Intergraph gathers data captured from satellite, airborne imaging and LiDAR sensors and produces accurate and high-resolution data — as close as several centimeters from the earth’s surface. Working together with Leica Geosystems, we have field-based solutions that use GPS sensors connected to mobile workflows which can give location and draw other pertinent information from databases. In scenarios where bad weather limits the collection of imagery due to cloud cover, our solutions can leverage data from radar sensors in order to derive timely and accurate information to support first responders. These first responders need reliable intelligence on elevation, features, land cover and any detectable changes during a disaster. We have software that analyzes and organizes terabytes of data, ingests multiple spatial data layers, performs analysis on it, makes it visual in a 3D scene and then sends it to the mobile devices of emergency response personnel.

**Q: How does Intergraph help forward-looking agencies or jurisdictions effectively prepare for disasters?**

**MLADEN STOJIC:** If your jurisdictional information isn’t current, it’s hard to effectively respond to a disaster. We work with agencies and jurisdictions to keep their data relevant with the right platform and tools that constantly update spatial databases from the field and in the office. We then help them manage and share that data using the server side of our portfolio, which has cataloguing and powerful indexing capability. That’s important, because it enables you to share your central repository and data with other jurisdictions and agencies. All of this is done with a high level of security and performance. But we don’t just provide software, we provide solutions for the disaster response segment. We bring together multiple software ingredients and construct industry-specific systems that allow responders to find, prepare, retrieve and share information. Working with fire and police departments, we also deliver computer-aided dispatch (CAD) systems that are critical to dispatching and responding to emergencies. The CAD system is linked to a geospatial map system, so responders know where to go and how to get there as quickly as possible. A lot of our work is preventative, too. For example, in the past, city planning officials made mistakes by permitting and building in areas considered to be flood zones. When a 100-year flood comes around — and it will — lives and property can be lost. We now have the ability to simulate storm events and look at the results of flood plains so that urban planners or city officials know that they shouldn’t build there. Our solutions provide the analytical engine that fuses all the geospatial layers of data together while allowing for simulated and predictive modeling of events and scenarios.

**Q: How have Intergraph solutions helped communities in planning for or responding to recent natural disasters?**

**MLADEN STOJIC:** When Hurricane Sandy hit Virginia Beach last fall, we were able to take all of the city’s discrete digital elevation models, mosaic and stitch them together, and provide that as one easy-to-access set of content that could be managed and rapidly delivered with our ERDAS APOLLO solution. And during the recent rain and flooding in Colorado, our ERDAS IMAGINE software solution ingested data from radar sensors to create a flood map for early responders — all within 24 hours.
BY DAVID SILVERBERG

LIKE MILLIONS OF OTHER AMERICANS, I watched in horrified fascination as New Orleans descended into anarchy in September 2005, in the wake of Hurricane Katrina. I was not on the ground there; I was safely at home near Washington, D.C., glued to the television set. Just when it had seemed that the U.S. Department of Homeland Security was finally finding its footing, now FEMA was incompetently floundering.

The response of the New Orleans authorities was also a stark contrast to the strength shown by New York Mayor Rudy Giuliani in the wake of the Sept. 11, 2001, attacks. And it contrasted again two years later in 2007 when California Gov. Arnold Schwarzenegger confronted massive wildfires in his state. Schwarzenegger responded swiftly, appeared at every fire site and refuge camp, gave nonstop press conferences and comforted the weary.

The response of elected officials makes a difference in disasters. When they’re strong and competent, they can lead recoveries and inspire devastated, discouraged and displaced people to struggle on and begin recovering. When they fail, response is hindered, recovery delayed, and the pain of a disaster is prolonged even further.

MAYORS AND OTHER ELECTED OFFICIALS ARE RARELY TRAINED OR Schooled FOR WHAT THEY MAY FACE.
When it comes to emergency preparation, training, and education, there are plenty of options for operational professionals. First responders and emergency managers know their business. In addition to their daily duties, they train and exercise constantly, can draw on experience, and are usually familiar with all relevant parties in the surrounding jurisdictions.

That’s not the case with elected officials. For them, there’s a constant churn based on electoral terms, preparation is sporadic and uncoordinated, training is haphazard at best and exercising is optional. Because these officials are usually sovereign in their jurisdictions, no one can force them to attend exercises or classes. They’re also influenced by political rivalries and ideological differences that emergency managers lack.

Across the country, the range of preparation for elected officials varies widely. Probably the best state program is in California, which faces a wide variety of potential natural disasters.

After 9/11, California upgraded its emergency capabilities and began the Golden Guardian training exercise program. When exercises revealed a lack of knowledge and confusion on the part of elected officials, the California Emergency Management Agency worked with the University of California’s Institute on Global Conflict and Cooperation to develop a new training curriculum. The result was the California Public Officials Communications Training Initiative, which launched in 2007.

The initiative uses seminars and exercises to prepare elected officials to communicate during a disaster, as well as teaching them their responsibilities and the basics of the emergency management system. Trainers bring the classes to the officials, conducting sessions all over the state, including small towns.

Additionally California developed and distributed the Elected Officials’ Guide to Emergency Management, a 12-page guide that encourages officials to prepare, explains their roles, lays out the state’s emergency management system, discusses the types of disaster declarations, assistance available, and different recovery programs.

Contrast this effort with the level of preparation in Florida, a state where hurricanes are an annual occurrence and the Florida Division of Emergency Management is widely seen as the nation’s best such agency. Here, the role of elected officials is an afterthought—so it’s in much of the rest of the country.

Training for Florida elected officials largely consists of a brief guide and an eight-minute video. Introduced by Gov. Rick Scott, the video urges elected officials to get to know their emergency management team, plan and train for emergencies, and apply for aid and support once disaster strikes. If local officials need support, they can contact the division’s Intergovernmental Relations Team, which also handles what training they get.

The advice in the video is sound, but aside from a 30-second introduction showing swirling storms and scenes of destruction, it can hardly prepare a newly elected mayor for the overwhelming devastation of a major hurricane or other disaster.

In addition to government programs, some private entities have stepped in. In 2003, the Centers for Disease Control and Prevention sponsored creation of the National Preparedness Leadership Initiative (NPLI), a joint program by Harvard’s John F. Kennedy School of Government and the School of Public Health. Every year NPLI conducts an initial, mandatory one-week session for students and then concludes with a two- and-a-half-day seminar. Though not exclusively for elected officials, it provides courses in disaster management and leadership, and concentrates on decision-making during difficult or pressured situations.

According to its brochure, “The applicant must have strategic planning or operational leadership responsibility or be on a career track leading to such a position.” It costs $9,800 to attend, well beyond the reach of many smaller localities.

The National Emergency Management Association (NEMA) issues an eight-page guide for elected officials, called Are You Ready?, covering many of the same topics in the California guide but without the state focus. It urges officials to be prepared and especially to fulfill their communications role once disaster strikes.

NEMA also sponsors an annual Emergency Management Policy and Leadership Forum where matters related to disaster leadership and decision-making are discussed and which welcomes elected officials.

These programs are helpful but to benefit from them, an elected official must make preparedness a priority, be aware of them and actively seek them out. That’s a lot to do amid the everyday demands of office.

Kathleen Koch was a CNN correspondent who covered Hurricane Katrina’s onslaught on the Mississippi Gulf Coast. But she had also grown up in Bay St. Louis, a Mississippi coastal town that was nearly wiped out by that storm. Koch didn’t just cover the aftermath of Hurricane Katrina, she stayed on the story for years afterward, chronicling the slow and painful struggle of Gulf residents to rebuild their lives, homes and futures.

After some discussions among nonprofit and humanitarian activists and executives
regarding an immediate response to Sandy, the interest and commitment to the longer-term effort gradually petered out.

Nonetheless, Koch persisted in her peer-to-peer efforts. The mayors she knew from the Gulf were willing to talk to their New Jersey counterparts. She made this willingness known to a local New Jersey news website, MoreMonmouth-Musings.net, which spread the word. New Jersey official Serena DiMaso saw the posting, and the two women began working to bring the officials together.

In May of this year, after numerous contacts between Mississippi and New Jersey mayors, a Mississippi delegation, consisting of former mayors Brent Warr of Gulfport and Eddie Favre of Bay St. Louis, as well as Gene Taylor, a former member of the House of Representatives, traveled to New Jersey to meet with about 20 elected officials.

“The reception was very warm, and they were very appreciative.” Warr said. The meeting occurred in a restaurant and as the Mississippians provided their presentation, non-elected residents joined the audience to listen. “It was everyone’s storm. These mayors, first responders and council members were engaged, and I think they benefited from it. The people appreciated seeing their elected officials working on a weekend evening, trying to help them.”

Other mayors traveled individually. Mayor Matt Doherty of Belmar, N.J., traveled to Pass Christian, Miss., to meet with his counterpart, Mayor Leo McDermott, to learn about Pass Christian’s travails and recovery. Another former mayor, Tommy Longo of Waveland, Miss., who was unable to accompany the initial delegation, traveled north.

In 2005, Waveland had been almost completely destroyed by Katrina, and Longo thought he had some wisdom to convey. People around him in Mississippi were skeptical about the trip and he had his doubts too. “I was a little bit hesitant about some Southern boy coming north, because, what do I know?” he said.

“After a disaster, people are shocked; they’ve lost a lot of hope and their lives are being disrupted. Being able to talk to them about a city of 110,000 people where we lost 98 percent of our buildings gave them some perspective. For the first time in the history of the United States, we had to completely rebuild a city that was 150 years old. I was shocked by what I saw [in New Jersey]. I addressed a room full of people, and just telling my story lifted people’s spirits.”

During his visit, the initial disaster grants began to arrive in New Jersey and despite the money, Longo warned the mayors that rebuilding was not going to happen overnight — and that it was the mayors and elected officials who would bear the brunt of the anger, frustration and despair as residents tried to cope.

“Some of the mayors are finding out that it’s not the same thing as 9/11. It’s not like the mayor became a hero,” he said. “I’ve told people that you are the hero today, but people are going to point a finger at you and
Elected and Unprepared

is just the beginning,” Koch said. “You’re going to need counsel for months and years to come. Having a trusted mentor who you can turn to at any time of the day or night, where no question is stupid or ignored, who has been through it before, is worth its weight in gold.”

An academic or institutional setting would allow the collective wisdom gained by elected officials to be passed on to their colleagues and successors regardless of political party or ideological background. More importantly, it would allow preparedness to become proactive, building resilience and a body of knowledge before the next disaster strikes.

Until government, academia and nonprofit institutions see the value of that kind of preparedness, the initiative of individuals like Koch and the mayors of the Mississippi coast will have to do.

David Silverberg was founding editor of Homeland Security Today and had a long career as a Washington-based journalist.

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Despite the lessons of hurricanes Katrina and Sandy, the increase in severe weather and billions of dollars in losses in the United States to natural disasters, preparation, training and education for elected officials remains inconsistent.

“Any elected official who doesn’t understand his role in an emergency is really doing himself and the public a disservice,” said Jim Madaffer, a former San Diego city councilman. “The public expects an elected official to have all the answers — certainly the media does.”

Absent a national standard for training elected officials, either in guide form as California has done or through academic or professional institutions, the kind of ad hoc peer-to-peer network set up by Koch after Hurricane Sandy could prove priceless.

“What is so apparent to anyone who has been in one of these events is that the disaster blame you as time goes on because they have no one else to point a finger at. We saw a lot of mayors not run again because of that.”

Longo particularly connected with Mayor Dina Long of Sea Bright, another 150-year-old shoreside town that was especially hard hit, being battered by 10-foot storm surges and mountains of sand that tossed boats and buildings. From a 10-hour-a-week volunteer job as mayor, Long began working 80-hour weeks to help residents and restore the town while also dealing with her own wrecked home, a full-time job as a community college English teacher, her husband and a 9-year-old son and fighting with her insurance company.

“She was dealing with all these things in her personal life and also making all these meetings with the people who had been hit, and she was really taking it on the chin,” Longo said. Longo helped coach Long and other Jersey shore mayors about maneuvering through the maze of bureaucracy, grants and recovery requirements. Longo understood just how important that support is after a disaster. “We’re very appreciative of the help we got after Katrina,” he said. “We want to pay it forward.”

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What are the most critical elements of your job?
Keeping our audiences informed not only on what we're doing in response to incidents, but what we're doing day in and day out to secure Harris County and the region.

We have three sets of audiences. First is our elected officials and decision-makers — those folks we're responsible to and who have to make the critical decisions during an incident like whether we evacuate or issue a disaster declaration. They need to know the worst-case scenario, the best-case scenario and their roles and responsibilities as elected officials and decision-makers.

Then we have our partners and stakeholders. They need to know what we're actually doing now, what plans we are about to activate and what steps we are supposed to take so we have a common operating picture in this region. This allows them to adjust their plans accordingly and not find out on the news what we're doing and what threat we're facing.

The third audience is the media and our public. They want to know the just-in-time information, what's happening, what they need to do about it and how they stay safe.

How have those demands changed since hurricanes Katrina and Rita?
Communication is the single most important factor in determining where our response to an emergency is going to be graded in that very broad spectrum between failure and success. To be honest, as emergency managers and public safety officials, the grade we give ourselves in how we communicated with one another isn't going to matter as much as the grade we get in the glaring light of public scrutiny.

I have not seen any sort of after-action report where communications has not been given the grade that it deserves.
an issue. So communications is always going to be one of the things we need to focus on and do better. Certainly Katrina and Rita raised the bar in terms of the public’s expectations and the challenges, but also technology has changed—how people get information.

No longer is the traditional broadcast media the primary source of where people get information. They get it on their phones, through apps, on computers, and there’s a growing expectation that they have for us, in getting information in a timely manner.

Katrina and Rita raised the bar, and since then we have had additional challenges in how we do that effectively and efficiently. We have a growing list of challenges, but also opportunities in how we meet the public information need.

What are the implications of social media where information is being blasted in real time, and how do you manage that?

We have to understand that social media is a two-way form of communication. And folks like [Federal Emergency Management Administrator] Craig Fugate say we have one-person shops in this country doing social media, so there’s no excuse for not doing it. But we have to understand that it is just one channel for how we get emergency information out.

The challenge for us is we have this growing list of channels—EAS [the Emergency Alert System] has developed new capabilities; the Wireless Emergency Alerts are a new avenue to get very specific information to some very specific groups of people about a threat; social media and new digital technologies are requiring unique sets of expertise and capabilities for public safety officials. So it’s an arena where we have to, quite frankly, do a better job.

Are emergency managers being effective in using social media?

I think it’s time for a national dialog about how we meet the growing expectations of emergency public information with the capabilities that we have. We have to do a couple of things. One, we must have a baseline of capabilities and say here is the minimum that we have to do to meet the growing expectations. Two, we have to standardize our approach and have some sort of agreement on the approaches we need to take and how we need to take them. And we have to define the framework of what we’re doing. It’s no longer simply standing in front of a camera or doing a telephone interview with print media and expecting that that will solve the problem.

Those are the things we need to have a national dialog on, especially as we have more of those capabilities that are being driven by our federal partners like Wireless Emergency Alerts, EAS and the new technologies in social media. I think that we do it in three ways, the first being through automation. As emergency managers, we probably don’t own the bulk of the information we are responsible for pushing out. People come to us about weather or safety tips on how to respond to an incident and about how we’re coordinating a response—how we automate aggregating the information from all partners will be essential.

Second, we need integration. Once we have all that information, we’re boiling it down to a single message and want to speak with one voice, but we have all these channels to get it across. We have 140 characters on Twitter; we have probably a couple of sentences on Facebook, a couple of seconds on broadcast and one screenshot to get it out on the Web. So how do we get the message integrated on all those channels in a way that meets the unique requirements of each?

The third way of meeting the requirement is through social science. We have a solid body of evidence from social science that tells us how the public reacts to certain messages. What do we need to include in that message, and how many times do we have to repeat it? I’ve been pushing, not only with our federal partners, to have a national dialog on how we use integration, automation and social science to do our jobs and add some uniformity across the country so we’re building that capability.

What were your biggest takeaways from Katrina and Rita?

Katrina was the first time I managed a joint information center. Up to that time, that was probably the largest joint information center we’d ever established along the Gulf Coast. A lot of lessons came out of there, and the biggest is we need to communicate to the public not just what they need to know, but what they want to know. By that I mean we had an excellent working relation-ship with the media here in Houston and Harris County, but all of a sudden we had a satellite city outside of the Astrodome.

It was a unique challenge to face the media that based on what they were experiencing in New Orleans, came in with an adversarial attitude, and really they were advocating for the public because the public was demanding to know who was doing something right.

We had to quickly adapt and say, “We are doing a good job.” But we had to prove to the media and public that we were doing something at the Astrodome to respond and help our neighbors. So we opened up the doors to the Astrodome and let the media come in and talk to the evacuees. The world got to see that someone was doing it right and evacuees were getting the help they needed. So the biggest takeaway was it’s not enough to say, “Here’s what you need to know.” Let’s understand what the public wants to hear and see—and they want to hear and see that someone is taking it seriously, that we’re doing the best we can with the resources we have.

The second takeaway was that we needed an advocate for the joint information center concept. We operated a 24/7 joint operation center that probably never had fewer than 20 people staffing a shift. Since then we have gone from having to do that on the fly to having one of the most robust capabilities of doing regional emergency public information. Eight years later, we now have the Regional Joint Information Center. We have 54 cities, 125 law enforcement agencies, 54 fire departments and dozens of private-sector partners.

We now have a Regional Joint Information Center website where the public goes for trusted information. Any time of day, our partners can post a message to that site, and it’s become a one-stop shop where people can get information they would expect directly from the source. If they want to know about rainfall data and weather, they get the [National Weather Service] feed; they get electric utility information showing where the power is out; and a real-time traffic map.
Los Angeles County has one of the largest and most diverse populations in the country, with more than 11 million people living in 88 cities, speaking multiple languages with various education levels and economic statuses. Such diversity makes preparing for a large-scale public health disaster extra challenging since it's nearly impossible for county officials to reach all residents.

The Los Angeles County Department of Public Health (LACDPH) and Emergency Network Los Angeles, a voluntary agency, are experimenting with the idea that engaging nongovernmental community organizations already involved in disaster and pandemic preparedness is the key to communicating with the county's diverse populations and building resilience.

A pre-event connection with myriad communities is the goal of a five-year project in the Los Angeles area. Working with the RAND Corp., a nonprofit that focuses on improving policy, the three groups are in the second year of a five-year project called Los Angeles County Community Disaster Resilience. Funded by the Centers for Disease Control and Prevention, National Institute of Mental Health and Robert Wood Johnson Foundation, the initiative seeks to educate and engage community leaders to promote resiliency in Los Angeles County.

The project revolves around developing an active network of community agencies that will work consistently with the LACDPH and Emergency Network Los Angeles. “One of the missing pieces in preparedness and response is understanding better community response and resilience, and understanding it in the context of a large metropolitan area,” said Alonzo Plough, director of emergency preparedness and response for the LACDPH.

In L.A. County, with 4,000 square miles and threats from wildfires to earthquakes to three or four suspicious calls a week, Plough said it’s necessary to use every resource possible to help reach the most diverse areas that may not be as knowledgeable about the importance of emergency preparedness. Plough and his team are working on making their whole community concept completely operational.

**Getting Started**

Based on a report about the response to the 2009 H1N1 pandemic, vaccination rates varied greatly throughout L.A. County with racial and ethnic disparities.
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Disaster Preparedness

Faith-based and community organizations alone have the resources to shelter and feed hundreds, sometimes thousands, of people and offer other services at a time when government and traditional emergency recovery groups have limited funds and resources. RAND kicked off the project by sending various surveys to both LACDPH and community-based organization staff with the hopes of discovering preparedness engagement and education levels, along with any potential barriers to building resilience.

Results showed that “the concept of being socially and physically resilient to disasters is fairly new,” said Malcolm Williams, RAND policy researcher. Traditionally, the focus has been on individual preparedness.

A first step was creating a standard definition and process that each person involved could use as a reference. Williams and his team developed a set of eight categories for communities to use as objectives for building resilience: wellness, access, education, engagement, self-sufficiency, partnership, quality and efficiency.

For example, engagement and self-sufficiency are needed to build social connectedness, and the partnership category helps ensure that governmental and nongovernmental organizations are integrated and involved in resilience-building and disaster planning activities.

Sixteen diverse communities were chosen to participate in the pilot. Eight communities are acting as the control group, working with traditional materials that LACDPH has previously used.

The other eight communities received a resilience toolkit with helpful resources like lessons learned from other U.S. communities that have attempted to join government and community organizations, guided activities to encourage community engagement and the Community Resilience Mapping Tool.

The mapping tool, developed by the nonprofit Sahana Software Foundation, helps communities collect data on vulnerability, hazards and resources within their own territories. Using that data, communities can think more concretely about populations that could be most affected by a disaster, like those with limited English proficiency or low trust in public health, and what resources are available.

For example, in one community, many residents have bars on their windows, which would leave them at greater risk during a fire. The community is discussing ways to map the locations of those houses and contact the landlords to come up with a solution to make those houses safer, said Williams.

“We’re right on the cusp of seeing some real results in these communities,” he said.

Seeing Success

Each community’s leaders have the responsibility of figuring out what works best for its residents. To help, an LACDPH nurse was assigned to each community to facilitate meetings, encourage activity planning and provide support.

“Overall it’s been well received,” said Cullen Armet, program coordinator for the Emergence Network Los Angeles. “There’s a lot of excitement around it, a lot of positive energy.”

In the two years since the project’s inception, communities are already making progress. In the Watts area, known for its violent gang activity, the coalition leaders worked with public nurses and the L.A. Fire Department to develop a teen Community Emergency Response Team program for kids living in the most distressed housing projects. This year, the program had a graduating class of about 40 teenagers, who were involved in the outreach.

“These kids now see possible careers in public health,” Plough said.

The Compton group has been using local cable television to produce a program about community response and preparedness. And other communities have used social media to reach residents.

As the project progresses, LACDPH is constantly sharing information with other large urban cities like New York City, Chicago and Washington, D.C., which have begun to model L.A.’s project. Plough said: “We’ve learned that you don’t have to invent new coalitions to do community preparedness.”

Plenty of organizations concerned with these issues already exist — it’s a matter of engaging them by understanding the issues that are important to each group, according to Plough, and being open to acknowledging the varying degrees of what each person considers a disaster. “You have to do a lot of engagement with communities prior to an event to have a response.”

The L.A. city police chief also embraced the county’s notion of building resilience. Plough said, because the county’s approach is complementary to the neighborhood-level work the city is doing.

One of the next steps is putting together a tabletop exercise for communities to practice how they would react in a disaster. Williams said RAND is also beginning to evaluate different components in each community to see how well they would respond or hold up during an emergency situation.

“There’s still a lot of work to do,” Williams said.

But for now, the project’s leaders are happy with the overall acceptance of the whole community concept and the ideas the communities are bringing to the table.

“It’s a new concept,” Plough said. “We’re at the forefront of trying to make this operational.”

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Up to 40% of businesses never recover after experiencing a major disaster. Do you have a plan to keep your business running if disaster strikes? For a free online tool that helps you develop an emergency plan, visit Ready.gov/business.
Emergency management degree programs have been popping up at universities throughout the U.S. over the last decade. But are the degrees actually helping students get jobs? The answer is still unclear, but signs point to academic expertise having a more significant impact in the emergency management workplace moving forward.

For years, career public safety officers have filled the role of emergency manager. But as emergency management continues to establish itself as a profession, the different skill sets being introduced in college programs have created a stark dividing line between the old guard and the new.

As regions look to expand their emergency programs, experts believe many counties and municipalities will need the project management and collaborative abilities that students are developing in the classroom.

Sarah Miller, emergency preparedness manager of Auburn, Wash., said she’s seeing more degree-holders score entry-level emergency management positions and would hire a candidate with an emergency management degree over a police officer or firefighter. She reasoned that while each situation and set of experiences is unique, all things being equal, there is a different mindset to emergency management versus law enforcement.

Scott Preston, business, academic and research continuity manager with the University of Washington’s Emergency Management Department, said more preference is now being given to job candidates with targeted emergency management degrees. He said employers are becoming more aware of what the degree provides a student, which has ratcheted up competition for positions.

“If I can find someone who maybe is not a career firefighter, police officer or military, but they have a strong project management understanding, that is absolutely a strong candidate for emergency management,” Preston said.

Experience and Networking
Similar to other professions, an emergency management degree by itself typically won’t result in immediate employment after graduation. Experts agree that while a college education is important, balancing academia with some practical experience is the key to securing an entry-level position.

North Dakota State University’s (NDSU) Emergency Management Department requires its students to have an internship before they’re eligible to graduate. Carol Cwiak, undergraduate coordinator for the department and a graduate of the programs, experts believe many counties and municipalities will need the project management and collaborative abilities that students are developing in the classroom.

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Training and Education

Job prospects for emergency management
in something that can loosely translate over
for some students, particularly the ones
practical experience in addition to their degree.
ones who have taken the time to pursue some
emergency management course. He's found
that while they are doing their thing in
emergency services. The first requirement was
that an individual have 10 years of police,
fir or emergency medical experience.
"Part of the problem is that young
kids that are looking for a job aren't being
recognized for bringing in new skills."

Lucien Canton, a private consultant,
believes that while education has become
increasingly important, for employers there's
still no substitute for practical experience. He
recalled that a few years ago, San Francisco
was looking to recruit a director of emer-
gency services. The first requirement was
that an individual have 10 years of police,
fir or emergency medical experience.
"Part of the problem is that young
kids that are looking for a job aren't being
recognized for bringing in new skills."

If you can find someone who maybe is not a career firefighter, police officer or military,
but they have a strong project management understanding, that is absolutely a
strong candidate for emergency management.

"If you don't know how to network and
you're only looking for posted job openings,
then you are cutting yourself out of about 80
percent of what is actually available," Preston
said. "That is why we encourage people to
get some practical experience, pursue the
degree and develop your networking skills."

Looking Ahead
For the most part, experts think the
future is bright for emergency manage-
ment degree holders. Miller believes that
at a minimum, getting a degree in emer-
gency management will give job seekers
a competitive edge when combined with
volunteer or internship experience. She
also encouraged students to research
the degree they intend to pursue.
Degree programs can vary with some
tailored toward specific situations. Miller
expects that to continue, particularly as the emergency
management field has radi-
cally changed since 2001. In
addition, people who already
have degrees in another field
may find it more useful to pursue
a graduate certificate in emer-
gency management, or a Certified
Emergency Manager (CEM)
credential, as opposed to working
forward toward an additional degree.

Preston supports the
CEM process, but said emergency managers
needed some kind of legally supported and
mandated licensing program to practice,
similar to doctors and lawyers. He believes
the lack of standards and a clear track
from high school to emergency manager
has a negative impact on the profession.
"We see these unfortunately at times awful examples of incident management
where the person means well, but they have
simply never gone through the training
or they don't have the right kind of expe-
rience and yet they still call themselves
an emergency manager," Preston said.

The usefulness of emergency manage-
ment degrees will vary depending on how
jurisdictions view their emergency manage-
ment programs. Traditionally someone with
field experience was adequate to draft an
emergency plan. But as programs expand to
include risk mitigation and community
outreach, broader skill sets are required,
which opens the doors for college graduates.
Cwik agreed. She said one thing the
emergency management profession needs
to work on is figuring out how to classify
positions and control entry into the field.
But higher education emergency manage-
ment programs are still relatively young,
so it's likely just a matter of time before
college degrees make a significant impact
on the industry.

"I think that we are seeing better students
that are more highly valued by those in
the field and we are getting there; it is just
a matter of everybody growing into them-
selves," Cwik said. "I have a positive outlook
toward jobs. It's just a matter of building
better relationships between our students
and those who are out in the field."

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Communication Is Key
Monterey, Calif.’s Community Emergency Response Team strives to get the message out.

By Justine Brown | Contributing Writer

Monterey is one of the most beautiful coastal cities in California. Originally the state capital, the city’s diverse topography also makes it vulnerable to a wide variety of natural disasters. Responding to growing citizen demand to provide disaster response training, the Monterey Fire Department brought the San Francisco Fire Department’s highly successful Neighborhood Emergency Response Team (NERT) program to the city in 1994. The first class of NERT trainees completed the course in February 1995. These enthusiastic graduates spread the word, and requests for additional classes quickly poured in from both citizens and businesses.

As the program grew, Monterey public safety officials recognized the importance of reliable communications in their mission of “doing the most good for the most people.”

“The question with most community response team programs is how they are going to communicate,” said retired California Highway Patrol Officer Tim McFadden. “You need to be self-sufficient if you are going to deliver in a crisis.”

In response, Monterey NERT took a bold step and obtained three FCC-licensed frequencies dedicated to the team. Not long after, the FCC mandated all commercial and public safety license holders to narrowband their licensed channels. While the FCC program was designed to promote more efficient use of the VHF and UHF land mobile bands, the downside was that it placed an enormous financial burden on local municipalities across the country. As a result, many municipalities gave up their radio programs and chose to use cellphones for their disaster response programs instead.

Monterey took a different approach. “We looked at hurricanes Katrina and Sandy; both areas lost cellphones and Internet for up to a month,” McFadden said. “We knew if we wanted to do the most good for the most people, then we needed to have something more reliable than cellphones.”

Supply and Demand

Today, the original NERT program is known as the Monterey Community Emergency Response Team (CERT).
Because Monterey has such a varied geographic location, CERT volunteers must complete a thorough, nationwide training program, which covers a wide range of material, from traffic control to light search and rescue. Using the training learned in the classroom and during exercises, CERT members can assist others in their neighborhood or workplace following an event when professional responders aren’t immediately available to help. Volunteers also receive triage training and practice taking patients to the hospital via different back roads in an effort to aid as many victims as possible in a safe, timely manner. The training prepares the volunteers for possible emergencies that might last anywhere from a few hours to as long as seven days.

Monterey CERT is organized into nine zones or team areas throughout the community. Each zone has an assigned captain and team members from the surrounding neighborhoods. A rugged, all-weather Conex storage container is anchored to a foundation in the ground in each zone. The containers hold a set of supplies including first-aid kits, hand tools, pry bars, fire extinguishers, body bags, tarps, generators, stretcher boards, ropes, yellow isolation tape, water, portable sanitary facilities and a host of other equipment.

Each storage container also contains Monterey CERT’s communication tools: Powerwerx radios, hiking antennas and Pryme’s heavy-duty speaker microphones. The radios utilize the three licensed FCC frequencies, which allow CERT leaders to communicate to various entities.

The radio system allows direct communication to various entities.

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Deploy their 308 volunteers at any given moment under challenging conditions. “Radios were previously stored at the team captains’ houses,” McFaddan said. “But we realized putting all our resources in one place is just the beginning of a failure. So we decided to evenly distribute our supplies throughout the city’s neighborhoods in an effort to make them easily accessible and readily available to all CERT members.”

The Monterey CERT communications system is based on a “simplex” ICS structure where radios transmit simply from radio to radio. There are no repeaters or dependent infrastructure susceptible to catastrophic failure. The Powerwerx WXRS70V speaker microphones, custom built by Pryme, are water and impact resistant, which provide volunteers with a reliable product in emergencies and training. “One of the issues with volunteer organizations is finding reliable equipment at an efficient cost,” McFaddan said. Recently the city’s CERT was awarded a grant allowing it to add a solar panel recharging system to every neighborhood container. The 12-volt battery recharging systems are designed to maintain the handheld radios and other low power resources like interior lighting, and will continue to function during a long-term citywide power failure.

A Neighborhood-Based Solution

Under the city’s disaster plan, one critical role for Monterey CERT members is to make initial damage assessment reports immediately following an emergency. “These reports are made directly from the CERT zones to the city emergency operations center,” said Demetrios A. Kastros, a retired member of the California Fire Service and the lead instructor of Monterey CERT. “Since CERT teams live in the neighborhoods, we are ideally suited to this reporting role.”

In addition to allowing for storage and recharging of the radios, the storage containers also serve as the neighborhood staging area for team members during an emergency. Neighborhood captains are responsible for communications with their local team members. Individual team members communicate with their captain at the designated container, and the captain communicates with the EOC CERT member, reducing radio calls only to essential emergency traffic.

But the radio system allows for more than damage assessment reports, Kastros said. “It enables the EOC to remain in direct contact with the various neighborhoods across town, getting constant updates on conditions,” he said. “The radios also allow efficient tracking of CERT members operating in an area, and they enable teams in the field to instantly request professional assistance, such as from the local fire department, for a situation beyond the role of the CERT.”

Monterey also uses a commercially available service that allows hundreds of CERT teams to communicate within the city, Kastros said. “This service allows for communication between CERT teams and the city’s emergency operations center,” he said. “This service allows for communication between CERT teams and the city’s emergency operations center, enabling CERT members to communicate with each other and the EOC CERT member, reducing radio calls only to essential emergency traffic.”

Monterey also uses a commercially available service that allows hundreds of...
Disaster Response

“One of the issues with volunteer organizations is finding reliable equipment at an efficient cost.”

personnel to be contacted at the same time. E-Sponder is an Internet-based system that allows anyone with access codes to send a message from an Internet-capable computer. “The sender accesses the service, types a message on the screen similar to an email, and then sends that message to a predesignated group stored in the system,” Kastros said.

The typed message is instantly voice digitized and received by the designated person in the form of a recorded voice message. The messages can be sent to land lines or cellphones, and the recipients simultaneously receive the same message in text and email format.

“The system allows for storing of multiple sub-groups such as EOC personnel, fire department representatives and CERT members. The sender can transmit an all-call message or select one or more sub-groups for notification.”

A Team Approach

Monterey CERT members were activated during the March 2011 tsunami alert following the Japan earthquake. In this instance, after activating the EOC, city officials decided it would be prudent to post personnel in safe areas to warn citizens to remain clear of the beaches.

Today, the Monterey CERT is touted as one of the best in the nation, which has led to many other cities replicating its program.

Still, Monterey CERT continues to look for ways to improve the system. A monthly “On the Air” radio network started in February allows CERT members to practice their radio skills in a live situation, permitting them to hone their skills, gain confidence and test the operation and function of the radio equipment. Fifty-seven CERT members took part in the training in just the first three months it was available.

With fire contracts including the cities of Pacific Grove and Carmel, Monterey CERT has also recently begun working on a more regional level. “Mother Nature and man-made disasters do not recognize political boundaries,” McFaddan said. “We are testing our operational radio abilities regionally to advise and guide our neighbors in communicating as a single team.”

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Noelle Knell, Managing Editor
Never Say You’re Ready

If you are responsible for an emergency management or business continuity program, the question is sure to come up, typically when there’s a disaster that makes the news and the type of hazard is “transferable” to where you are. That is, you have a similar known hazard for your location. The question can come from your boss, elected officials or the media.

The question? Are we ready? Or are you ready? This question strikes at the heart of being an emergency manager: You are being paid to make sure your department, unit or office is doing what it takes for your organization to be ready for any disaster. To say that you are not ready raises the question, “Well, what have you been doing?”

To say that “you are ready” or “born ready” sends the wrong idea to people receiving the message. In today’s society, everyone wants to shift responsibility to someone else for action. A message of “we’re ready” tells others that they don’t have to do anything to prepare because someone else has it covered for them.

So I suggest that you use one or both of the messages below:

1. Talk about everything that has been done, is being done and what’s planned for the future in being able to mitigate, prevent, prepare for, respond to and recover from a disaster. Itemizing your activities shows that you’re not just sitting around waiting for the disaster to occur. It can build confidence in your bosses about your abilities and in the public that you are actively preparing for the next disaster.

2. A community or region is never prepared based on the actions of one individual or agency. It takes everyone doing their part to become prepared for a disaster. Government has a role to play, as do schools, hospitals, businesses, families and individuals.

There can be intense pressure from elected officials to send the message that “we are ready.” The messages I provided above can help manage expectations for the people who are listening. People want us to be able to wave a magic wand and make it all better. Unfortunately Santa Claus is not real and neither is disaster resilience without everyone doing their part.
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Making Sandbags Obsolete?

Stocking up on sandbags has been the response to potential hurricanes, flash floods and abundant rain, but with RIBSCage Emergency Kits by Landmark Earth Solutions, sandbags — and the hard labor associated with them — may become a thing of the past.

The emergency kits include 10 50-foot sections of heavy-duty woven polypropylene-coated fabric bags available in 3, 4 or 6 feet in height, and two installation cages (RIBSCages) that hold the trapezoidal bags open and help funnel sand or dirt into them.

The technology behind trapezoidal RIBS bags produces barriers that become stronger as water rises. The resulting stable base resists sliding and rotational forces. The non-wire frame of the RIBS bags allows them to take the shape of the ground, increasing the barrier’s footprint. www.erosion-management.com

Oral I.V.

The Maricopa County, Ariz., Sheriff’s Office has implemented the ORAL I.V. hydration aid product across multiple specialty units.

ORAL I.V. is a hydration aid product based on a proprietary formula of crystallized electrolytes in purified water. ORAL I.V. is intended to assist an individual’s existing hydration strategy and can be used along with water in any environment, condition or situation where physical exertion or the possibility of dehydration exists. The product is packaged in lightweight, individual 15 mL vials so it can easily be included in tactical kits. www.oraliv.com

ALERT SENSE

The AlertSense system is hosted on multiple, redundant, independent, secure, tier 3 Premium Verizon data centers. It has been tested conformance to the Common Alerting Protocol 1.2 and the Integrated Public Alert and Warning System (IPAWS) CAP Profile by the National Incident Management System’s Preparedness Technology Analysis and Coordination Center. It is also listed as a tested conformant product on the Responder Knowledge Database. AlertSense tailors itself to an organization’s IPAWS permission set. It also presents users’ authorized capabilities with buttons and drop-downs that help an alert writer build IPAWS-compatible alert content for any combination of dissemination channels within a single alert message, including email, text messages, warning systems and posting to public websites. It was selected “Best in Class” by the National Joint Powers Alliance. Agencies can use the alliance’s contract purchasing vehicle to procure the AlertSense IPAWS Bundle or the full suite of notification services. www.alertsense.com
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IPAWS Is Just the First Step

EMA’s acronym IPAWS (short for the Integrated Public Alert and Warning System) is a wonderfully descriptive name for the goal of the now-dormant Partnership for Public Warning’s decade-old call for a national public warning strategy for the United States. The current implementation of FEMA IPAWS, important as it is, is just a first step on a long road to create a coherent, orchestrated, unified national public warning strategy.

This strategy must provide training for all warning stakeholders (and the public) and mandates close cooperation and coordination between all viable public warning modes to provide for better, more effective outcomes. While we hope for national legislation and guidance, the states do not have to wait. We should all work together to put the diverse pieces of the emergency public information puzzle together in an overall strategy.

This means that those in charge of managing emergencies involving mass public safety will, as a core resource management duty and responsibility, coordinate a series of origination and follow-up messages that now employ a growing number of warning systems and social media platforms.

The entire series of warnings and updates issued by emergency management agencies should tell the unfolding story of the emergency to the public and other interested parties, as well as provide those impacted by the event with timely and informative protective actions they should take.

Coordination of emergency public information is now more important than ever since some of the new means to distribute warnings are “short form.” Twitter allows just 140 characters. Wireless Emergency Alert messages (formerly the Commercial Mobile Alert System) can contain 90 characters. Sirens are one-note warning systems.

It should be obvious that these forms are really warning headlines that require more information before people at risk are motivated to take action and have enough information to know what actions to take. There are exceptions. In the case of a Wireless Emergency Alert or Twitter message about an impending tornado or flash flood, those at risk may have already received enough prior information and education on what to do.

Because of such training and education for risks like tornadoes and hurricanes, most citizens at risk from those hazards are sufficiently motivated by past local events to take protective actions to protect themselves and their property in time to make a difference.

However, consider the almost infinite number of risks and regions where the public has received little or no training on what to do when it receives a short-form warning. The American public needs to receive more coordinated and timely follow-up information through the Emergency Alert System and other “long-form” sources so they can protect themselves.

My state, California, has been a leader in the training of emergency managers, including public information officers. Overall emergency public information training needs to be updated for even better warning coordination. States, notably Washington, are integrating warnings more closely with overall emergency management. All 50 states need to get on board.

By Richard Rudman
Know the Situation

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