inside:
Collaborating to protect critical infrastructure
A conversation with Matt Bettenhausen

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Large-scale emergencies—floods, earthquakes, hurricanes, wildfires, terrorist attacks—are multifaceted events that impact tens of thousands of lives. Response to these major incidents involves multiple agencies. The key to a successful response—to get people, equipment, and supplies where they are needed as quickly as possible—is establishing a communication network that provides a complete picture of what’s happening in real time. It also requires bringing together all necessary parties, from private entities to city, county, and federal agencies, to share information and resources and work in an effective, integrated fashion.

The Indiana Department of Homeland Security (IDHS) embarked on an ambitious campaign that provides just such a communication network based on server, desktop, and Web geographic information system (GIS) technologies. It provides a two-way stream of information flow among local, county, state, and federal agencies that is vital to disaster response.

“We wanted to leverage resources already in place with other state agencies and in the universities across the state,” says Roger Koelpin, GIS/critical infrastructure planner, IDHS. “We are able to work with those partners as resources for our internal disaster recovery strategy and continuity of operations planning. Ultimately, we hope to turn this into a viable process for bottom-up reporting of data to meet federal data calls and keep our federal partners informed as part of our routine, authoritative, common operating picture.”

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The enterprise disaster response system provides several functions. First, it can be used for mitigation, with state agencies identifying high-risk populations, infrastructure, natural resources, and other assets. Second, it can provide instant response capabilities. When a disaster strikes, real-time situational awareness can be achieved. Using GIS, commanders can make quick decisions on where to send law enforcement, fire personnel, emergency medical services staff, and other responders. They can instantly see available resources, prioritize activities, and monitor events in real time. This capability also helps with long-term recovery.

A major component of the system comes from Indiana University partners, who are already using GIS and related technologies to publish IndianaMap, a singular, statewide geospatial resource for Indiana that includes a wide variety of information in a format accessible to both expert GIS users and the general public. The strategy of working with universities allows IDHS to leverage the databases and tools these academic institutions use in their individual GIS work. It also provides a decentralized information network that can supply data and applications should state government information systems be disrupted or become inaccessible.
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In the News

right, however, in concluding that the severity of the fires has a significant human contributing factor. Here is how it goes: A number of years ago the environmentalists told us that the fuel load increased significantly and truly devastating fires followed. The environmentalists (as called) solution: “It is too dangerous for people to live or rebuild here.” When are we going to stop listening to the idiots who got us into this mess in the first place? What is needed is a return to the sane management of vegetation. The real idiots are those who continue to build practices. Refusing to acknowledge formation, development and safe building practices. Refusing to acknowledge climate change or the new codes that California or the new International Urban Wildland Interface Code provides a lot of good and helpful information to manage the risk. The real idiots are those who continue to think, build and act on the same old ways that have failed. The new International Urban Wildland Interface Code provides a list of good and helpful information to manage the risk.

— FIREGUY ON JAN. 11

Reader Feedback

Web comments in response to the article Hell on Earth in the November/December 2009 issue. Your article uses “global warming” as an explanation. That explanation lacks validity, since the earth has been cooling—not warming during the past decade. You are right, however, in concluding that the severity of the fires has a significant human contributing factor. Here is how it goes: A number of years ago the environmentalists told us that the fuel load increased significantly and truly devastating fires followed. The environmentalists (as called) solution: “It is too dangerous for people to live or rebuild here.” When are we going to stop listening to the idiots who got us into this mess in the first place? What is needed is a return to the sane management of vegetation.

— NONSENSE ON JAN. 5

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2010 National Hurricane Conference
Orlando, Fla.
The primary goal of the National Hurricane Conference is to improve hurricane preparedness, response, recovery and mitigation to save lives and property in the United States.

All-Hazards, All-Stakeholders Summit
San Francisco
Hyatt Regency Embarcadero Center
San Francisco, CA 94111
The All-Hazards, All-Stakeholders Summit will address the natural and man-made hazards facing the San Francisco area and address best practices in preparing for and mitigating these crises. Program: 9 a.m. – 1 p.m. Contact: Liese Brunner, lbrunner@govtech.com

All-Hazards, All-Stakeholders Summit
Seattle
The Westin Seattle
1900 5th Ave.
Seattle, WA 98101
The All Hazards, All-Stakeholders Summit will address the natural and man-made hazards facing the Seattle area and address best practices in preparing for and mitigating these crises. Program: 9 a.m. – 1 p.m. Contact: Liese Brunner, lbrunner@govtech.com

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While always important to local and national security, as well as business continuity, critical infrastructure protection has been reaffirmed during the past decade. Protecting the nation’s interconnected infrastructure was given national attention in 1998, when President Bill Clinton issued a directive that recognized certain infrastructure as being critical to national and economic security.

President George W. Bush broadened critical infrastructure’s definition within the Patriot Act of 2001, which contains the U.S. Department of Homeland Security’s (DHS) current definition of critical infrastructure: “Critical infrastructure are the assets, systems and networks, whether physical or virtual, so vital to the United States that their incapacitation or destruction would have a debilitating effect on security, national economic security, public health or safety, or any combination thereof.”

Although the nation’s focus on critical infrastructure was heightened after 9/11, it remains — and will continue to remain — at the forefront of emergency managers’ minds.

A 2006 posting from the U.S. Fire Administration said it wasn’t too long ago that citizens hadn’t heard of the words “critical infrastructure protection.” According to the administration’s Web site, “The urgent call for the protection of critical infrastructures began on [Sept. 11, 2001], when leaders of government and industry as well as millions of private citizens were awakened from their slumber of national safety and security.”

This issue of Emergency Management addresses two aspects of critical infrastructure protection: determining vulnerabilities and planning.

The Next Katrina follows the Center for Catastrophic Risk Management, which thoroughly examined California’s Sacramento-San Joaquin River Delta and found that it may be the most at-risk property in the United States. The delta covers more than 700 square miles and has 1,100 miles of levees that are more than 100 years old. The center looked at the delta system — which provides drinking water to 22 million Californians — its interconnected infrastructures, and how they relate to one another. There’s a multitude of stakeholders, and determining who’s responsible for which aspects just adds to the list of issues.

The DHS’ National Infrastructure Protection Plan of 2009 said, “Direct terrorist attacks and natural, man-made or technological hazards could produce catastrophic losses in terms of human casualties, property destruction and economic effects, as well as profound damage to public morale and confidence.” According to the national plan, the primary role for state, local, tribal and territorial governments is to develop and implement a critical infrastructure and key resources (CIKR) protection program in accordance with its risk-management framework. This includes identifying assets, systems and networks, assessing risks and prioritizing.

That’s what five counties in the Pacific Northwest joined forces to do. Vital Organs is about the counties’ collaboration to develop the Portland/Vancouver Urban Area Critical Infrastructure Protection Plan. The counties wanted to determine how their CIKR were interconnected and to create a master plan that outlines which CIKR are most vital — and therefore, take priority when it comes to funding.

Although the nation’s focus on critical infrastructure was heightened after 9/11, it remains — and will continue to remain — at the forefront of emergency managers’ minds.
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In the News

An October 2009 blast at an oil refinery near San Juan, Puerto Rico, was equivalent in strength to a magnitude 2.8 earthquake and forced the evacuation of 1,500 people in four nearby towns, according to BBC News. No one was killed, but the explosion caused an inferno at the Caribbean Petroleum Corp., which took hours to extinguish. It also damaged or destroyed 17 tanks, some containing jet fuel and bunker fuel, which is used by ships.

The U.S. Federal Aviation Administration diverted plane traffic from the area because of the billowing smoke, and some prisoners at a high-security facility had to be moved across the island.

Photo courtesy of Yuisa Rios/FEMA
IN 2006 CONGRESS PASSED THE WARN ACT, which called for the creation of a comprehensive emergency notification network that would expand the Emergency Alert System to provide geographically targeted alerts to wireless phones, Web browsers and other devices.

The FCC and FEMA have taken the next step in the development of the Commercial Mobile Alert System (CMAS), the component of the Integrated Public Alert and Warning System that will send emergency alerts to residents' cell phones without requiring them to subscribe with an agency. On Dec. 7, design specifications were released for wireless carriers to start building the interfaces between their networks and a message aggregation system the federal government plans to build. The federal aggregation system will collect and authenticate the messages from states and localities before pushing them out to cell phones located in the impacted area.

"The major benefit for emergency managers is knowing in advance that the public is going to be given fair warning to, say, for example, adverse weather — such as a hurricane or flooding in a particular area," said Robert Kenny, a spokesman for the FCC's Public Safety and Homeland Security Bureau. "So there are some assurances, at least from an emergency management standpoint, that the public has been informed in multiple ways."

CMAS is expected to be operational in February 2012.

Earthquake Detection System Uses Twitter

A GRADUATE STUDENT from the Colorado School of Mines and seismologists with the U.S. Geological Survey (USGS) are developing the Twitter Earthquake Detector (TED) system, which uses the microblogging service Twitter to track earthquakes.

TED provides the locations of people who feel the earthquake within a minute of the earthquake's detection by the USGS and provides short, firsthand accounts of its effects that were broadcast on Twitter.

The system uses an application programming interface that aggregates tweets based on keywords — like "earthquake" — into a database. Then the USGS generates an e-mail report containing the magnitude, location, depth below the surface, number of tweets about the earthquake broken down by their location, and text of the first 40 or 50 tweets.
12 Percent of Agencies Are Staffed to Handle a Major Crisis

A survey of 701 emergency management decision-makers found that 67 percent of them say their staffing levels are sufficient to handle daily operations, but just 12 percent said they’re staffed to handle daily operations and major incidents.

Other statistics from the 2009 Emergency Management Challenges Survey:

- 64 percent of respondents cited resource constraints as the biggest problem their agency faces in handling major incidents.
- 24 percent of respondents said they’re fully interoperable with federal, state, and local governments and nongovernmental response organizations.
- Almost 30 percent of departments/jurisdictions get static displays of recent incident data, weather, news feeds, and operations center logs and contacts. However, only 8 percent of the respondents have given their responders real-time access to the information.

New York Tests Alerts Over Online Game Networks

To expand the ways in which New Yorkers receive alerts about disasters and emergencies, the state is working with Microsoft, Sony and Nintendo — the makers of Xbox, PlayStation and Wii, respectively — to broadcast alerts over the vendors’ online gaming networks.

In January 2009, Microsoft announced that its online gaming community, Xbox Live, had reached more than 17 million members. To provide the society of online gamers with a way to receive emergency alerts that don’t force them to quit their games, New York is considering an option for people to include gaming networks as a way to get emergency alerts from NY-Alert.

“We’ve been working with the vendors because we know there are a lot of people in the society — and not just necessarily adolescents or teenagers,” said Dennis Michalski, spokesperson for the New York State Emergency Management Office.

NY-Alert is the state’s free, subscription-based alert and notification system. It’s a Web-based portal that lets state agencies, local governments, emergency service agencies, and institutions of higher learning provide emergency information to a defined audience. Michalski said sending alerts via online gaming communities is being beta tested, but the state hopes to launch the option in early 2010.
Fire season has become a yearlong event in California and takes up enormous resources. Must we readdress the way we approach wildfires here? I think so. You’re right in terms of historical fire season, as the governor frequently refers to it, because we really don’t have a fire season anymore. It’s a year-long possibility and reality that we’re now facing here in California. We’re doing a lot in government to beef up our mutual-aid system and the ability to respond to it, but there are changes happening here in California in the climate. We’re in the third year of a drought. We obviously have water problems that the governor is repeatedly asking the Legislature to assist him with. We have to look at how we go about looking at all hazards: where we build, what we require people to do.

There’s some controversy about when to evacuate during a fire and whether to let occupants stay and defend. Is it bad policy to allow residents to stay and defend? Different incidents require different responses. We had a raging fire that happened in Auburn while the Station Fire was going on. It just blew up very quickly. It was moving fast. We had a nursing home that was in the path of this. Within 25 minutes, this thing went up and destroyed 63 homes, multiple businesses. The firefighters looking at the situation said, “We are best to keep people in this nursing home and defend this position, and we’re going to be able to do it and not evacuate.” So there are individual calls you need to make.

Sometimes, you start evacuating people and you send them into the plume in a car that is going to be blowing the dangerous things at you. So that is why we need people to prepare at home, to be able to stay there. You look at what Australia has done in terms of stay and defend — we look at these things and work with homeowners, and a lot of people make the investments to have their own water systems and have defensible space. People working to have defensible space and to be able to defend their homes is a good thing. But the bottom line is there should be no dispute or controversy that when the most experienced fire professionals in the world make the call that this needs to be evacuated, we need people to cooperate. We had folks in the Station Fire who thought they could stay and go into a hot tub, but got horribly burned. We put firefighters at risk who want to go in and try to save them. It’s not just the personal thing; you’re putting our first responders and firefighters at risk by not following directions.

California’s mutual-aid system is a beacon for the rest of the country, but there are concerns with maintaining the current level of efficiency. Can you address those?

Part of it is that we now have a yearlong fire season, so the demand is greater. The intensity, the number of fires has changed and is not going to go back. The other thing is the tight budget situation has put pressure on our mutual-aid system. We’ve had a statewide master mutual-aid system since the 1950s. Some states still don’t have it. So we’ve built on that and we have it, but we’re risking preserving it and it falling backward.

The mutual aid is “all for one and one for all,” and locals are willing to come to their neighbor’s assistance. But to do that, there’s a cost. They have to pay to help their neighbor. But with the tight budget situation, with the number of fires that we have, this is putting increasing pressures on departments.

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Cedar Fire in San Diego. He ordered a blue-ribbon task force to review what we need and how we can improve. One thing it recommended was an additional 130 fire engines for our agencies. He’s been unsuccessful with that. When we did computer modeling in 2008 (on a predicted major earthquake) we found it’s going to take a while without electricity. We can also survive without food, but we’re not going to survive very long without water. From an emergency response capability, water is one of the hardest things to transport and distribute. It’s heavy, it’s bulky — it’s hard to do — and in an earthquake, you’re going to have broken infrastructure. So this is the importance of people having that water at home, stored and ready to use.

But it’s a broader issue for the state. We have most of our population in Southern California dependent on the Sacramento River Delta for their drinking water. Our agriculture industry, our No. 1 industry in California, is dependent on the water from that delta system. The difficulty for California has been that generations have not continued to make the kind of investments in building up and protecting that water infrastructure.

The levees we have in many cases are more than 100 years old. They were not built for protecting the kind of infrastructure people are living in behind them. When you talk about the delta, if an earthquake happens and the levees let loose, what happens to the entire water infrastructure here in Northern California is that water drains out. Then it sucks the ocean water into the delta. So you’re going to, in a sense, poison for human use all of that water in the delta that serves all of California.

Eight years after 9/11, are we still vigilant enough in terms of homeland security? I think that is always a challenge. There are phases and minuses to it. It’s one of the things that makes America great. We’re a resilient nation. We can get knocked down, we can get hit, but you know what? We’re going to dust ourselves off and move on. That kind of resiliency is important. But with that resiliency can come the problem of complacency. You have people who are getting older who were [very young] when 9/11 [happened] and don’t understand this culture of prevention and preparedness. The risks are very real. When we look at terrorism prevention, everybody has their role to play. See something, say something.

Major Player

You have people who are getting older who were [very young] when 9/11 [happened] and don’t understand this culture of prevention and preparedness. The risks are very real. When we look at terrorism prevention, everybody has their role to play. See something, say something.
The Geospatial Information & Technology Association (GITA) has created this unique forum to address the application of mapping technologies such as GIS, GPS, and remote sensing to emergency and disaster response. In 2010, the symposium will once again bring together the worlds of emergency response and planning and geospatial technology April 25-29 in Phoenix, Arizona.

Register and view the program now at gita.org/ers
A federal judge ruled in November 2009 that massive flooding during Hurricane Katrina occurred because of failure on the part of the Army Corps of Engineers to maintain a navigation channel. The ruling was seen as another in a long line of failures on the part of the Corps to protect the people of New Orleans.

But to lay blame on one entity is ignoring the complexity of the problem, according to a group in California that studied the aftermath in New Orleans. The group sees some of the same complexities in its own backyard and fears that those factors could conspire to re-create the horror of Katrina, or worse, in California’s Sacramento-San Joaquin River Delta.

After analyzing Katrina’s aftermath, the University of California (UC), Berkeley’s Center for Catastrophic Risk Management turned its sights on the delta and embarked on a project that thoroughly examines its history, importance to California and vulnerabilities. After a year of GIS mapping and interviews with the multitude of players, the center confirmed what it thought: The delta is at risk. But it’s worse than that.

“Now we realize it may be the single most at-risk piece of property in the United States because the delta water alone that’s going through there basically fuels (more than) 22 million Californians,” said John Radke, a professor at UC Berkeley’s Department of City and Regional Planning. “If you had a catastrophic event there and you can’t get things built, you won’t just have people unable to go across a bridge, you’ll have people without drinking water — 22 million of them.

“I don’t think they like us going around saying that, especially homeland security,” he said, “because nobody really wants to know how at-risk we are.”

The delta consists of a confluence of the Sacramento and San Joaquin rivers, forming the largest estuary on the West Coast. It’s a patchwork of nearly 61 islands and tracts surrounded by channels and sloughs, covering more than 700 square miles. And it’s a vital link in California’s water-delivery system.

Multiple studies have concluded that the delta is at risk and offer quantifiable remedies like patching a levee. But this latest project looks at the system and its interconnected infrastructures, how they relate to one another, and seeks answers for a holistic approach to protecting the delta and California from becoming the next Katrina.

A major breach in a levee, that couldn’t be fixed quickly, would flood populated areas with cold water, possibly causing more death than Katrina, where the water was warmer. “There’s a huge difference,” Radke said. “Here, if you had a catastrophic flood, people would be in 47-degree water. They’ll last less than 20 minutes, then they’d die of hypothermia.”

On top of that, a major breach could reverse water flows, causing fresh water to subside and allowing ocean water to push its way further into the estuary, possibly destroying the whole river system.
"The combination of a Sacramento Delta failure where you'd have an earthquake followed by a flood where you're sort of left powerless, not in terms of electricity, but you're fighting everything at the same time and you can't even get there," said Gerry Galloway, noted civil engineer and former brigadier general, who was assigned by the White House to lead a committee assessing the Great Flood of 1993. "It's impossible to anticipate how bad that would be."

Galloway said in New Orleans in 2005 nobody could get to the sites of the levee breaches because they couldn't get from one side of the city to the other. "Because the roads had not been designed for this sort of cross-city transit."

**Laying Blame in New Orleans**

The Center for Catastrophic Risk Management, funded by a National Science Foundation grant, analyzed the New Orleans area shortly after the hurricane hit, before the evidence was gone. What it found changed the way researchers perceived the unfolding of the catastrophe.

"I was angry after Katrina. Why couldn't they do that? Why couldn't they do that?" the center's Radke said. "I'm not angry anymore. Wow, I'm amazed they did anything given how complex it was."

The center also saw alarming similarities in the Sacramento-San Joaquin River Delta, and embarked on a project to study the delta and all its complicated parts. The group's researchers say it's no wonder that Katrina happened as it did considering all the variables, the multitude of stakeholders and the lack of coordination among them.

"If you look at New Orleans, I don't think anybody messed up," Radke said. "Agencies get developed, people get good at what they do but they don't coordinate very well, and they don't really understand the impact of what they do on others. People made good decisions, but the decisions were based on bad information or their lack of knowledge to react in the field in a gallant or noble way."

For instance, there are parts of the levees in New Orleans, overseen by independent levee boards, that didn't adjoin properly and those were never fixed because the boards didn't collaborate. The group found that other layers of the system were built and managed differently from each other. The navigation channel was managed differently from the levee system, houses and roads were built, and each layer of development had shortcomings in terms of flood management. The whole package added up to what was termed a "chokepoint"—an area with multiple weaknesses, managed by different entities that didn't collaborate, which facilitated multiple system failure.

"In essence, the whole levee system is not a coherent design," said the center's Howard Foster, an analyst at UC Berkeley's Geographic Information Science Center. "It's a history of various efforts done by various groups of people at different times to different standards. The historical way in which these systems came about was completely underappreciated."

**Similarities in the Delta**

There are similarities in the way California's Sacramento River Delta developed. Farmers started building the levees more than 100 years ago to protect crops. The construction of the levees was an unscientific conglomeration of dirt and whatever else was available for farmers to throw into the pile. They added on as necessary for the years went by. Now there are 1,100 miles of levees in the area that are 100 or more years old, the quality of which is suspect.

"They did it for 100 years and now you have subsidence, which means the land is going down farther and farther and all they did was continue to patch it," Radke said. "Nobody has any idea of the stability of that levee."

There are five operational area managers from five counties who oversee delta levees and have worked together on policy issues. But they've kept that collaboration at the local level. State officials say those policies would dovetail with state policies and they'd like to have the locals at the table to combine strategies. That collaboration is critical to an effective response to a catastrophic event and needs to take place.

The delta levees are weak in places, some known, some surely unknown. There have been more than 160 levee breaches since 1900, including one in 2004 in an area called Jones Tract, where on a sunny day, part of the levee inexplicably gave way, drowning 12,153 acres of farmland and causing $100 million in damage.
The breach at Jones Tract was relatively small. And that’s alarming when you consider a report by the U.S. Geological Survey that found a 63 percent probability that the San Francisco Bay Area would experience a magnitude 6.7 or greater earthquake within the next 25 years.

An earthquake is one of the dangers. Another is seepage brought about by the various materials with which the levees are constructed. Yet another is the levees’ height — many aren’t high enough. All of these could be compounded by climate change, which would produce rainfall and runoff earlier, warmer springs, leading to more runoff.

The delta comprises hundreds of square miles of levees, more levees than the rest of the United States combined, many of which are weak and some located near major roadways and power, telecommunication and gas lines. A failure of one of these infrastructures could affect one or more of another one.

Mapping Chokepoints

One goal of the center’s project is to discover and quantify probabilities of failure. The group is using GIS to map the many “layers” of data that might contribute to an area becoming a chokepoint. “If we’re going to predict catastrophic failure, where the ignition might be, we need to be able to predict the probability of a catastrophic event starting — levee break-prone areas, earthquake-prone areas — and we have to be aware of how that catastrophe might spread,” Radke said.

That means identifying interdependencies between agencies or interconnected infrastructures.

“We went out and gathered about 2,500 layers of data — one might be the electric grid, another might be the transportation highway system, gas, ecological, etc.,” he said. “We’re trying to understand what layers are critical, what layers are redundant and the quality of those layers.”

What they’re trying to measure, Radke said, is the “intensity” of where infrastructure is located in space, and their interdependencies on one another — chokepoints. “If you get that wrong, you could be making some big mistakes when planning for emergency response,” he said.

Sherman Island is an example of a chokepoint. It’s at the confluence of the Sacramento and San Joaquin rivers and located less than two miles from the city of Antioch close to the populous (nearly 7 million people) San Francisco Bay Area. It’s the meeting point of Sacramento, Solano and Contra Costa counties.

“The center has pinpointed Sherman Island as a chokepoint that includes a major thoroughfare (Highway 160), crucial regional power lines for the Pacific Gas and Electric Co. (PG&E) and the Western Area Power Administration, under which lie major natural gas lines that run from the United States to Canada. These are what the center describes as ‘interconnected critical infrastructure systems.’

All these infrastructures are managed well by their respective entities, but those entities don’t look at management from a system level and they don’t communicate as they should,” said the center’s Emery Roe, lecturer for Public Affairs and Administration Program at California State University, East Bay. “It’s not surprising that some infrastructures are more important than others. When electricity and telecommunications fail, it’s a big whammy on the rest. It makes emergency response harder, financial services begin to collapse and so on.”

The center praised the ability of California’s first responders to manage a catastrophe, but questioned whether the critical infrastructure “owners” can coordinate and plan to prevent one hazardous situation from becoming a catastrophe for much of the state. “We’re asking: Is there interagency cooperation, coordination between the physical infrastructures...
Delving Into the Delta

Some key points about the delta and its importance to California:

- The delta receives runoff from more than 40 percent of California’s land area. Major rivers that drain the state’s Central Valley — including the Sacramento, San Joaquin, Calaveras, Cosumnes and Mokelumne — eventually meet and flow through the delta on their way to the Pacific Ocean.

- The delta supports more than 80 percent of the states commercial salmon fisheries, as well as 250 distinct species of plants and wildlife.

- It’s a key source of water for 23 million Californians and more than 7 million acres of farmland.

- The delta includes more than 730,000 acres of farmland and wildlife habitat.

- About two-thirds of delta islands and tracts are below sea level.

- The delta relies on more than 1,100 miles of levees — many of which were built more than a century ago — to keep islands and tracts dry and protect other key infrastructure from floods and high tides.

- Delta levees protect more than 520,000 acres of farmland, three state highways, a railroad, natural gas and electric transmission facilities, and aqueducts serving water to parts of the San Francisco Bay Area.

- Delta levees help safeguard the lives and personal property of more than 650,000 people living in nearby towns and cities. Some delta towns are among the fastest growing areas in the state.

- Two of California’s biggest water projects — the State Water Project and the federal Central Valley Project — rely on the delta to convey water from Northern California rivers to project pumping facilities in the southern delta.

- Delta levees play a critical role in preventing salty water from the San Francisco Bay from intruding into critical parts of the delta and contaminating the fresh water that supplies communities and farms.

- Most delta levees are maintained by local agencies, such as reclamation and levee districts.

Source: Association of California Water Agencies

The Wary Stakeholders

The DWR is working toward breaking down some of the long-standing barriers between the stakeholders related to the delta and burnishing the message that it’s worth working with them.

“When you actually reach out to talk to some of the farmers, they’re frustrated because our agency provides water as well as flood response, and they assume when I walk into the room that my end game is water to Southern California,” Croyle said. “That’s not my job. I’m supposed to respond to any and all flood responses throughout the state. The delta is a critical piece of the whole state.”

Like the farmers, some of the other key players in the whole interconnected infrastructure realm operate in stovepipes or are a bit wary of outsiders. “We haven’t actually talked to the gas main people and the railroad people are a little bit off to the side and seem to be, we’ve heard, monitoring our discussions,” Croyle said.

Along with trying to locate more chokepoints, the center is attempting to interview some of what it calls the “real-time” workers, those who work daily in the field and might understand the vulnerabilities of the infrastructure better than the policymakers.

Croyle acknowledged that there are people with knowledge who aren’t being heard. “The fear is that you miss somebody who’s been around forever, who has some great ideas or a perspective we haven’t thought about, but we haven’t provided a forum that is comfortable for them to engage us.”

Some of the different agencies are concerned about who will get resources first in case of a disaster. There are only so many barges and cranes to go around and those need to be allocated to the areas with the greatest need, regardless of who has a contract with whom, Croyle said.

And he said some don’t understand the magnitude of a delta disaster if a major earthquake were to occur or a major levee to breach and what it would mean for the state.

“I’m a little concerned that they don’t actually fully appreciate that if this happens, this is going to be a Katrina-type response,” Croyle said. “Everybody in the world is going to be dropping into the delta.”

Since Katrina, and a lot of that money is going toward improving communications within the department and with other stakeholders. But making those improvements is a long, detailed process that involves working groups and a lot of reaching out.

“The major emphasis for our Delta Risk Reduction Project is really the major earthquake threat,” Croyle said. “It’s an interesting scenario because it does require all the parties that have resources — the environmental side, the infrastructure side — really need to be aware of what we are all doing. In other words, we need to know what the pipeline and railroad people are thinking.”

Those efforts by the DWR and California in general, though in their early stages, are praised by outside experts. The state’s FloodSAFE program paints a picture of the various risks, the different stakeholders, the various solutions each stakeholder can take and how they are all important toward a common goal.

“You’ve got to do all those things,” Galloway said. “California recognizes that you’re not going to solve all the problems by levee repairs. It’s a message in my view that they get it.”

The state allocated $550 million in 2006 for Central Valley repair projects and voters approved $372 million in bond issues for infrastructure improvements, including levee maintenance and repairs.

The levee repairs are an “emergency,” according to Jeffrey Mount, director of the Center for Watershed Sciences at UC Davis, and are akin to “patching an old tire.” The effort to protect Californians also will have to involve other measures, including setting aside land, such as farmland, to store water and limiting construction in flood-hazard areas, which are very difficult things to accomplish.

Compensating farmers for the land and convincing developers to build in areas that aren’t in danger of disastrous floods are two critical components that are difficult to carry out. Building a proposed Auburn Dam in the foothills above the delta would provide more flood control capacity — but would be difficult to accomplish politically, damaging to the environment and probably just too expensive.

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The nightmare scenario of a magnitude 9.0 earthquake and its potential to cause a tsunami is one threat among many that motivate emergency managers who live and work in the Pacific Northwest to continue planning and coordinating. The region’s proximity to the danger-filled Cascadia Subduction Zone — a fault that stretches from Northern California to mid-Vancouver Island — requires never-ending vigilance.

Because of the risk of earthquakes and other threats to critical infrastructure and key resources (CIKR) — terrorist attacks, industrial accidents and other natural disasters — five Portland, Ore.-area counties collaborated beginning in 2006 to assess and identify the region’s critical infrastructure. Man-made or natural threats to CIKR could significantly disrupt government and business functions, and produce cascading effects far beyond the targeted sector and incident's physical location, according to the U.S. Department of Homeland Security.
Critical infrastructure keeps communities and regions running — five counties in the Pacific Northwest collaborated to protect and prioritize their key resources.
“What we had determined early on — because we are a regionally networked area — there’s critical infrastructure that’s shared by all,” said Patty Rueter, Planning Division manager for the Portland Office of Emergency Management. “So we did some studies, collected information and determined that we really wanted to move forward as a group on analyzing the critical infrastructure within the region and understand how we work together.”

Creating a master plan for where money should be spent on CIKR was another driver for developing the plan. “Certainly an underlying desire was to create a blueprint that would give us some guidance about where would be most appropriate to spend money on infrastructure protection,” said Scott Porter, director of the Office of Consolidated Emergency Management for Washington County, Ore., and co-manager of the plan. “That motivated me locally within my own county and regionally to try to do something about that.”

The goals of the Portland/Vancouver Urban Area Critical Infrastructure Protection Plan (CIPP) were to:

- develop a definition for critical infrastructure specific to the five-county region;
- identify private and public critical infrastructure that met the regionally specific definition;
- develop a method to prioritize the region’s critical infrastructure, and
- identify existing standards for protection of each critical infrastructure sector that can be used for public- and private-sector planning.

The Portland/Vancouver area was defined as Oregon’s Multnomah, Washington, Clackamas and Columbia counties, and Clark County, Wash. The participating counties received funding through numerous programs to develop the CIPP, including the U.S. Department of Homeland Security’s Urban Areas Security Initiative grant program. The collaboration began in March 2006 and took about a year and a half to complete, Rueter said.

What’s Regionally Appropriate?

Understanding how the region’s CIKR interact and are interdependent was a critical step for the CIPP. To help bring the region’s CIKR sectors together, CH2M HILL was hired as the coordinating body to help set up the necessary processes for arriving at the desired outcomes. “The collaboration had to do with really identifying what the critical infrastructure was regionally rather than the city or the five counties saying, ‘This is what we consider critical,’ they actually wanted to reach out and involve as many stakeholders as they possibly could,” said Sandra Davis, lead facilitator and project designer.

A series of “interdependencies workshops” were held, which gathered groups of complementary CIKR agencies. For example, one workshop included dams, utilities and energy providers, and another joined transportation, shipping and military, Davis said. “We designed a process that allowed them to not only look at what was the most critical infrastructure within the region, but also how they related to each other,” she said.

Rueter said discussing how the assets interact brought to light how interconnected they are. “Natural gas [providers] are part of the transportation sector because they transport their fuel, and then they’re also part of the public utilities infrastructure because they have a pipeline,” she said. “It was very interesting to see how different infrastructure pieces fit themselves into different sectors.”

The first step in creating the region’s CIPP was to develop a regionally appropriate definition of CIKR. “The federal infrastructure and national definition were very vague and did not address everything we wanted to address within our region,” said Rueter, who also was co-manager of the CIPP. “There was systems and assets, whether physical or virtual, vital

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U.S. Department of Homeland Security:
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Portland/Vancouver Urban Area Critical Infrastructure Protection Plan:
Publicly and privately controlled systems and assets, including the human built and natural environments and human resources, essential to the sustained functions of the Portland/ Vancouver metropolitan areas. Such systems and assets specifically include those necessary to ensure continuity of security, safety, health and sanitation services, support the area’s economy, and/or maintain public confidence. Incapacitation or destruction of any of these systems or assets would have a debilitating impact on the area either directly, through interdependencies and/or through cascading effects.

Porter said in some cases they would follow up with the scorers to see if the ranking could be modified. To combat this issue, he recommends having a cross-sector team score the infrastructure to produce unbiased, consistent scores.

Comparing Apples to Oranges
Prioritizing infrastructure is a necessary but oftentimes difficult part of a CIPP — governments need to know which assets are the most important because those might need additional funding for protection or disaster preparedness.

Championing the Plan
Getting participation from all of the organizations — particularly from the private sector — proved to be one of the barriers to a complete CIPP. Porter said there were at least four sectors, including agriculture and financial, that didn’t provide the depth of participation he hoped for. Although they reached out to the Washington and Oregon state governments and other organizations to obtain information, he said it was difficult to find the representatives of the CIKR assets.

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Campus Emergency Preparedness
MARLON C. LYNCH, Associate Vice President for Safety and Security and Chief of Police, Office of Civic Engagement, University of Chicago

MASTER OF SCIENCE IN THREAT AND RESPONSE MANAGEMENT
The UNIVERSITY of CHICAGO
Graham School of General Studies

NO CAPES REQUIRED.
Burlington County, N.J., tests military communications technology that provides interoperability among emergency management workers.

Copy that. That is something first responders in Burlington County, N.J., can now say because they are able to communicate during catastrophes. In July 2008, the county’s Office of Emergency Management (OEM) began using military technology in its Emergency Operations Center to connect seamlessly with first-responding agencies during incidents. Using an integrated voice communications system (IVCS) — designed for use in the U.S. Navy’s nuclear submarines — OEM staff and emergency management crews with disparate communication devices and on different radio spectrums can speak with one another.

But that wasn’t always the case.

The Problem, the Solution Burlington County consists of 40 municipalities and is the largest county in New Jersey. Like many jurisdictions, it had communication barriers when responding to emergencies. And 9/11 and Hurricane Katrina impressed upon everyone that closing the gaps in communication must be a critical part of emergency response and recovery — those events were a wake-up call for the emergency response community. But with numerous factors that plague interoperability, such as balancing budgets, old technologies and spectrum disparities, how could the Burlington County OEM overcome these inadequacies and let emergency management agencies collaborate with one another to assist citizens?

The solution came from the MarCom communications system used by the USS Greeneville, a nuclear submarine that was dry docked for refurbishing. MarCom, developed by L-3 Communications, a Camden, N.J.-based company, uses off-the-shelf digital technology that facilitates communications by integrating different devices, making it more user-friendly and simple.

“This technology has streamlined a lot of things that other pieces of

Closing the Gap

By Karen Stewartson

68% of local fire and EMS agencies say funding is their No. 1 barrier to interoperability.

— Public-Safety Wireless Network
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"Victory at all costs, victory in spite of all terror, victory however long and hard the road may be; for without victory, there is no survival."
—Winston Churchill

"There is a mysterious cycle in human events. To some generations much is given. Of other generations much is expected. This generation of Americans has a rendezvous with destiny."
—Franklin Delano Roosevelt

"Freedom is never more than one generation away from extinction."
—Ronald Reagan
Technology and Trends

In the past, the OEM had a wait-and-see approach when emergencies occurred. But with the IVCS, staff members can monitor radio spectrums and receive alerts, as well as coordinate with other agencies. During a December 2009 snow incident, the OEM exercised a more proactive response, because staff didn’t have to wait for calls for help.

Miami Vice

Similar interoperability issues plagued Miami and again, the issue was brought to the fore after 9/11.

In 2002, the U.S. Coast Guard’s (USCG) Miami Command Center needed to put modern technology in its basic search-and-rescue coordination center. At the helm of that project was Capt. Gerald Bowe, who was then the chief of resources and technology for USCG District 7 and had served as the USCG’s chief of electronic systems. Bowe is now the operations manager of the Maritime Technology Program at the Borders and Maritime Security Division, had experience using MarCom and vouched for the system’s functionality.

"At the command center, you had a handset for each of the spectrums," said Bowe. "That in itself is a maintenance issue. It’s confusing."

But the IVCS changed that. "The MarCom allowed the command duty, search-and-rescue or law enforcement officer to pick up one handset and with the push of a button, have access to any of the spectrums that the command center had in place," said Bowe. "You could also net all of them together so you could talk to all of them at the same time."

Momentum for Interoperability

The system removes the piecemeal approach to interoperability, and decreases funding and standardization barriers. "This technology — and technology like this that allows you to take existing spectrum and integrate it, rather than trying to make everybody conform to one spectrum — is a more efficient, logical approach," Bowe said.

In Burlington, Tuno said only minor tweaks were made to ensure everything was operational at the OEM. He said the installation took approximately six weeks and staff needed minimal training, which was conducted by L-3.

The system would’ve cost the county $1 million, but that was absorbed by L-3 because the project is a pilot. In late 2009, Atlantic County, N.J., paid nearly $750,000 to acquire the MarCom system, which will create redundancy in its emergency response. The county felt that it would be more cost-effective than replacing legacy technologies and resolving governance issues — a sentiment shared in the emergency response community.

"We have a tendency to want everybody to be able to talk to each other, but everybody has different needs," Bowe said. "You’re never going to go and replace everything [radios] out there."

And perhaps soon, this interoperability will diffuse throughout New Jersey. L-3 is working with New Jersey to create statewide emergency communications. And Miami’s Bowe said he hopes to push the technology at the local level, so officials can be more in control of situations.

Why Can’t We Talk?

Many factors hinder communication, the emergency response community identified the following as interoperability plagues:

- System Mode
- System Architecture
- Human/Limitations
- Different Coverage Areas
- Inadequate Planning
- Political/Policy Issues
- Different Frequency Bands
- Funding Limitations

(Not a Problem to 5-Major Problem)
This free first-of-its-kind online training covers the development and maintenance of collaborative planning relationships, the sharing and tracking of information, patients, and resources, and examples of disaster preparedness and response via a large scenario case study.

Each of the four course modules will be approximately one hour in length and feature pre-filmed streaming video with synchronized transcript and slides. Additional materials will be available for download. Each participant will also be placed into a state-specific virtual community to foster increased collaboration.

This training will be available nationwide in early 2010. There will also be live Q&A sessions for each state, featuring a panel of subject matter experts from within each state who will address state-specific implementation of general ideas presented.

For more information, visit http://www.tinyurl.com/acep-cdp. For questions, contact Linda Becker at lbecker@acep.org.
Let's Meet at the MET
The Center for Homeland Defense and Security’s Mobile Education Team provides face time for emergency managers.

In 2002, the U.S. Navy Postgraduate School and the Department of Homeland Security (DHS) teamed to establish the Center for Homeland Defense and Security (CHDS). Out of that came the Mobile Education Team (MET), a resource helping the center’s mission of strengthening national security by providing educational programs and services to organizations that are responsible for homeland security.

The MET provides an executive-level, half-day seminar led by nationally recognized experts in fields related to homeland security. The program prepares a particular jurisdiction’s leadership to think through the many aspects of a major homeland security incident, and to evaluate their policies and procedures.

These seminars are done at the state, regional, urban area or city level, and can be conducted with pre-scripted scenarios that the team developed. Another option is that the MET can develop a seminar on a specific topic that the participating jurisdiction feels should be explored.

The MET is designed to include the jurisdiction’s CEO, all of his or her Cabinet-level leadership, top leadership from other agencies that would normally play a role in the scenario, and any additional participants that the leadership felt was necessary for success. The seminar isn’t a lecture, but rather a scenario-based group discussion that relies on all the agency representatives’ participation to be successful.

Since the MET seminars (METS) began, the team has conducted 164 of them: 56 at the state government level, six at the regional level, 34 urban-area events, 12 city and 54 topical seminars that deal with specific objectives.

The seminars concentrate on problems that the leadership will face during a homeland security crisis — helping everyone prepare for strategic planning challenges and driving policy development and organizational design. The MET members facilitate discussion in order to keep everyone engaged and thinking about the problems they would face and potential solutions that could be implemented.

Why Conduct a MET Seminar?
Unlike traditional tabletop exercises, the MET seminars encourage participants to think strategically about challenges, as well as the policies they can implement to better impact and mitigate future risks. “The benefit gained by conducting a seminar is to enhance executive-level understanding of homeland security responsibilities and to improve overall homeland security preparedness,” McKinney said. Many of the jurisdictions that have conducted METs have been “repeat customers,” which is proof of the seminar’s benefit: 31 jurisdictions have hosted multiple METs, including jurisdictional and topical seminars.

Boston is one repeat customer. The city has conducted two METs in the past two years — a...
terrorism-based scenario in June 2008 and another topical seminar in June 2009 that included some of Boston's largest employers, in a scenario to develop public-private partnerships and illustrate the importance of continuity-of-business and continuity-of-operations planning.

Among the employers that participated in the June 2009 MET were Target State Street, Boston Properties and Fidelity National. Other organizations included Partners Health Care, Northeastern University and the Red Cross of Massachusetts Bay.

"With the inclusion of our private-sector partners, we had representation from the city's largest employers and owners of our most critical infrastructure," said Don McGough, director of the Boston Mayor's Office of Emergency Preparedness. "They are vital to our efforts to make Boston a more resilient community."

What happens in a MET?

During a typical MET, the attendees work through a terrorism scenario in a roundtable format. The seminar takes the shape of a graduate-level discussion whose primary focus is on the challenges government faces in a catastrophe. The MET may begin with a discussion about managing risk and understanding the threat, and then the team challenges participants to form a picture of the threats the jurisdiction may face and the vulnerabilities to those threats. Identifying critical infrastructure and articulating current policies and procedures is examined, as well as intelligence gathering and prevention. The seminar ends with a response-and-recovery discussion and ideas for continuity of service and community resilience.

The MET members say that three key items make a MET successful:

- First is commitment from the CEO of the jurisdiction that's hosting the seminar. Leadership starts at the top, and if the boss thinks it's important enough to show up and participate, then participation from everyone else will follow. Additionally, the boss's engagement during the MET can break the ice and get discussion and ideas flowing, making the facilitator's job easier.

- Second, the willingness of the agencies represented to collaborate to enhance homeland security and freely express their ideas can greatly enhance the experience of all participants. Many times, in day-to-day operations, government agencies operate in a stovepipe within their own organizations and don't spend much time thinking about how to improve interoperability or operating procedures until an event happens that requires cooperation. Breaking out of the stovepipe and cooperating with counterparts in other agencies during exercises, such as a MET seminar, makes responders better prepared to work together in an emergency.

- Last, the ability to learn from the MET seminar is really where the rubber meets the road. Participants take the lessons and new information that was presented back to colleagues, and make changes that will improve the process in the future. Learning from the experience and cultivating and improving the relationships that we all need to be successful are important takeaways.

As of press time, four METS are scheduled for the first two months of 2010, and the education and training provided by the team continues to be in high demand.

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The U.S. Navy Postgraduate School shares its knowledge of homeland security preparedness with jurisdictions at the state and local levels.

The Naval Postgraduate School's Center for Homeland Defense and Security (CHDS), located in Monterey, Calif., offers self-study homeland security courses on its Web site. To learn more about them and the CHDS, visit www.chds.us.
Old Technology Blamed for Delayed Vaccines

Some cities and counties postponed mass clinics for H1N1 vaccinations.

By Elaine Pittman and Miriam Jones

The delay of H1N1 vaccines caused some localities to halt or postpone mass vaccination clinics, and even close their emergency operations centers (EOC) that were opened specifically for events that would vaccinate their at-risk populations.

U.S. Health and Human Services (HHS) Secretary Kathleen Sebelius said the federal government's goal was to have 160 million people vaccinated by the first week of December 2009, but only 69 million H1N1 vaccine doses were available or had been administered by that time. Sebelius told attendants at an American Medical Association meeting that technology is one of the impediments to creating new vaccines.

"We were fighting the 2009 H1N1 flu with vaccine technology from the 1950s," she said. "We could race to begin vaccine production, but there was nothing we could do if [the] vaccine grew slowly in eggs. We could make deals with foreign vaccine producers ahead of time, but we still wouldn't have as much control over the vaccine as if they were based in the U.S."

Sebelius also said at the meeting that the federal government has talked about updating vaccine technology for years. Action is being taken: In late November, a cell-based vaccination clinic was opened in North Carolina with support from the HHS.

"When this plant is up and running in 2011, it will be able to produce vaccine for a significant share of our population within six months of the onset of a pandemic," Sebelius said. "What's even more important is that this process will end our reliance on egg-based technology. That will allow the plant to produce vaccines faster and with no danger of egg-based allergies."

The HHS also will review how its policies affect vaccine development and production, and will strengthen its surveillance capability to prepare for future public health threats.

H1N1 at the Local Level

Cities and counties nationwide at first tried to vaccinate their at-risk populations — pregnant women, people between the ages of 6 months and 24 years old, and people with chronic health disorders or compromised immune systems — and even close their emergency operations centers (EOC) that were opened specifically for events that would vaccinate their at-risk populations.

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One-on-One

By Miriam Jones

Dr. Gilberto Chavez, state epidemiologist for the California Department of Public Health (CDPH) and chief of the Center for Infectious Diseases, says California has spent the past five years planning for a pandemic.

During a recent press conference on the H1N1 influenza in California, Center for Infectious Diseases Chief Dr. Gilberto Chavez addressed H1N1 and the state’s overall preparation for a pandemic. California expects to order 20 million doses of the H1N1 vaccine for the entire flu season, but as of early November 2009, the U.S. Centers for Disease Control and Prevention had only provided the state with 3.5 million nasal and injectable doses — the expected amount was 6.25 million doses by then. Chavez said California has spent the past five years planning for a pandemic and building mobile hospitals.

Here’s what Chavez said in a one-on-one interview about the H1N1 virus:

What’s the likelihood of H1N1 mutating, and will there need be adjustments to the vaccine? Would that add to vaccine production delays? The flu is being closely watched, and there’s no evidence yet if it mutating. There’s a system in place to monitor the genetics of H1N1 in the event that it does mutate. In California, we test specimens on a regular basis to see if there is any evidence of changes in antiviral susceptibility. We have not found any worrisome changes thus far.

What’s your recommendation for college campuses and other large organizations to mitigate the spread of H1N1? We know that there’s increased risk of infection at schools since students spend so much time in close proximity. The CDPH recently released guidance for colleges and universities. It’s designed for students in dorms and residence halls to deal with outbreaks in a school setting. One key for reducing the risk for outbreaks in college campuses is ensuring that students with a fever and respiratory symptoms stay away from others on campus. We need to emphasize good hygiene; frequent and thorough hand washing; covering of coughs and sneezes, avoiding touching eyes, nose and mouth; and very importantly, vaccination as the most effective means of prevention.

Could the number of sick individuals needing hospitalization cause a surge of patients that hospitals won’t be able to handle? We have an extensive process in California where we developed a structure for hospitals and local government to care for a surge in patients, in a way that they, for example, could free up beds for more urgent cases if needed. We continue to closely work with hospitals to monitor their surge capacity.

In case of a surge, do you think the capacity for mutual aid will diminish, and if so, what could be done to prevent that? In 2007, the state invested in medical supplies and antivirals for use in a pandemic. We are now distributing these supplies across the state as needed. In the event of a pandemic, mutual aid can be a challenge because responders are involved and may become victims of the pandemic. The challenge is to use our present assets wisely. The issue of having enough masks, respirators or beds is considerable. One of the things we can do — what we’re trying to do — is make sure that we signal those things and really get to the issue of conserving our strength.

At a recent Disaster Planning for Hospitals conference, you said there must be better communication between the public and private sectors to ensure the supply chain is sustained. How can we improve in that area? In the early stages, there was real miscommunication regarding guidance and reporting. Now there’s routine communication — with weekly calls with hospitals, clinics and counties — so that they all have the same information in a California context. We constantly review data for changes in race, population, etc., to better target the highest-risk groups. In October 2009, California made 25 million N95 respirators available from its stockpile. We’ve spent five years planning for a pandemic, stockpiling supplies like antivirals and masks to supplement the federal supply. We also created mobile hospitals.

Since response has to be long-term, is there a chance we could get complacent and then get hit when we don’t expect it? It’s an issue of being vigilant and looking at data regularly. We go to great lengths to collect data from the community, hospitals and patients to see what’s happening in the state. We know there’s more influenza in the community, but we know there’s also more efficiency. So that alerts us to the fact that we shouldn’t let our guard down and we really have an active way of appropriate response. And we — through surveillance — can actually know where there are ups and downs, and we’ll know how to respond according to the level of particular need.

Although the number of H1N1 cases in California has increased, pediatric and fatal cases have decreased, according to Dr. Gilberto Chavez, state epidemiologist in the California Department of Public Health (CDPH) and chief of the state’s Center for Infectious Diseases. “Although we’re seeing an increase in the number of cases overall, the level of severity of the virus is not changing,” he said. “It actually seems to be tempered a little bit in terms of mortality and the hospitalization of children.”

The original target groups for receiving the vaccine also included first responders, health-care workers and day-care workers. Chavez said the CDPH was working more with local health officials to determine target groups and ideal providers in their communities. The CDPH also is working with the California Hospital Association to review practices and improve infection control in hospitals.

“We share the public’s concern about vaccine availability,” he said. “Clearly we know that vaccination is the best prevention for influenza. We have done, I think, a very good job of informing people about the benefits of vaccines. We in public health would like to see everybody vaccinated as soon as possible. Unfortunately because of situations out of our control, there have been delays in vaccine production at the national level.”

Citizens must take personal responsibility and an active role in their health, Chavez said, restating the recommendations of hand washing, covering the nose and mouth when sneezing or coughing, and staying home when ill to avoid spreading the infection.
In December 2009, the U.S. Department of Homeland Security (DHS) released the fiscal 2010 grant application guidance kits for 13 DHS grant programs totaling more than $2.7 billion. The money provides state, local and tribal governments and private-sector entities funding to strengthen the nation's ability to prevent, protect, respond to and recover from terrorist attacks, major disasters and other emergencies.

The guidance has increased tribal funding, reduced administrative paperwork for state and local governments, and enabled local jurisdictions to use preparedness funding for ongoing maintenance contracts, warranties, repair or replacement costs, upgrades and user fees for equipment purchased with previous DHS grants, according to the DHS.

Total expenditures for the programs summed to $2.7 billion, down approximately 1 percent from fiscal 2009. Comparing 2009 and 2010 expenditures reveals where the DHS priorities lie and how they have changed since the last budget cycle.

The program with the largest percentage increase (more than $20 million) is the Emergency Operations Center (EOC) Grant Program with a 69 percent increase in funding. This program provides funding for construction or renovation of a state, local or tribal government's principal EOC. It's intended to improve emergency management and preparedness capabilities by supporting flexible, sustainable, secure and interoperable EOCs.

Key findings include:
The program with the largest real-dollar increase is the Urban Areas Security Initiative (UASI) with an increase of $33.9 million. The UASI program focuses on enhancing regional preparedness in major metropolitan areas and assists participating jurisdictions in developing integrated regional systems for prevention, protection, response and recovery.

The Port Security Grant Program (PSGP) saw the largest decrease in funding (from programs that receive more than $20 million, both in percentage and real-dollar terms). This program saw budget reductions of $100.6 million or 26 percent. The PSGP provides grant funding to port areas for the protection of critical port infrastructure from terrorism.

Other modest gains in funding include the Emergency Management Performance Grants Program (up $23.8 million or 8 percent) and the Regional Catastrophic Preparedness Grant Program (up $2.6 million or 8 percent).

The Tribal Homeland Security Grant Program, while relatively small, saw a potential 500 percent jump in funding from $1.7 million to “up to” $10 million. This program provides supplemental funding directly to eligible tribes to help strengthen the nation against risks associated with potential terrorist attacks.

DHS Preparedness Grant Programs (Fiscal 2009 vs. Fiscal 2010)

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<td>Port Security Grant Program</td>
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<td>Intercity Passenger Rail (Amtrak)</td>
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<td>Freight Rail Security Grant Program</td>
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<tr>
<td>Intercity Bus Security Grant Program</td>
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<tr>
<td>Trucking Security Program</td>
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<td>100%</td>
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<tr>
<td>Total</td>
<td>$2.8 billion</td>
<td>$2.7 billion</td>
<td>35.3</td>
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Gainers and Losers

Gainers
- State Homeland Security Program
- Urban Areas Security Initiative (UASI)
- Operation Stonegarden
- Metropolitan Medical Response System
- Citizen Corps Program
- Tribal Homeland Security Grant Program
- UASI Nonprofit Security Grant Program
- Emergency Management Performance Grants
- Interoperable Emergency Communications Grant Program
- Regional Catastrophic Preparedness Grant Program
- Emergency Operations Center Grant Program
- Driver’s License Security Grant Program
- Buffer Zone Protection Program
- Port Security Grant Program
- Intercity Passenger Rail (Amtrak)
- Freight Rail Security Grant Program
- Intercity Bus Security Grant Program
- Trucking Security Program

Losers
- State Homeland Security Program
- Urban Areas Security Initiative (UASI)
- Operation Stonegarden
- Metropolitan Medical Response System
- Citizen Corps Program
- Tribal Homeland Security Grant Program
- UASI Nonprofit Security Grant Program
- Emergency Management Performance Grants
- Interoperable Emergency Communications Grant Program
- Regional Catastrophic Preparedness Grant Program
- Emergency Operations Center Grant Program
- Driver’s License Security Grant Program
- Buffer Zone Protection Program
- Port Security Grant Program
- Intercity Passenger Rail (Amtrak)
- Freight Rail Security Grant Program
- Intercity Bus Security Grant Program
- Trucking Security Grant Program

Source: DHS FY 2009 Preparedness Grant Programs Overview

Prepared by Lorin Bristow
**Products**

**Powder Protection**

Prime Alert is a portable detection system from Smiths Detection that quickly determines the presence of potentially life-threatening microbes — such as anthrax and plague, as well as botulism and ricin — by providing a broad-spectrum analysis. The system tests unknown powder samples and produces on-site results. Prime Alert is composed of a palm-size reader (a fluorometer) and five sampling assay kits. [www.smithsdetection.com](http://www.smithsdetection.com)

**Self-Bagging System**

Millions of sandbags are used annually in the U.S. to protect homes and businesses from rising waters. The Sandbagger, by BCR International, enables one person to fill sandbags, which is traditionally a two-person task. The wide-mouth hopper combined with the twin-bag system allows one person to fill two bags at once or two people to fill two bags continuously. The Sandbagger's folding legs reduce its size by half, making it easy to transport and store. [www.bcin.com](http://www.bcin.com)

**Left of Boom**

New tools are being developed to fight improvised explosive devices and move the battle from "left of boom" (fighting roadside bombs) to disrupting terrorist networks and facilities. One of these tools is RedXDefense's XPAK-i — a device that identifies the source of explosive activity. It's composed of three pieces: the XPAK, which collects and analyzes trace explosives data; the i-module, which creates a record of detection data, including GPS information and samples for further forensics; and XPAK Spotlight, which downloads and maps data to identify hot zones. The unit weighs less than 10 pounds, has the capacity to store hundreds of records and has about eight hours of battery life. [www.redxdefense.com](http://www.redxdefense.com)

**Light 'Em Up**

Triage tags can be difficult to see in snowy, foggy, rainy or dark conditions, but Southwest Synergistic Solutions' Emergency/Triage Lights provide a bright alternative. The light-emitting diode lights are based on the color-coded triage system that uses red, blue and green lights to identify patients based on the severity of their injuries. The lights run on replaceable lithium batteries and, depending on the color, can stay on for 72 to 192 consecutive hours. They were developed in conjunction with the U.S. Special Operations Forces and are rated at more than 100,000 hours of use. For more information, call 956/645-5265.

**Self-Bagging System**

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Wireless Solution Improves Public Safety Across Jurisdictions

About the Oklahoma County Sheriff’s Office
The Oklahoma County Sheriff’s Office provides law enforcement, custodial and court-related services to 650,000 county residents. With a view to strengthening law enforcement throughout Oklahoma, the department works in close cooperation with dozens of local, state and federal authorities.

Situation
Information is often the best weapon in a law enforcement officer’s arsenal. Most Oklahoma County Deputies had access to resources like the FBI’s National Crime Information Center (NCIC), the nation’s central crime database. However, Deputies who served as resource officers in schools or patrolled the county on foot or motorcycle couldn’t connect with NCIC and other databases available to officers in patrol cars. Oklahoma County wanted to protect all its officers — and strengthen law enforcement throughout Oklahoma — by providing access to the best possible information no matter where they were working.

Solution
Wireless networking gives Oklahoma County a speedy way for Deputies and law enforcement officials throughout the state to get vital information. AT&T’s wireless network makes it possible for Deputies to connect seamlessly to state and federal resources with BlackBerry® smartphones equipped with the InterActPocketCop™ application from InterAct Public Safety Systems™. The solution was so valuable to Oklahoma County Deputies that Sheriff John Whetsel made it available to officers throughout the state. Today more than 1,200 officers from 64 Oklahoma law enforcement agencies use Oklahoma County’s infrastructure to help improve their safety and effectiveness on the job.

A Better Way to Connect, Protect Officers
The Oklahoma County Sheriff’s Office relies heavily on technology to fulfill its mission of providing quality law enforcement in a professional, ethical and cost-efficient manner. Sheriff Whetsel uses Twitter™ and MySpace™ to give citizens the latest emergency updates and agency
information. Citizens can also visit the department Web site to get information about sheriff’s foreclosure sales, find out about sex offenders living in the area or view mug shots of most wanted suspects. Crime victims can search for information regarding their suspect’s custody status and register to receive telephone and e-mail notification when the suspect’s status changes.

Technology has long been an important tool for the sheriff’s department. In the late 1990s, a Department of Justice grant enabled Oklahoma County to introduce a computer-aided dispatch program and equip all county patrol cars with ruggedized laptops. The computers give officers access to the NCIC database, motor vehicle registrations and other police resources. As useful as it was for most deputies, Oklahoma County Lt. Matt Jackson said it was soon apparent that the solution was incomplete. “One of the things that we knew very quickly was that we didn’t have a way for the remainder of the agency — specifically resource officers and civil division and warrant division personnel — to access this critical information,” he said.

Deputies who walk a beat, patrol the county on bikes or motorcycles, or serve as resource officers in schools used two-way radios to communicate with dispatchers when they needed information. For their radios to work, the school resource officers often had to leave the school building. “One of their biggest challenges was the functionality of a device they could use inside the school to look at criminal history records, case reports and other things that would help them do their job,” Jackson said.

Providing officers with cell phones improved the situation, but still required dispatchers or other police personnel to research information for the officers who didn’t have laptops. “In a lot of cases, they had to leave the building or even leave the premises to go to the primary communications center to retrieve records and do their case reports,” he said. “That issue arose every day because there is only so much information that can be conveyed via voice and in a timely manner.” The ability to sit down and look at a file, for example, enables them to digest information more effectively than just hearing snippets that come over a voice circuit, he said.

The county began researching ways to give every officer mobile access to information. It was clear they needed a handheld device, Jackson said, but it had to be small enough to carry and easy to use. Battery life, coverage and device functionality were all important; for instance, a QWERTY keyboard was a must if Deputies were to look up information quickly and easily.

Safety, Efficiency, Speed

The Oklahoma County Sheriff’s Office gave deputies BlackBerry smartphones equipped with InterActPocketCop.

“Criminals don’t have jurisdictional boundaries, so providing officers the amount of information that we do today helps us to be more effective at our job.”

— Lt. Matt Jackson
The solution enables Deputies to submit queries to multiple databases simultaneously, such as the state CJIS switch (OLETS) and the Department of Motor Vehicles. Responses are returned in a consolidated, easy-to-read format. “For example, they can find out if there are warrants out for a person in Oklahoma or another state,” Jackson said.

It’s not just Oklahoma County Deputies and citizens who benefit from the solution; the county invited officers from across the state to participate. “Because the infrastructure had a high back-end cost, when we received the Department of Justice grant we offered to share the solution with other agencies,” Jackson explained. Once the department saw the benefits of deploying BlackBerry devices, he said, “Sheriff Whetsel decided to push the infrastructure out to other agencies, affording them the ability to utilize it at little or no cost to their agencies because it was already paid for by the federal grant funds.”

As a result, more than 1,200 officers from 64 Oklahoma law enforcement agencies throughout the state have reliable mobile access to information, thanks to the solution hosted in Oklahoma County. To participate, departments have to purchase the handheld devices, air time and software licenses, but avoid the significant infrastructure investment. The sheriff’s office had expected other law enforcement organizations within Oklahoma County to participate but was surprised and pleased with the number of other agencies that jumped at the chance to become involved in the project.

Deputies appreciate the increased safety, efficiency and speed the BlackBerry smartphones give them in the field. “Now officers that never had access to individual warrant records and booking information can get a better idea of who they are dealing with when they stop someone for a speeding violation,” Jackson said. They can get a lot more detail than is traditionally sent out over the voice circuit, which could lead to a different line of questioning.

**Crime Doesn’t Stop at the Border**

The solution has increased officers’ ability to share information across the law enforcement community. “Criminals don’t have jurisdictional boundaries. They operate from anywhere that they find themselves, migrating between cities, counties and states,” Jackson said. “So providing officers the amount of information that we do today helps us to be more effective at our job.”

Shortly after Oklahoma County deployed its mobility solution, a Deputy was able to reunite a runaway with his family. When the Deputy came upon the teenager walking along a road, his two-way radio system was being held for emergency traffic only. “If he hadn’t had the BlackBerry smartphone the Deputy said he probably would have let the boy go on down the road,” Jackson said. “Because he had the handheld device, he entered
the boy’s name and date of birth and learned he was a juvenile runaway. He was able to return the person to the custody of his parents.

Another county Deputy used his BlackBerry smartphone to identify a stolen car while on a business trip in Pennsylvania. "The solution not only provides benefits to our agency but to the citizens of Oklahoma County and other jurisdictions," he said. "We have the extra functionality that helps us do our jobs day in and day out." The wireless connectivity and the ability to have a BlackBerry smartphone with us 24/7, on and off duty, provide us the ability to be more flexible," Jackson noted. "Undercover officers can use BlackBerry smartphones without arousing any suspicion. It looks like a person is just sending a text message when they are actually able to talk to other units on the scene, run vehicle checks and so forth while the bad guy is standing in front of them."

There’s no problem if an officer loses one of the BlackBerry devices, he said, as the department can easily wipe the devices remotely so anyone who might find it would not be able to retrieve any information.

A Natural Choice
Working with AT&T was a natural choice for the Oklahoma County Sheriff’s Department. "It was the only company that could provide continuity of service through our county," Jackson said. "And as we have gone through the different evolutions of technology, it has just reinforced our decision. Over the years, AT&T has continued to expand the coverage area and the network speed."

He suggests that other departments could benefit from a mobility solution, but advises that the departments do their homework to understand which of the many available options would be the best fit. "For us, a multifunction device, specifically the BlackBerry smartphone, was absolute, because it was a robust solution that would allow us continued management of the device once we issued it to them," Jackson said. "Look at all the solutions and make sure that you are getting exactly what you need."

For more information contact an AT&T Representative or visit us at www.att.com/wirelessgovernment

For more information on BlackBerry Solutions for Public Safety, or to contact a BlackBerry representative, visit www.BlackBerry.com/PublicSafety

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As I survey the nation's emergency management landscape, I see an aging population of emergency managers in leadership positions at all levels of government and industry. It's time to begin cultivating the next generation of emergency managers who will be taking your places.

It isn't unique that Washington state's current leaders in key positions have been there for almost 20 years. About a generation ago there was a transition in leadership and an expansion of the discipline due to an increased recognition of hazards. The 9/11 terrorist attacks created another surge in emergency management with the creation of homeland security and another expansion of emergency management and homeland security jobs.

The impact of 9/11 also created a network of colleges and universities that now offer undergraduate and graduate degrees in emergency management and homeland security. The challenge is getting these newly minted graduates into the governmental system so they can get experience before the old guard retires. I've heard from numerous graduates from these programs who are frustrated about not being able to get hired in government positions, especially at the state and local levels.

Individually there aren't a huge number of emergency management jobs in single jurisdictions, but on a national scale we collectively number in the tens of thousands of people serving in one capacity or another as emergency managers.

For us to grow the next generation of emergency managers we will need to have entry-level positions that allow these younger people to successfully compete for and have a career path within the discipline. Larger private-sector consulting firms are much better at this than government. It's common to have a series of progressive positions in emergency management consulting. It may start with research analyst and then progress with associate, senior associate, program manager, senior program manager, principal, vice president and end with senior vice president of a division.

Here are some steps that you might take to help develop the next generation of emergency managers:

• If you have multiple positions within your emergency management organization, when one becomes vacant, reallocate it to a more junior-level position.
• As the economy picks up, revenues improve and you have the opportunity to hire someone new, don't make the position an "expert" in emergency management. Create an entry-level position that perhaps requires a degree in emergency management.
• Use a homeland security grant to hire at the junior level. With a little bit of supervision and mentoring, you can take enthusiastic hires and make them into the positive program people you would like them to be.
• Leave a legacy by mentoring a junior emergency manager. This doesn't have to be someone in your organization. If you know junior emergency managers who have potential, offer to be available to them to talk about their ongoing projects and the challenges they face. Also be approachable and available to people doing informational interviews on an emergency management career. If we're going to be really successful in our careers, we must prepare the next generation for theirs.
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In the July/August 2009 issue of Emergency Management's Last Word, Arnold Bogis wrote about how local communities need to prepare for an improvised nuclear device. Mr. Bogis is correct that it will be hours and days before there will be a substantial federal response to this sort of catastrophe, therefore local communities must have plans in place to save lives immediately following a nuclear terrorist attack.

Mr. Bogis was wrong when he stated "many communities haven't gotten the point." He said local communities haven't planned adequately because they have assumed that:

• "Any nuclear explosion will completely destroy a major city; and
• The military is the only organization capable of responding."

Nothing could be further from the truth. He pointed to the analysis by the non-profit Trust for America’s Health that states, "Surge capacity remains the largest threat to the nation’s ability to respond to a major catastrophe," as his basis to say that the communities haven't gotten the point.

It should be asked why local communities haven't done anything about surge capacity. Look to any major hospital in the country to find the answer to that. At any given time, our hospital emergency rooms are operating at or above capacity. Health-care providers are trying to treat multiple critical patients at a time. Even critical patients are being housed in hallway beds while more critical patients are being treated in a room, and the waiting rooms are stacked with patients at all levels.

Of course surge capacity means setting up alternate care facilities, but while going to staff these there when are already shortages? One local informal questionnaire of regional hospitals showed that after an earthquake more than 90 percent of health-care workers would try to reach their workplace to help with surge capacity once they knew their families were OK. However, when the same health-care workers were asked about a nuclear terrorist event, just 40 percent said they would return to work even if they knew their families were safe.

The feds will help and bring incredible technical and financial resources with them, but local critical infrastructure operations will still fall on local agencies. The officials should be asking themselves why the response plans for dirty bombs can be "ramped up to deal with nuclear terrorism?"

Maybe, but more likely they've deluded themselves by basing all of their plans on the Planning Guidance for Response to a Nuclear Detonation. Although it’s a well-thought-out document, it is the beginning of the planning process, not the end. The document is too long and probably only read by emergency managers and geeks, not by health-care workers, incident commanders or anybody else who will be in the hazard zones in the early stages of an attack. The document also assumes a level of nuclear understand- ing by first responders, first receivers and the general population that doesn't exist.

This is an almost unthinkable event, and almost impossible to plan for, yet plan for it we must. I recommend the opposite approach suggested by Mr. Bogis. Start with more probable scenarios like a large chlorine release, either terrorist or industrial, find plans from others around the country and incorporate the best of the best, then practice it.

With real drills, the mistakes in the plan will become evident. The hardest part of writing a plan is determining the best way to test it. Drills should be realistic with as much happening in real time as possible and as many players involved as possible. After it’s been tested, modified and tested again, it’s time to add surrounding areas. Soon you’ll have something close to an "all-hazards plan" that’s realistic, known and validated. After that, modifying parts of your all-hazards plan to include an improvised nuclear device will be relatively easy. ❍
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