



Issue Brief



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Disaster Planning and Recovery: 9-1-1 Center Survivability

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The past is a great teacher and hindsight is always 20/20. That said, what have we learned about 9-1-1 communications center survivability since Hurricane Katrina?

- Many 9-1-1 centers do not have disaster response plans in place.
- Most 9-1-1 centers do not have continuity of business plans in place.
- 9-1-1 centers that have disaster response and/or continuity of business plans do not keep them current.
- Most 9-1-1 centers do not train and exercise their disaster response plans.
- Most 9-1-1 centers do not have adequate funding to maintain, train for, and exercise their center's plans.
- Many 9-1-1 centers do not have coherent communications plans that facilitate intra- and interagency communications needs to support local and regional interoperability.

Why does this situation continue to exist, given what we have learned about the importance of preparedness and interagency communications? Two reasons generally are to blame:

1. As noted above, 9-1-1 centers lack financial resources and adequate staff

and expertise to develop, implement, and provide training for disaster response plans.

2. Most 9-1-1 centers are prepared for community disasters—such as tornadoes, floods, and fires—and do very well in meeting public safety responder and citizen expectations when called on during such events. This is not necessarily the case when the 9-1-1 centers themselves are exposed to sudden and extreme changes in operational capability or require evacuation.

Given this reality, what can be done to prepare a 9-1-1 center to sustain a catastrophic event? What can we expect, given past experiences? What can we do to prepare? How do we prepare?

This *Issue Brief* will look at these questions and offer insight into what we might expect and what we need to be thinking about to assist 9-1-1 centers to respond to and recover from major and catastrophic events that affect 9-1-1 operations.

Learning from the Past

What does the past tell us? *We should expect the worst.* Consider these possible

outcomes of a catastrophic event:

- Loss of radio infrastructure, reducing operational radio coverage and leading to the potential failure of the radio system's master site
- Severe reduction in communications capability with public safety providers on the street, in support functions, and at emergency operations centers
- Eventual loss of portable radios because of dead batteries
- Loss of commercial power grids and then of emergency generator power
- Failure of hard-wired 9-1-1 phone lines and/or overwhelming volumes of incoming calls
- Loss of commercial cellular phone and personal digital assistant¹ infrastructure, and eventual loss of coverage
- Physical evacuation and relocation of the 9-1-1 center to an alternate/backup site
- Loss of the structure or structural failure, requiring evacuation, because

¹ A personal digital assistant (PDA) is a digital device that can include the functionality of a computer, a cellular phone, a music player, and a camera.

of the physical location and type of construction of the 9-1-1 center.

How to Prepare

How do we begin to prepare for the worst-case scenario? There are two steps that 9-1-1 centers should address to prepare for catastrophic events:

1. Prepare **policies and directives** addressing events that can affect their operations.
2. Establish **continuity of business** practices to respond, recover, and mitigate the effects of the events on the center and its employees.

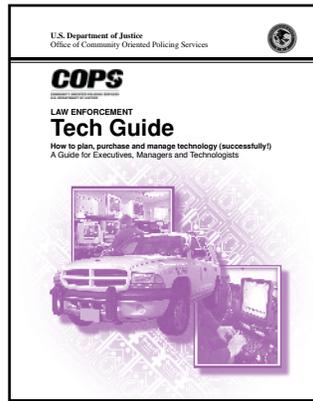
Directives should address how the center will preplan its responses to the unexpected, including identifying and maintaining critical business processes, staff and staff family needs, evacuation plans, and training.

Critical Business Processes

The core mission of a 9-1-1 center is to serve as the community's point of access to public safety resources and as a resource to public safety providers by providing information, additional resources, and communications links.

What are the critical **business processes** that support this mission? How are they identified? How are these critical processes maintained in the event of a catastrophic event within the 9-1-1 center? What risks are associated with sustaining these processes?

One resource we recommend to assist in identifying business processes and developing a risk management plan is the *Law Enforcement Tech Guide: How to plan, purchase and manage technology (successfully!), A Guide for Executives, Managers and Technologists*. This in-depth guide—published by the U.S. Department of Justice Office of Community Oriented Policing Services (the COPS Office)—provides information



To view or download the Tech Guide, see <http://www.cops.usdoj.gov/ric/ResourceMain.aspx?RID=243>.

on how to determine business processes and how to evaluate their relationships with 9-1-1 center operations. Risk management is a rarely used function of planning; however, it is an especially important process in identifying potential obstacles to maintaining critical business processes for 9-1-1 centers.

Emergency Planning

9-1-1 center policies and directives should address **emergency planning** in preparation for a tornado, fire, earthquake, flood, or CBRNE (chemical, biological, radiological, nuclear, or explosive) event.

Establish call-back processes whereby employees are notified by phone or e-mail when these events occur. Failing this, require that employees physically report at the center or at predetermined remote locations. And for those employees who may be out of town or who have been evacuated, establish contact procedures so that these employees can be located and their safety assured.

The policies also should take into consideration the families of center employees. Encourage employees to promote family preparedness. Consider offering joint training for employees and family members. If employees are off duty and being recalled, preplan the notification and response times so that employees may arrange for the safety and care of their families. If employees are on duty, preplan ways for them to ensure that their families are safe and cared for. Failure to address family issues may result in employees not reporting for duty, leaving their duty positions, and at the very least being seriously distracted from their job responsibilities when their full attention is needed most.

The policies should also address emergency supplies, fresh water, food, clean

“(I) would suggest that they be prepared for (a) stay beyond 72 hours. Consider in the case of (Hurricane) Katrina, we lost all vendor support for a period of time and city procurement/ purchasing did not return until almost six weeks after the storm.”

— **F.G. Dowden**
Office of the Mayor,
Office of Homeland Security
City of New Orleans, Louisiana



air, and warmth for working employees, with a minimum of a 72-hour supply available. Preplan to keep critical supplies readily available, particularly such items as garbage bags, plastic sheeting, duct tape (to seal a room), dust or filter masks, battery-powered commercial and weather radios, extra batteries, wet/dry vacuums, fans, small toolkits, and other items. Identify items needed for a longer

duration crisis to expedite their acquisition. Preplan long-term medical care for employees so that emergency care and necessary medicines are available for on-duty workers.²

² For information on shelter-in-place recommendations from the Department of Homeland Security, see online resources at <http://www.ready.gov> and <http://www.fema.gov/areyouready/>.

Make sure the following documents are accessible by computer and hard copy (in case computers are not functioning): Center facility plans, employee contact information, emergency requisition papers, and directives, along with critical company supplier contact information.

Preplanning

9-1-1 centers should hold routine disaster **preplanning** discussions and processes with their organization’s information technology, finance, and facility support departments. For example, 9-1-1 centers should do the following:

- Understand how to contact technicians and ensure that the vendor technicians are given proper instructions and authorizations to get to the sites.
- Know how to shut off their center’s heating, ventilation, and air conditioning (HVAC) unit to retain the building’s environmental integrity—and practice these procedures routinely.
- Develop a decision matrix to assist with stressful decision-making, such as planning to stay or go, when to shelter in place, when to evacuate, and where to relocate. 9-1-1 centers should have an evacuation plan and practice it routinely.

Center communications preplanning should focus on the “how” of interagency communications. Command and control remain at the heart of any center’s incident action plan, and 9-1-1 centers are key to the success of incident action-plan design and capability to effect the delivery of public safety services. Be acutely aware that technology is just a means to an end; too much focus or reliance on any one technology to provide the “how” of communications will open the center’s mission to failure.

Those 9-1-1 centers that provide training for their organization and center staffs should include specific training on plans



that identify local and regional communications resources (routine talkgroups or frequencies to use, mutual aid agreements, gateway availability). Here, too, consider developing a decision matrix to assist in determining what communications methods are available to public safety responders when regular communications paths fail, and include this in regular training and exercises.

The communications preplan is essential for 9-1-1 centers to rapidly assess the impact of the incident on operational communications. If center staff and public safety responders do not understand their communications plan, they have little chance to react to the loss of communications capabilities or to adjust their operations during unusual occurrences or catastrophic events.

Preplanned incident action plans are an effective means of tactical planning and should include outlining **who** needs to talk **to whom** and **how** responders will communicate during the incident—particularly if communications capabilities

cease or are severely limited. Review these plans and exercise them routinely.

Preplanned and scheduled reductions in communications capability are a good way to exercise and train dispatchers and first responders. Training that will be of significant benefit to managers, first responders, and dispatchers involves shutting down individual repeaters, placing trunked controllers and sites into fail modes, then allowing first responders to not only experience the event, but also to work without communications capability for a period of time.

9-1-1 center managers may need to overcome liability concerns from within the organization regarding the intentional cutting of com-

munications capabilities to enable first responders to work under this planned scenario communications problem. The experience gained through this training far outweighs the liability that will surely occur if first responders end up working in this situation in real life *without* prior training.

Another preplanning exercise that can provide excellent knowledge about system capacity and performance—and test an existing communications plan or assist in the development of an effective plan—is placing the system under a maximum response. Setting a training day when all radio system users are on the system at the same time will test the communications plan assumptions and knowledge of the communications plan and the National Incident Management System Incident Command System (NIMS ICS)³ on the part of supervisors,

³ NIMS ICS is addressed in Homeland Security Presidential Directive 5 (HSPD-5), “Management of Domestic Incidents,” issued February 28, 2003. See <http://www.whitehouse.gov/news/releases/2003/02/20030228-9.html>.

dispatchers, and first responders. Training events such as these are invaluable opportunities to train and exercise all components of the radio system, whether human or technological.

Such exercises offer valuable and real-world data to developing disaster preparedness plans and evaluating the three components of local and regional interoperability: **technology, incident management, and communications planning**.

One well-known example of effective preplanning is the handling of the crash of United Flight 232 at the Sioux City (Iowa) Gateway Airport on July 19, 1989. Years of preplanning, training, and regional exercises enabled the Sioux City public safety community to respond effectively to what otherwise might have been a catastrophic incident response that could have overwhelmed public safety responders and local resources, and placed victims at an even higher risk.

A common trait in organizations that successfully navigate and ultimately survive a serious or catastrophic event is **preplanning that is supported by training and exercises**.

Risk Management

A **risk management plan** should identify the most critical components of the 9-1-1 center’s infrastructure—e.g., radio master controller, site generator, battery backup time limits, 9-1-1 center generator, critical repeater sites—and what type and numbers of failure points may affect them.

The plan should consider what components of this critical infrastructure could be lost and *still* maintain the center’s communications network, radios, and phones. Identify what the center *must* have, then plan alternatives to restore service when a particular critical function is lost. Consider the following alternatives:



"I don't know how to emphasize more the criticality of planning, training and exercising in preparation for an event. You absolutely have to plan for the worst. Fatigue brought on by long work hours and sleep deprivation impacts your folks physically and mentally, and the only way to overcome that is through planning and preparation. If you apply risk management to your training and exercise program, you will identify even more areas where you can improve your preparedness and then attempt to leverage your lessons learned to seek additional resources. Hopefully, it provides you with quantifiable proof of where you need to prioritize your efforts and resources. There needs to be a backup plan! Where are calls forwarded when the 9-1-1 center goes down, and how do you link to your dispatch folks? A mutual aid agreement with a neighboring jurisdiction or the state may provide the answer. In New Orleans, the backup for NOPD [New Orleans Police Department] was NOFD [New Orleans Fire Department], and vice versa, but we lost both of them. 9-1-1 calls rolled over to the State Police headquarters in Baton Rouge and then had to be downloaded onto spreadsheets and then forwarded via email or courier to New Orleans 80 miles away. The spreadsheets then had to be manually screened by NOPD and police dispatched. For several days, we had no way of forwarding the information."

— F.G. Dowden
Office of the Mayor
Office of Homeland Security
City of New Orleans,
Louisiana

PORTABLE RADIOS / In-vehicle chargers/AA battery attachment (if available from vendor).

REPEATER/TOWER / Maintain spare repeater antennas/preidentify ad hoc tower replacements (for example, bridges, cranes).

SITE GENERATORS / Prearrange availability and prestage mobile generators.

GENERATOR FUEL / Prearrange availability and prestage fuel trucks.

SITE ACCESS / Prearrange transport for site repair/refueling by boat or all-terrain vehicle.

COMMUNICATIONS LINKS / Provide redundant communications links for microwave, hard wire, fiber, or satellite communications phones, when possible. Prestage and train with amateur radio operators.

Hurricane Katrina revealed that hard-wired phone service and wireless access will most likely fail. Data messaging services could be available, intermittently. Satellite phones do not work well in urban areas and inside buildings. Internet service is intermittent but may be functional, depending on the condition of the service provider's infrastructure. Gateways will not function as planned.

Deploy amateur radio operators at critical communications points, such as local and state emergency operation centers, mass transportation dispatch points, and other key critical public safety partners. Ham radio operators provide a proven parallel communications path.

Continuity of Operations

In planning for the worst-case scenario, the primary objective is to **survive the event and continue to deliver basic and critical communications functions**. Part of that survival involves

reducing or eliminating nonemergency calls that can swamp centers with panicky requests for information. Whether from the public on 9-1-1 lines, off-duty responders on administrative lines, or otherwise, nonemergency calls requesting or offering information can overwhelm a center's capabilities. Prompt activation of the Emergency Alert System⁴ and use of 3-1-1 call centers⁵ are proven means of managing public demands for information during disasters.

The second objective for planning is **rapid recovery of operational activities**. The planning and implementation of this recovery process is called Continuity of Operations (COOP), which consists of the following planning activities:

- Risk assessment
- Business impact analysis
- Emergency management planning
- Mitigation plans
- Contingency plans
- Response
- Recovery
- Resumption plans.

Most of these activities have already been discussed under the **How to Prepare** section of this *Issue Brief*. It is worth noting the emphasis and importance of the planning function under the topic of survivability.

⁴ Information on the Emergency Alert System established by the Federal Communications Commission and jointly administered by the Federal Emergency Management Agency can be found online. See <http://www.fcc.gov/pshs/eas/>.

⁵ For further information, see online resources available through the COPS Office at <http://www.cops.usdoj.gov/default.asp?Item=111#311>.

Planning

Planning is an oft-forgotten organizational activity. It falls by the wayside for many reasons: lack of executive understanding or interest, lack of available personnel, lack of personnel skills in planning, lack of funding, and lack of time. Some of these reasons are outside the control of most 9-1-1 center managers and supervisors.

What, then, are the options for center managers? A first step is to use the original *Law Enforcement Tech Guide*.⁶ The Guide provides a comprehensive but simple overview of the planning processes. In relation to the COOP plan, the *Law Enforcement Tech Guide* provides a step-by-step process to identify and manage critical business practices.⁷ A second option for 9-1-1 center managers is to seek technical assistance in developing an assessment of business processes and a risk management plan for the center. This technical assistance resource is available from the COPS Office. (See box on page 8.)

⁶ A series of four complementary *Law Enforcement Tech Guides* were developed by SEARCH: *Small and Rural Police Agencies*; *Communications Interoperability*; *Information Technology Security*; and *Creating Performance Measures That Work*. These guides are also available from the COPS Office, <http://www.cops.usdoj.gov>.

⁷ See Chapter 4, *Assess Current Business Processes*, and Chapter 12, *Create a Risk Management Plan*.

Conclusion

This *Issue Brief* discussed what the past has revealed regarding the obstacles to 9-1-1 center post-disaster survivability and the vital role that 9-1-1 centers play in interagency communications. This document has also addressed what managers should consider that will assist in preparing 9-1-1 centers for the next catastrophic event. What cannot be provided is the *commitment* required to prepare a center's employees, organization, and community for the worst that can happen. The past has clearly shown that we *should* expect the worst. The probability that your community's 9-1-1 center will experience "the worst" is a reasonable assumption, as past experience has shown us. The past also shows what happens when 9-1-1 centers fail to plan and, therefore, are not prepared to deal with the inevitable. ■

For additional information and assistance on public safety technologies and their management, see <http://www.search.org/programs/safety/>.

"You can be prepared, but you can never be ready."

— Captain Al Haynes
Pilot of United Flight 232,
Sioux City, Iowa,
July 19, 1989



Technical Assistance Available

SEARCH is the technical assistance (TA) provider to the U.S. Department of Justice Office of Community Oriented Policing Services (COPS) Interoperable Communications Technology Program (ICTP). SEARCH is a national nonprofit organization that has provided more than 37 years of expert assistance to state and local criminal justice agencies on the use of information and identification technology. SEARCH has a long-standing program of providing direct, no-cost, tailored TA to law enforcement and public safety agencies in planning for, procuring, implementing, and managing information technology.

Areas of Assistance:

- Effective governance structures development
- Strategic planning
- Infrastructure assessment and development
- Needs analysis and assessment
- Operational requirements development
- Policy and procedure development
- Risk management

To apply for TA in these areas or review additional SEARCH TA focus areas, see <http://www.search.org/services/ta/>.

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