

Background

No. 2021
March 29, 2007



Published by The Heritage Foundation

Improving Emergency Communications: Lessons from Grading America's Cities

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The Department of Homeland Security (DHS) released *Tactical Interoperable Communications Scorecards: Summary Report and Findings* on January 3, 2007. The report assesses 75 metropolitan areas' progress in strengthening communications systems for dealing with all types of emergencies, from terrorist incidents to natural disasters.

Grades are important—citizens have a right to know how well their communities are doing—but for the Administration and Congress, the report holds more important lessons for learning how best to help states and local communities contribute to building a national disaster preparedness and response system that will make all Americans safer. The report found that federal programs that empower local communities are more effective than programs that just throw money and mandates at them.

Disaster to Disaster

The efficacy of emergency communications has been a long-standing issue of concern. In reviewing the major lessons from the 2001 terrorist attacks on the United States, the National Commission on Terrorist Attacks Upon the United States (the 9/11 Commission) concluded in its final report:

The inability to communicate was a critical element at the World Trade Center, Pentagon, and Somerset County, Pennsylvania, crash sites, where multiple agencies and multiple jurisdictions responded. The occurrence of this problem at three very different sites is strong

Talking Points

- A recent DHS report assessed the progress of 75 metropolitan areas in strengthening communications systems for dealing with all types of emergencies, from terrorist incidents to natural disasters.
- The report concluded that strategic planning and other formal governance processes, such as allocating responsibility and oversight of programs, remained inconsistent and underdeveloped, with few urban and metropolitan areas having developed strategic plans for interoperable communications.
- Congress can help to build a robust and sustainable national emergency management communications capacity by resisting the temptation merely to throw resources and requirements at the problem.
- What is needed most are federal initiatives that empower local leadership, nurture good governance, and encourage regional cooperation.

This paper, in its entirety, can be found at:
www.heritage.org/research/homelanddefense/bg2021.cfm

Produced by the Douglas and Sarah Allison
Center for Foreign Policy Studies
of the
Kathryn and Shelby Cullom Davis
Institute for International Studies

Published by The Heritage Foundation
214 Massachusetts Avenue, NE
Washington, DC 20002-4999
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evidence that compatible and adequate communications among public safety organizations at the local, state, and federal levels remains an important problem.¹

The well-publicized communications difficulties that first responders encountered on September 11, 2001, only highlight systemic shortfalls in emergency communications systems that affect law enforcement, fire and rescue, medical workers, and other emergency management personnel from multiple jurisdictions within a common community.²

Despite the robust national response to the 9/11 attacks, communications interoperability problems have persisted. Much of the disarray seen during the initial response to Hurricane Katrina in August 2005 resulted from the toppling of communication towers during the storm, which disrupted cellular telephone lines and other civilian communication infrastructure employed by many emergency responders. This was exacerbated by inadequate local plans for reconstituting communications, requesting state and federal assistance, and sharing information.

Katrina served as a reminder that lack of “hardware” was not the most significant problem in establishing effective emergency management communications. Equally if not more important was the paucity of coordinated response, established procedures and protocols, and preparatory contingency planning.³

Washington Responds

After 9/11, America immediately began to address the limitations of the responder community. The federal government accelerated its efforts to strengthen communications interoperability among the hundreds of federal, state, local, and private emergency agencies that would respond to a major disaster. From the outset, the emphasis from Washington, particularly from Congress, was on providing responders with things rather than enhancing their capacity to coordinate actions.

The 9/11 Commission recommended that Congress adopt legislation to accelerate and increase the assignment of radio spectrum (portions of the airwaves that are used to carry radio, television, and digital communications) for public safety purposes.⁴ Congress subsequently enacted a law requiring television broadcasters to make a portion of the radio spectrum available to emergency response agencies and also established a new DHS office to supervise the spectrum transfer.

Congress and the Administration also provided substantial resources for other communications initiatives. From 2003 to 2005, the DHS distributed over \$2 billion to state and local governments through its Interoperable Communications Technical Assistance Program (ICTAP).⁵ Other federal initiatives have provided almost \$1 billion in additional funding to enable state and local agencies to

1. National Commission on Terrorist Attacks Upon the United States, *The 9/11 Commission Report: Final Report of the National Commission on Terrorist Attacks Upon the United States* (New York: W.W. Norton and Company, 2004), p. 397, at www.9-11commission.gov/report/911Report.pdf (January 30, 2007). See also James Kendra and Tricia Wachtendorf, “Elements of Resilience in the World Trade Center Attack,” University of Delaware, Disaster Research Center *Preliminary Paper* No. 318, 2001, pp. 6–9, at www.udel.edu/DRC/Preliminary_Papers/pp318.pdf (March 23, 2007). Significant controversy remains over the cause of the communications breakdown during rescue efforts in the north tower of the World Trade Center on September 11, 2001. As a result of interrupted signals, some emergency workers were not evacuated before the building collapsed. Some blame failure of the repeater installed in the building—a device specifically designed to boost the radio transmissions of first responders inside the building. Others claim that human error may account for communication breakdowns. See McKinsey and Company, *Increasing the Fire Department of New York’s Preparedness*, 2002, p. 7, at www.nyc.gov/html/fdny/html/mck_report/toc.html (March 23, 2007), and Jim Dwyer and Kevin Flynn, “9/11 Tape Raises Added Questions on Radio Failures,” *The New York Times*, November 9, 2002, p. A1.
2. National Research Council, Committee on Army Science and Technology for Homeland Defense, *Army Science and Technology for Homeland Security: Report 2—C4ISR* (Washington, D.C.: National Academies Press, 2004), pp. 42–64, at www.nap.edu/openbook.php?isbn=0309091640 (March 23, 2007).
3. Nancy J. Victory, “The FCC’s Independent Panel on Katrina’s Impact on Communications: The Chair Reports,” *The Metropolitan Corporate Counsel*, Vol. 14, No. 7 (July 2006), at www.wileyrein.com/docs/publications/12691.pdf (March 23, 2007).
4. National Commission on Terrorist Attacks Upon the United States, *The 9/11 Commission Report*.

purchase equipment and pursue other projects to improve communications interoperability.⁶

The federal government's initial priority was to improve command, control, and communications processes within 10 major high-threat urban areas through the 2004 RapidCom Initiative. The DHS also took over responsibility for managing the Wireless Public Safety Interoperable Communications Program (SAFECOM) within its Office for Interoperability and Compatibility, but this initiative has suffered from its limited authority to oversee funding and coordinate the myriad federal, state, and local programs creating such networks.

More recent programs have sought to extend incident communications interoperability to wider regions surrounding urban centers.⁷ For example, the DHS Office of Grants and Training administers ICTAP, which funds efforts to enhance interoperable communications among federal, state, and local emergency responders and public safety agencies.⁸

In December 2006, the DHS released the results of a National Interoperability Baseline Survey of 22,400 emergency response agencies.⁹ Of the 6,819 agencies that responded, approximately two-thirds had developed some communications interoperability with other emergency response agencies.¹⁰ On the other hand, the DHS acknowledged that only about 10 percent of the responding communities could achieve interoperability consistently.¹¹

Keeping Score

The January 2007 scorecards complement the survey, which relied on self-assessments, by providing more objective grading. The 2007 survey judged the communities' progress in achieving tactical communications interoperability in three broad areas:

- Strategic planning to coordinate emergency services across different political jurisdictions,
- Standard disaster response policies and procedures, and
- Training exercises under simulated crisis conditions.

The SAFECOM Interoperability Continuum and Interoperability Maturity Assessment Model had identified these factors as the most important criteria for measuring interoperability among emergency response capabilities.

The survey assessed interoperability in major cities and surrounding communities because responders from neighboring areas would typically provide assistance during a major crisis. In addition, many emergency response agencies have regional mutual aid agreements that provide for collective management of any large-scale emergency. Several of the assessed areas include responders from multiple states. For example, the National Capital Region encompasses jurisdictions in the District of Columbia, southern Maryland,

5. U.S. Department of Homeland Security, Preparedness Directorate, Office of Grants and Training, *State Interoperable Communications, DHS Funded Activities, Fiscal Years 2003–2005*, May 2006, p. 9, at www.ojp.usdoj.gov/odp/docs/State_Interoperable_Communications.pdf (March 23, 2007).
6. U.S. Department of Homeland Security, *Tactical Interoperable Communications Scorecards: Summary Report and Findings*, January 2007, p. 4, at www.dhs.gov/xlibrary/assets/grants-scorecard-report-010207.pdf (March 23, 2007).
7. For a description of RapidCom, see U.S. Department of Defense, "Fact Sheet: RapidCom 9/30 and Interoperability Progress," July 30, 2004, at www.dhs.gov/xnews/releases/press_release_0470.shtm (March 23, 2007).
8. U.S. Department of Homeland Security, Preparedness Directorate, Office of Grants and Training, "Interoperable Communications Technical Assistance Program (ICTAP)," updated December 5, 2006, at www.ojp.usdoj.gov/odp/ta_ictap.htm (March 15, 2007).
9. SAFECOM defines communications interoperability as "the ability of emergency response agencies to talk across disciplines and jurisdictions via radio communications systems, exchanging voice and/or data with one another on demand, in real time, when needed, and as authorized." U.S. Department of Homeland Security, "Frequently Asked Questions," at www.safecomprogram.gov/SAFECOM/about/faq (March 15, 2007).
10. SAFECOM, "2006 National Interoperability Baseline Survey," December 2006, p. ES-1, at www.safecomprogram.gov/NR/rdonlyres/40E2381C-5D30-4C9C-AB81-9CBC2A478028/0/2006NationalInteroperabilityBaselineSurvey.pdf (March 23, 2007).
11. Associated Press, "Report: Only 6 U.S. Cities Excel in Crisis Communications," January 2, 2007, at www.cnn.com/2007/US/01/02/emergency.communications.ap/index.html (unavailable March 23, 2007).

and northern Virginia. The scorecards also incorporated metrics relating to communications equipment and technologies and how the responders planned and trained to use them.

In the report, the scores are displayed as Harvey Balls (pie charts with zero to four quarters shaded). Because all of the metropolitan regions receiving Tactical Interoperable Communications Plan (TICP) grants had established some communications interoperability, each metropolitan or urban area has at least one-quarter of the ball shaded, representing “early implementation.” Those areas deemed to have achieved greater progress had two, three, or all four quarters filled, representing “intermediate,” “established,” and “advanced” implementation, respectively.

The reviewers found that all 75 urban and metropolitan areas had met the minimal requirement for DHS grants, meaning that they had developed a TICP that could apply during the first hour of a crisis. The scorecards also detected a strong and widespread commitment among emergency responders to enhancing communications interoperability across their specific disciplines and jurisdictions. Nearly 70 percent of the areas surveyed effectively established regional interoperability. Moreover, multi-agency communications occurs on a daily basis in 80 percent of the urban and metropolitan areas. Recently, Atlanta demonstrated the TICP’s effectiveness by providing the Federal Bureau of Investigation with radio support after its equipment failed.

Nevertheless, the survey concluded that strategic planning and other formal governance processes, like allocating responsibility and oversight of programs, remained inconsistent and underdeveloped. Beyond TICP operational policies, few urban and metropolitan areas have developed strategic plans for interoperable communications: 58 percent currently have no plans under development, 18 percent have plans in development but not adopted, and only 24 percent have fully implemented plans.

Some cities have to address long-standing operational issues. The City of Chicago and Cook County spent several decades developing independent radio communications systems. While city and

county leaders agree on the necessity of an interoperable communications system, procedural differences in developing and adopting agreements between the county and the city have stalled additional planning.

The assessments also concluded that the areas of Columbus, Ohio; Laramie County, Wyoming; Minneapolis–St. Paul, Minnesota; San Diego, California; Sioux Falls, South Dakota; and the National Capital Region around Washington, D.C., have developed the most resilient emergency tactical communications systems. In contrast, the DHS found that American Samoa; Baton Rouge, Louisiana; Chicago, Illinois; Cleveland, Ohio; and Mandan, North Dakota, had achieved the lowest level of emergency communications resiliency.

Lessons Learned

For Washington, understanding how communities improved is more important than assigning the individual grades. The federal government is responsible for making all Americans safer and establishing a national preparedness and disaster response system that will allow the nation as a whole to respond to catastrophes that overwhelm local and state governments. Thus, Washington needs to focus its assistance on bolstering overall national capacity rather than fretting over the needs of individual cities and states. In that regard, the scorecards have a number of lessons to teach.

Lesson #1: Federalism works.

Federalism holds that the people closest to a problem will have the best solutions to that problem and should have the preponderance of the authority and responsibility for fixing it. Respecting this principle, the DHS employed primarily a bottom-up approach toward building communications interoperability. The report suggests that this is the right approach: “Areas that were empowered to develop a TICP based on a ‘bottom-up’ approach of a collaborative, regional nature scored higher in Governance than those areas in which a ‘top-down’ state-centric approach was used.”¹² Clearly, the best answers to addressing this issue are not always found in Washington or even in state capitals.

12. U.S. Department of Homeland Security, *Tactical Interoperable Communications Scorecards*, p. 8.

In addition, according to the scorecards, effective interoperable communications capabilities extending across geographic communities within states remain rare. Furthermore, although more than 60 percent of the local responders surveyed achieved considerable ability to communicate with each other during a crisis, only 21 percent demonstrated the capacity to converse with state and federal officials during an emergency.

The current system lacks capabilities for interstate planning and coordination to better facilitate development of integrated TICP efforts. The federal government could provide leadership in this effort by:

- **Emphasizing coordinated planning between the TICP and the Integrated Wireless Network (IWN).** The IWN is a joint program of the Departments of Justice, Homeland Security, and Treasury to provide a nationwide system of voice and data communications for law enforcement, homeland security, national emergencies, and other operational missions.¹³

Lesson #2: Practice makes perfect.

The DHS required the 75 metropolitan areas to conduct large-scale exercises between May and September 2006 to validate their TICPs, and the exercises exposed numerous problems in local response systems and procedures. Experience with real-world challenges also appears to strengthen performance.

After emergency crisis managers in the San Diego region encountered serious communication problems while responding to devastating wildfires in 2003, the region's authorities undertook a sustained effort to bolster their capabilities. As a result, they achieved some of the highest scores in the January

2007 evaluation.¹⁴ To encourage others to achieve similar results, the DHS should:

- **Employ a national training and exercise program that tests emergency communication systems.** This must be a central part of the long-term solution to improving readiness.

Lesson #3: Win the “battle of the badges.”

In areas where progress has not been made, one of the major reasons is a failure in leadership. Local disagreements continue to impede tactical communications interoperability among some responder communities. Police officers, firefighters, and medical personnel have developed unique long-standing communication procedures (e.g., shorthand codes) that they remain reluctant to abandon. Moreover, emergency response communities continue to argue over which department's communication protocols should apply under various circumstances.

In many cases, the communities that made the most progress adopted recently established DHS guidelines for national standards and then practiced them through a disciplined program of tests and exercises.¹⁵ However, adequate backup capabilities for wide-scale disasters are still lacking. To address this problem, the DHS should:

- **Continue to emphasize national standards.** Standards are vital for providing a framework for critical common operational practices, including communications protocols.

Lesson #4: Fix a flawed legacy.

On-hand communications equipment, which can have a technical lifecycle of 10–20 years, is a significant barrier to communications interoperability. For example, the “very extensive and expensive

13. Vance E. Hitch, Chief Information Officer, U.S. Department of Justice, testimony before the Subcommittee on Telecommunications and the Internet, Committee on Energy and Commerce, U.S. House of Representatives, September 29, 2005, at <http://republicans.energycommerce.house.gov/108/hearings/09292005Hearing1648/hitch.pdf> (March 15, 2007).

14. U.S. Department of Homeland Security, *Tactical Interoperable Communications Scorecards*, p. A15. See also “Report Gives San Diego Area High Marks for Emergency Communication Preparedness,” *North County Times* (San Diego), January 3, 2007, at www.nctimes.com/articles/2007/01/04/news/sandiego/12_58_431_3_07.txt (March 15, 2007).

15. The evaluators of the National Capital Region were so impressed by the region's progress in resolving these issues that they recommended that its intergovernmental committees assist the governments of Maryland and Virginia to achieve greater communications interoperability throughout their states. U.S. Department of Homeland Security, *Tactical Interoperable Communications Scorecards*, p. A56.

legacy radio communications systems” developed independently by the City of Chicago and Cook County have complicated efforts to establish an interoperable communications system in the Chicago urban area.¹⁶

For decades, public safety agencies have deployed a plethora of technologies, much of them outdated compared to what is commercially available. Local officials with limited budgets find it difficult to abandon existing communications systems, which may function adequately under normal conditions, until new alternate technologies with enhanced capabilities have proven both affordable and reliable. Besides the costs involved in rapidly making the transition to a new communications network, scrapping existing technologies before a replacement system is in place would create major vulnerabilities.

The most cost-effective approach is to allow emergency responder communities to retain existing communications technologies while progressively incorporating new ones. Communities have already demonstrated that this strategy works. According to the DHS scorecard, the Twin Cities of St. Paul and Minneapolis have made “commendable” progress in incorporating their legacy communications procedures into their current system. The report concluded that the way they did it “should be considered a best practice.”¹⁷

The best way for Washington to speed this process is by encouraging the adoption of more affordable and more capable commercial off-the-shelf technologies. Specifically, Congress should:

- **Open emergency management spectrum to dual use for the public and emergency responders.** Simply providing more spectrum as advocated by the 9/11 Commission is not the answer. Emergency management agencies do not use the available spectrum efficiently; nor do they have capability to do so, at least compared to the commercial sector. Making the spectrum dual-use while ensuring that responders have priority and secure communications will encourage private-sector investment and give responders access to greater capabilities at lower cost through adoption of commercial off-the-shelf technology.¹⁸

Lesson #5: Make federal dollars matter.

Many state and local leaders argue that they need more federal funding to enhance emergency management communications.¹⁹ Indeed, in some cases, an infusion of federal funds clearly made a difference.

For example, one reason that Boston and its surrounding communities scored so highly was that the region received considerable federal funds and equipment to improve emergency communications for the 2004 Democratic National Convention.²⁰ In contrast, Baton Rouge was rated in the bottom 10 on the scorecards and was among the bottom 10 cities in receiving homeland security grants. On the other hand, the Chicago area ranks among the cities receiving the most homeland security grants but ranked in the bottom 10 on the scorecards. Sioux Falls was rated in the top 10 in achieving high interoperability scores but was not among the cities receiving the most federal grants.

16. *Ibid.*, p. A34.

17. *Ibid.*, p. A50.

18. James Jay Carafano, Ph.D., “Talking Through Disasters: The Federal Role in Emergency Communications,” Heritage Foundation *Background* No. 1951, July 17, 2006, at www.heritage.org/Research/HomelandDefense/bg1951.cfm, and James L. Gattuso, “Cyren Call and Siren Calls: Spectrum Allocation for Emergency Communications,” Heritage Foundation *WebMemo* No. 1346, February 6, 2007, at www.heritage.org/Research/Regulation/upload/wm_1346.pdf.

19. In a U.S. Conference of Mayors survey of 183 local governments on homeland security and emergency preparedness, 80 percent of respondents said that they had not yet received sufficient federal resources to achieve full communications interoperability. U.S. Conference of Mayors, Homeland Security Monitoring Center, *Five Years Post 9/11, One Year Post Katrina: The State of America’s Readiness*, July 26, 2006, p. 1, at www.mayors.org/uscm/news/press_releases/documents/disasterpreparednesssurvey_2006.pdf (March 15, 2007).

20. Bryan Bender, “High Marks for Boston’s Crisis Response: Some N.E. Areas Not Equipped for Disasters, US Says,” *The Boston Globe*, January 4, 2007, at www.boston.com/news/local/massachusetts/articles/2007/01/04/high_marks_for_bostons_crisis_response (March 23, 2007).

While homeland security grants help, they clearly are not the only factor determining how successfully communities improve their communications programs. In many cases, strong local leadership and establishing effective governance programs or emergency communications initiatives appear to be just as important, if not more important, in achieving success. The majority of federal funding from the State Homeland Security Grant Program and Urban Area Security Initiative (the two major grant programs administered by the DHS) are already spent or allocated to interoperable communications projects.²¹ These funds are in addition to the \$1 billion Interoperability Grants Program, which is administered by the DHS and the Department of Commerce.

The uneven results from these federal programs argue that simply throwing more money at the problem is not the answer. How the federal government spends its grant dollars is more important than how much it spends in achieving effective, high-quality, and sustainable local initiatives. The current effort can be improved by:

- **Consolidating existing programs, not authorizing new grant programs**, to focus resources on the state and local initiatives that show the most promise in implementing best practices, cooperative regional solutions, and national guidelines and standards.

In the first months of the 110th Congress, the Senate and House passed bills purporting to implement recommendations of the 9/11 Commission. Both bills emphasized emergency responder communications. Regrettably, they do not reflect the lessons learned from the urban scorecards. Both bills call for a grant category to assist states and communities in building interoperable communications systems.

Although improving emergency communications is a laudable objective and consistent with the 9/11 Commission's recommendations, the commission also warned that homeland security grants are in danger of becoming vehicles of pork-barrel legislation, viewed by states as a means to supplant their own obligations to provide emergency services or to

purchase capabilities that are not essential for safety and security. Indeed, significant amounts of past homeland security grants have arguably been used ineffectively.

While federal assistance for emergency management communications initiatives is reasonable, they can and should be funded out of existing homeland security grant programs for states, displacing wasteful and inefficient efforts that have done little to meet national priorities.

Speaking with One Voice

Congress can help to build a robust and sustainable national emergency management communications capacity that will serve Americans well during disasters and national catastrophes, but to build this capability efficiently and effectively, Members need to resist the temptation merely to throw more resources and requirements at the problem.

What is needed most are federal initiatives that empower local leadership, nurture good governance, and encourage regional cooperation. These goals can be achieved far more effectively by:

- **Insisting** on a well-coordinated national exercise program that serves the needs of states and local communities;
- **Promoting** the adoption of national standards;
- **Coordinating** federal efforts, such as the IWN, with state and local initiatives;
- **Providing** incentives for private-sector investment by establishing dual-use spectrum; and
- **Consolidating** homeland security grant programs into a single, disciplined, focused program that puts national needs first.

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21. U.S. Department of Homeland Security, *State Interoperable Communications*.